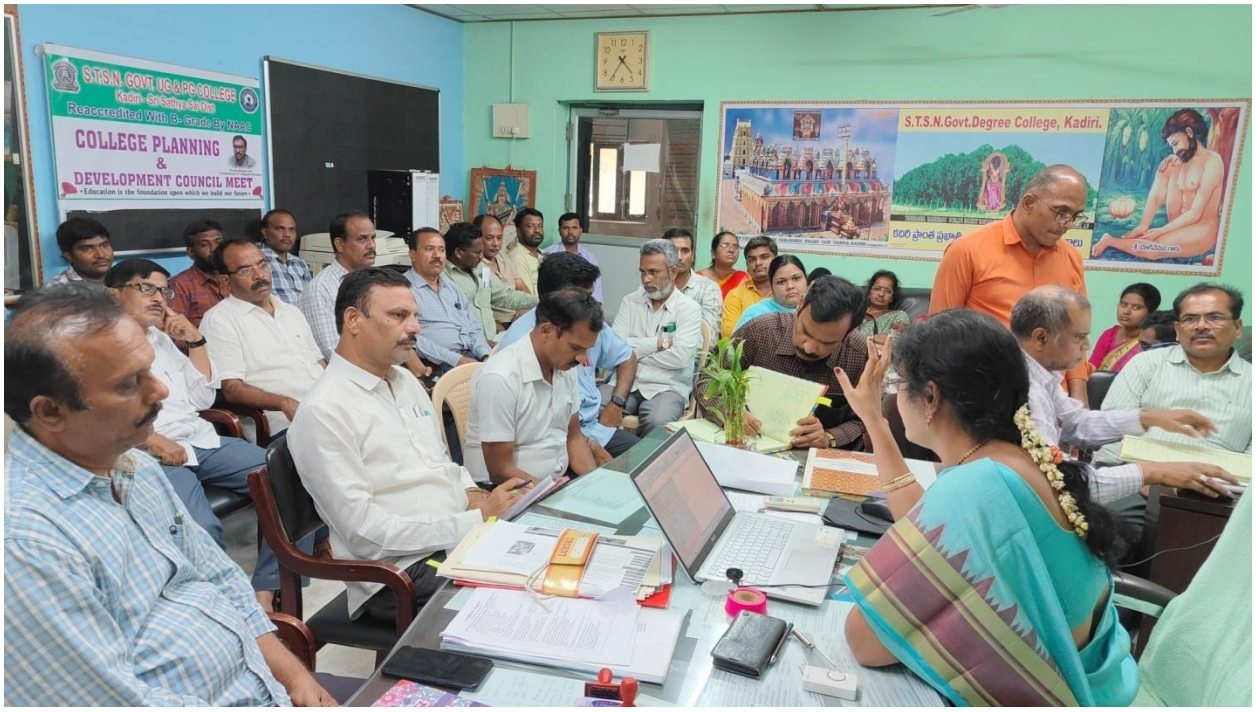
S.T.S.N. GOVT. DEGREE COLLEGE
KADIRI - 515591
Sri Sathya Sai Dist. - A.P.

2.6.1 - Teachers and students are aware of the stated Programme and course outcomes of the Programmes offered by the institution.

Course Outcomes as well as Learning Outcomes prescribed by the affiliating university depend upon the nature of course and the subject concerned. These outcomes which are well defined by the APSCHE and the affiliating university are clearly mentioned in the syllabus of particular Programme and the course. The Programme Specific Outcomes are closely related to the content of the syllabus. They are syllabus oriented and may vary as per the course. Programme outcomes, programme specific outcomes and course outcomes for the programs offered by the Institution are stated and displayed on website and communicated to teachers and students by conducting a special programme. Thus the college will follow clearly stated Programme Outcomes, Programme Specific Outcomes, Course Outcomes and Learning Outcomes. The Vision and Mission statements are clearly displayed on the college website as well as in the college campus. These outcomes are taken into account based on the variety of programmes and the heterogeneity of rural and urban students. In the beginning of every academic year the programme outcomes are communicated to the students by teachers and Principal. In addition to that the clearly stated programme and course outcomes will be thoroughly enlightened by the BOS members and chair persons.

PRINCIPAL
STSN Govt.DEGREE COLLEGE
KADIRI - 515 591
Sri Sathya Sai (Dist).



Awareness programme on Programme Outcomes and Course Outcomes by the RJD - Regional Joint Director APCCE, Zone IV , AP., Principal and BOS Chair Persons, BOS Members with the HODS and Staff Members.

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The Principal , the Staff Members creating awareness on Programme Outcomes and Course Outcomes.

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

3rd,4th and 5thfloors, Neeladri Towers,, Sri Ram Nagar, 6th Battalion Road,
Atmakur (V), Mangalagiri (M), Guntur-522 503, Andhra Pradesh
Web: www.apsche.org **Email**: acapsche@gmail.com

REVISED SYLLABUS OF TELUGU under (Part – I)

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-2021

PROGRAMME: PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

B.A. /B.Sc./B.Com/BCA/BBM/BHM & CT

(To be Implemented from 2020-21 Academic Year)

TELUGU

Andhra Pradesh State Council of Higher Education
B.A., B.Com., & B.Sc., etc., Programmes

Revised Syllabus under CBCS Pattern
w.e.f. 2020-21

Language Subjects - TELUGU
Revised Syllabus of
GENERAL TELUGU

ఆంధ్ర ప్రదేశ్ రాష్ట్ర ఉన్నత విద్యామండలి

బి.ఎ., బి.కాం., బి.యస్.సి., తదితర ప్రోగ్రాములు

సి.బి.సి.ఎస్.పద్ధతిలో సవరించబడిన పాఠ్యప్రణాళిక

2020-21 విద్యా సంవత్సరం నుంచి

జనరల్ తెలుగు – పాఠ్య ప్రణాళిక

Subject Curricular Framework

Sem	Course	Title	Hrs/Wk	Credits	Max. Marks IA	SE	Total
I	I	Pracheena Telugu Kavithvam	04	03	25	75	100
II	II	Aadhunika Telugu Sahithyam	04	03	25	75	100
III	III	Srujanaathmaka Rachana	04	03	25	75	100

పాఠ్యప్రణాళిక (3 కోర్సులు)

సెమి.	కోర్సు	శీర్షిక	పీరియడ్లు/వారానికి	క్రెడిట్లు	మొత్తం మార్కులు
I	I	ప్రాచీన తెలుగు కవిత్వం	04	03	25 75 100
II	II	ఆధునిక తెలుగు సాహిత్యం	04	03	25 75 100
III	III	సృజనాత్మక రచన	04	03	25 75 100

బి.ఏ., బి.కాం., బి.యస్‌సి., తదితర ప్రోగ్రాములు

అంశం: జనరల్ తెలుగు సెమిస్టర్-1

కోర్సు-1 : ప్రాచీన తెలుగు కవిత్వం

యూనిట్ల సంఖ్య:5 పీరియడ్ల సంఖ్య:60

✦ **అభ్యసన ఫలితాలు:-**

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. ప్రాచీన తెలుగుసాహిత్యం యొక్క ప్రాచీనతను, విశిష్టతను గుర్తిస్తారు. తెలుగుసాహిత్యంలో ఆదికవి నన్నయ కాలంనాటి భాషాసంస్కృతులను, ఇతిహాసకాలం నాటి రాజనీతి విషయాలపట్ల పరిజ్ఞానాన్ని సంపాదించగలరు.

2. శివకవుల కాలంనాటి మతపరిస్థితులను, భాషావిశేషాలను గ్రహిస్తారు. తెలుగు నుడికారం, సామెతలు, లోకోక్తులు మొదలైన భాషాంశాల పట్ల పరిజ్ఞానాన్ని పొందగలరు.

3. తిక్కన భారతంనాటి మత, ధార్మిక పరిస్థితులను, తిక్కన కవితాశిల్పాన్ని, నాటకీయతను అవగాహన చేసుకోగలరు.

4. ఎఱ్ఱన సూక్తివైచిత్రిని, ఇతిహాస కవిత్వంలోని విభిన్న రీతులపట్ల అభిరుచిని పొందగలరు. శ్రీనాథుని కాలం నాటి కవితావిశేషాలను, మొల్ల కవితా విశిష్టతను గుర్తించగలరు.

5. తెలుగు పద్యం స్వరూప-స్వభావాలను, సాహిత్యాభిరుచిని పెంపొందించుకుంటారు. ప్రాచీన కావ్యభాషలోని వ్యాకరణాంశాలను అధ్యయనం చేయడం ద్వారా భాషాసామర్థ్యాన్ని, రచనల మెళకువలను గ్రహించగలరు.

పాఠ్య ప్రణాళిక

యూనిట్–I

రాజనీతి – నన్నయ

మహాభారతం–సభాపర్వం–ప్రథమాశ్వాసం–(26–57 పద్యాలు)

యూనిట్–II

దక్షయజ్ఞం – నన్నెచోడుడు

కుమారసంభవం–ద్వితీయాశ్వాసం–(49–86 పద్యాలు)

యూనిట్–III

ధౌమ్య ధర్మోపదేశము – తిక్కన

మహాభారతం–విరాటపర్వం–ప్రథమాశ్వాసం–(116–146) పద్యాలు

యూనిట్–IV

పలనాటి బెబ్బులి – శ్రీనాథుడు (పలనాటి వీరచరిత్ర–ద్విపద కావ్యం పుట 108–112
'బాలచంద్రుడు భీమంబగు సంగ్రామం బొనర్చుట.. (108)..
..... వెఱగంది కుంది' (112) సం. అక్కిరాజు ఉమాకాంతం
ముద్రణ.వి.కె.స్వామి, బెజవాడ 1911.

యూనిట్–V

సీతారావణ సంవాదం – మొల్ల

రామాయణము–సుందరకాండము–(40–87 పద్యాలు)

✦వ్యాకరణం

సంధులు: ఉత్వ, త్రిక, ద్రుతప్రకృతిక, నుగాగమ,ద్విరుక్తటకారాదేశ, యణాదేశ, వృద్ధి, శ్చుత్వ, జశ్త్వ, అనునాసిక సంధులు.

సమాసాలు: అవ్యయీభావ, తత్పురుష, కర్మధారయ, ద్వంద్వ, ద్విగు, బహువ్రీహి.

అలంకారాలుః

అర్థాలంకారాలు ः ఉపమ, ఉత్ప్రేక్ష, రూపక, స్వభావోక్తి, అర్థాంతరవ్యాస, అతిశయోక్తి.

శబ్దాలంకారాలు ः అనుప్రాస (వృత్యనుప్రాస, ఛేకానుప్రాస లాటానుప్రాస, అంత్యానుప్రాస)

ఛందస్సు

వృత్తాలు: ఉత్పలమాల, చంపకమాల, శార్దూలము, మత్తేభము;

జాతులు : కందం, ద్విపద; ఉపజాతులు : ఆటవెలది, తేటగీతి, సీసం మరియు ముత్యాలసరాలు

ఆధార గ్రంథాలు:

1. శ్రీమదాంధ్ర మహాభారతము : సభాపర్వము–తిరుమల తిరుపతి దేవస్థానం ప్రచురణ
2. శ్రీమదాంధ్ర మహాభారతము : విరాటపర్వము–తిరుమల తిరుపతి దేవస్థానం ప్రచురణ
3. కుమార సంభవం – నన్నెచోడుడు
4. పలనాటి వీరచరిత్ర – శ్రీనాథుడు
5. రామాయణము – మొల్ల

✦ **సూచించబడిన సహపాఠ్య కార్యక్రమాలు:**

1. నన్నయ్య, తిక్కన, ఎఱ్ఱన మొదలైన ప్రసిద్ధ కవుల పాఠ్యాంశేతర పద్యాలను ఇచ్చి, విద్యార్థులచేత సమీక్షలు రాయించడం; ఆయా పద్యాల్లోని యతిప్రాసాది ఛందోవిశేషాలను గుర్తింపజేయడం.
2. విద్యార్థులచేత పాఠ్యాంశాలకు సంబంధించిన వ్యాసాలు రాయించడం (సెమినార్/అసైన్‌మెంట్)
3. ప్రాచీన పాఠ్యాంశాలలోని సమకాలీనతను గూర్చిన బృంద చర్చ, ప్రాచీన సాహిత్యాన్ని నేటి సామాజిక దృష్టితో పునర్మూల్యాంకనం చేయించడం.
4. చారిత్రిక, సాంస్కృతిక అంశాలకు సంబంధించిన పర్యాటక ప్రదేశాలను సందర్శించడం.
5. వ్యక్తిగత/బృంద ప్రాజెక్టులు చేయించడం. ప్రశ్నాపత్ర నిర్మాతలకు సూచనలు ప్రతిపదార్థ పద్యాలు, కంఠస్థ పద్యాలు "రాజనీతి, దక్షయజ్ఞం, ధౌమ్య ధర్మోపదేశం, సీతారావణ సంవాదం" అనే నాలుగు పాఠ్యాంశాల నుండి మాత్రమే ఇవ్వాలి.

ప్రశ్నాపత్ర నమూనా

అ. ప్రతిపదార్థ పద్యాలు–(అంతర్గత ఛాయిస్)	(2–1)	1×8=8 మా
ఆ. కంఠస్థ పద్యం–(అంతర్గత ఛాయిస్)	(2–1)	1×3=3 మా
ఇ. సందర్భ వాక్యాలు–	(6–4)	4×3=12 మా
ఈ. సంగ్రహ సమాధాన ప్రశ్నలు	(6–4)	4×3=12 మా
ఉ. వ్యాస ప్రశ్నలు (అంతర్గత ఛాయిస్)	(6–3)	3×8=24 మా
ఊ. వ్యాకరణం–సంధులు	(6–4)	4×1=4 మా
సమాసాలు	(6–4)	4×1=4 మా
అలంకారాలు	(2–1)	1×4=4 మా
ఛందస్సు	(2–1)	1×4=4 మా

బి.ఏ., బి.కాం., బి.యస్‌సి., తదితర ప్రోగ్రాములు

అంశం: జనరల్ తెలుగు సెమిస్టర్–2

కోర్సు–2 : ఆధునిక తెలుగు సాహిత్యం

యూనిట్ల సంఖ్య:5 **పీరియడ్ల సంఖ్య:60**

✦ **అభ్యసన ఫలితాలు:-**

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. ఆంగ్లభాష ప్రభావం కారణంగా తెలుగులో వచ్చిన ఆధునిక సాహిత్యాన్ని, దాని విశిష్టతను గుర్తిస్తారు.

2. సమకాలీన ఆధునిక సాహిత్య ప్రక్రియలైన "వచన కవిత్వం, కథ, నవల, నాటకం, విమర్శ"లపై అవగాహన పొందుతారు.

3. భావకవిత, అభ్యుదయ కవితాలక్ష్యాలను గూర్చిన జ్ఞానాన్ని పొందుతారు.అస్తిత్వవాద ఉద్యమాలపుట్టుకను, ఆవశ్యకతను గుర్తిస్తారు.

4. కథాసాహిత్యం ద్వారా సామాజిక చైతన్యాన్ని పొందుతారు. సిద్ధాంతాల ద్వారా కాకుండా, వాస్తవ పరిస్థితులను తెలుసుకోవడం ద్వారా సిద్ధాంతాన్ని సమీక్షించగలరు.

5. ఆధునిక తెలుగు కల్పనాసాహిత్యం ద్వారా సామాజిక, సాంస్కృతిక,రాజకీయ చైతన్యాన్ని పొందుతారు.

పాఠ్య ప్రణాళిక

యూనిట్–I : ఆధునిక కవిత్వం

1. ఆధునిక కవిత్వం– పరిచయం
2. కొండవీడు – దువ్వూరి రామిరెడ్డి
   ('కవికోకిల' గ్రంథావళి–ఖండకావ్యాలు–నక్షత్రమాల సంపుటి నుండి)
3. మాతృసంగీతం – అనిసెట్టి సుబ్బారావు ('అగ్నివీణ' కవితాసంపుటి నుండి)
4. 'తాతకో నూలుపోగు' – బండారు ప్రసాదమూర్తి ('కలనేత' కవితాసంపుటి నుండి)

యూనిట్–II : కథానిక

5. తెలుగు కథానిక – పరిచయం
6. భయం (కథ) – కాళీపట్నం రామారావు
7. స్వేదం ఖరీదు....? – (కథ) – రెంటాల నాగేశ్వరరావు

యూనిట్–III : నవల

8. తెలుగు 'నవల' – పరిచయం
9. రథచక్రాలు (నవల) – మహీధర రామ్మోహన రావు (సంక్షిప్త ఇతివృత్తం మాత్రం)
10. రథచక్రాలు (సమీక్షా వ్యాసం) – డా॥ యల్లాప్రగడ మల్లికార్జునరావు

యూనిట్–IV: నాటకం

11. తెలుగు 'నాటకం' – పరిచయం
12. యక్షగానము (నాటిక) – ఎం.వి.ఎస్. హరనాథరావు.
13. "అపురూప కళారూపాల విధ్వంసదృశ్యం 'యక్షగానము' (సమీక్షా వ్యాసం)"
    –డా॥కందిమళ్ళసాంబశివరావు

యూనిట్–V: విమర్శ

14. తెలుగు సాహిత్య విమర్శ – పరిచయం
15. విమర్శ–స్వరూప స్వభావాలు; ఉత్తమ విమర్శకుడు–లక్షణాలు

ఆధార గ్రంథాలు/వ్యాసాలు:

1. ఆధునిక కవిత్వం–పరిచయం : చూ. 'దృక్పథాలు' పుట 1–22, ఆచార్య ఎస్వీ. సత్యనారాయణ
2. తెలుగు కథానిక–పరిచయం : చూ. మన నవలలు–మన కథానికలు, పుట 118–130, ఆచార్య రాచపాళెం చంద్రశేఖర రెడ్డి
3. తెలుగు నవల–పరిచయం : చూ. నవలాశిల్పం, పుట 1–17, వల్లంపాటి వెంకటసుబ్బయ్య
4. తెలుగు నాటకం–పరిచయం : చూ. తెలుగు నాటకరంగం, పుట 17–25 ఆచార్య ఎస్.గంగప్ప
5. తెలుగుసాహిత్య విమర్శ–పరిచయం: చూ.తెలుగుసాహిత్య విమర్శ–నాడు,నేడు పుట 213–217 తెలుగువాణి, అయిదవ అఖిలభారత తెలుగు మహాసభల ప్రత్యేక సంచిక ఆచార్య జి.వి.సుబ్రహ్మణ్యం
6. నూరేళ్ళ తెలుగు నాటక రంగం – ఆచార్య మొదలి నాగభూషణశర్మ
7. నాటకశిల్పం – ఆచార్య మొదలి నాగభూషణశర్మ
8. సాంఘిక నవల–కథన శిల్పం – ఆచార్య సి.మృణాళిని.

✦ **సూచించబడిన సహపాఠ్య కార్యక్రమాలు:**

1. ఆధునిక కవిత్వానికి సంబంధించిన కొత్త కవితలను/అంశాలను ఇచ్చి, విద్యార్థులచేత వాటిమీద అసైన్‌మెంట్లు రాయించడం
2. పాఠ్యాంశాలకు సంబంధించిన విషయాలపై వ్యాసాలు రాయించడం (సెమినార్/అసైన్‌మెంట్)
3. తెలుగు సాహిత్యంలోని ప్రసిద్ధ కథలపై, కవితలపై సమీక్షలు రాయించడం.
4. ఆధునిక పద్యనిర్మాణ రచన చేయించడం.
5. విద్యార్థులను బృందాలుగా విభజించి, నాటకలపై/నవలలపై సమీక్షలు రాయించడం.
6. సాహిత్యవ్యాసాలు సేకరించడం, బృందచర్చ నిర్వహించడం, క్షేత్రపర్యటనలు.
7. ప్రసిద్ధుల విమర్శావ్యాసాలు చదివించి, వాటిని విద్యార్థుల సొంత మాటల్లో రాయించడం.
8. పాఠ్యాంశాలపై స్వీయ విమర్శావ్యాసాలు రాయించడం.

✦ప్రశ్నాపత్ర నమూనా ✦

అ–విభాగము

సంక్షిప్త సమాధాన ప్రశ్నలు – ప్రతి యూనిట్ నుంచి తప్పనిసరిగా ఒక ప్రశ్న ఇస్తూ, మొత్తం ఎనిమిది ప్రశ్నలు ఇచ్చి, ఐదింటికి సమాధానం రాయమనాలి. 5×5=25 మా.

ఆ–విభాగము

వ్యాసరూప సమాధాన ప్రశ్నలు–ప్రతి యూనిట్ నుంచి తప్పనిసరిగా రెండు ప్రశ్నలు ఇచ్చి ఒక ప్రశ్నకు సమాధానం రాయమనాలి. మొత్తం ప్రశ్నలు 5. 5×10=50 మా.

✦ మాదిరి ప్రశ్నాపత్రం ✦

అ-విభాగము

క్రింది వానిలో ఐదింటికి సంక్షిప్త సమాధానాలు రాయండి.

ప్రతి సమాధానానికి 5 మార్కులు. 5×5=25 మా.

1. కొండవీడు
2. తెలుగు నవల
3. తెలుగు నాటకం
4. ఆధునిక కవిత్వం
5. కథానిక
6. విమర్శ
7. అనిసెట్టి సుబ్బారావు
8. కాళీపట్నం రామారావు

అ-విభాగము

క్రింది వానిలో అన్ని ప్రశ్నలకు సమాధానాలు రాయండి.

ప్రతి సమాధానానికి 10 మార్కులు. 5×10=50 మా.

9. ఆధునిక కవిత్వ ఆవిర్భావ వికాసాలను వివరించండి.

(లేదా)

కొండవీడులో దువ్వూరి రామిరెడ్డి గారి సందేశాన్ని వివరించండి.

10. తెలుగు కథానికను పరిచయం చేయండి.

(లేదా)

భయం కథలోని రచయిత సందేశాన్ని రాయండి.

11. సాహిత్య ప్రక్రియగా నవల స్థానాన్ని విమర్శించండి.

(లేదా)

రథచక్రాలు నవలలోని ఇతివృత్తాన్ని విశ్లేషించండి.

12. తెలుగు నాటక పరిణామాన్ని గూర్చి రాయండి.

(లేదా)

యక్షగానం నాటికపై సమీక్షా వ్యాసం రాయండి.

13. తెలుగు సాహిత్య విమర్శను పరిచయం చేయండి

(లేదా)

విమర్శ స్వరూప స్వభావాలను వివరిస్తూ, ఉత్తమ విమర్శకుని లక్షణాలను రాయండి.

బి.ఏ., బి.కాం., బి.యస్‌సి., తదితర ప్రోగ్రాములు

అంశం: జనరల్ తెలుగు సెమిస్టర్-3

కోర్సు-3 : సృజనాత్మక రచన

యూనిట్ల సంఖ్య:5 **పీరియడ్ల సంఖ్య:60**

✦ **అభ్యసన ఫలితాలు:-**

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. తెలుగు సాహిత్య అభ్యసన ద్వారా నేర్చుకున్న నైపుణ్యాలను, సృజనాత్మక నైపుణ్యాలుగా మార్చుకోగలరు.

2. విద్యార్థులు భాషాతత్వాన్ని, భాష యొక్క ఆవశ్యకతను, భాష యొక్క ప్రాధాన్యాన్ని గుర్తిస్తారు. మనిషి వ్యక్తిగత జీవనానికి, సామాజికవ్యవస్థ పటిష్టతకు భాష ప్రధానమని తెలుసుకుంటారు. తెలుగుభాషలోని కీలకాంశాలైన 'వర్ణం-పదం-వాక్యా'ల ప్రాధాన్యాన్ని గుర్తిస్తూ, వాగ్రూప- లిఖితరూప వ్యక్తీకరణ ద్వారా భాషానైపుణ్యాలను మెరుగుపరచుకోగలరు.

3. భాషానైపుణ్యాలను అలవరచుకోవడంతోపాటు వినియోగించడం నేర్చుకుంటారు. రచనా, భాషణానైపుణ్యాలను సృజనాత్మక రూపంలో వ్యక్తీకరించగలరు.

4. ప్రాచీన పద్యరచనతో పాటు ఆధునిక కవిత, కథ, వ్యాసం, మొదలైన సాహిత్యప్రక్రియల నిర్మాణాలకు సంబంధించిన సిద్ధాంతవిషయాలను నేర్వడంతో పాటు వారిలో రచనా నైపుణ్యాలను పెంపొందించుకోగలరు.

5. సృజన రంగం, ప్రసారమాధ్యమ రంగాల్లో ఉపాధి అవకాశాలను అందిపుచ్చుకోగలరు.

6. అనువాద రంగంలో నైపుణ్యం సంపాదించగలరు.

పాఠ్య ప్రణాళిక

యూనిట్–I: వ్యక్తీకరణ నైపుణ్యాలు

1. భాష–ప్రాథమికాంశాలు: భాష–నిర్వచనం, లక్షణాలు, ఆవశ్యకత, ప్రయోజనాలు
2. వర్ణం–పదం–వాక్యం', వాక్య లక్షణాలు, సామాన్య–సంయుక్త–సంశ్లిష్టవాక్యాలు
3. భాషా నిర్మాణంలో 'వర్ణం–పదం–వాక్యం' ప్రాధాన్యత

యూనిట్–II సృజనాత్మక రచన

4. కవితా రచన : ఉత్తమ కవిత – లక్షణాలు
5. కథారచన : ఉత్తమ కథ – లక్షణాలు
6. వ్యాస రచన : ఉత్తమ వ్యాసం–లక్షణాలు

యూనిట్–III: అనువాద రచన

7. అనువాదం–నిర్వచనం, అనువాద పద్ధతులు,
8. అనువాద సమస్యలు–భౌగోళిక,భాషా,సాంస్కృతిక సమస్యలు, పరిష్కారాలు
9. అభ్యాసము : ఆంగ్లం నుండి తెలుగుకు,తెలుగు నుండి ఆంగ్లానికి ఒక పేరానుఅనువదించడం

యూనిట్ IV మాధ్యమాలకు రచన–1 (ముద్రణామాధ్యమం/ప్రింట్ మీడియా)

10. ముద్రణామాధ్యమం (అచ్చుమాధ్యమం) : పరిచయం, పరిధి, వికాసం
11. వివిధ రకాల పత్రికలు–పరిశీలన, పత్రికాభాష, శైలి, వైవిధ్యం
12. పత్రికా రచన : వార్తా రచన, సంపాదకీయాలు, సమీక్షలు–అవగాహన

యూనిట్ V మాధ్యమాలకు రచన–2 (ప్రసార మాధ్యమం/ఎలక్ట్రానిక్ మీడియా)

13. ప్రసారమాధ్యమాలు : నిర్వచనం, రకాలు, విస్తృతి, ప్రయోజనాలు
14. శ్రవణ మాధ్యమాలు – రచన: రేడియో రచన, ప్రసంగాలు, నాటికలు, ప్రసార సమాచారం
15. దృశ్యమాధ్యమాలు – రచన: వ్యాఖ్యానం (యాంకరింగ్), టెలివిజన్ రచన

ఆధార గ్రంథాలు/వ్యాసాలు:

1. వ్యక్తీకరణ నైపుణ్యాలు – చూ. 1. ఆధునిక భాషాశాస్త్ర సిద్ధాంతాలు–ఆచార్య పి.ఎస్.సుబ్రహ్మణ్యం
   2. తెలుగు భాషా చరిత్ర – సం.ఆచార్య భద్రిరాజు కృష్ణమూర్తి
   3. తెలుగు వాక్యం – డా. చేకూరి రామారావు
2. ఉత్తమ కవిత–లక్షణాలు – చూ. నవ్యకవిత్వ లక్షణములు– ఆచార్య సి.నారాయణరెడ్డి
   ఆధునికాంధ్ర కవిత్వము–సంప్రదాయములు, ప్రయోగములు: చతుర్థ ప్రకరణము.
3. ఉత్తమ కథ–లక్షణాలు – చూ.కథాశిల్పం–వల్లంపాటి వెంకటసుబ్బయ్య, పుటలు 11–17
4. ఉత్తమ వ్యాసం–లక్షణాలు– చూ.చదువు–సంస్కృతి (వ్యాసం) – కొడవటిగంటి కుటుంబరావు
5. అనువాద రచన – చూ.1. అనువాద సమస్యలు – రాచమల్లు రామచంద్రారెడ్డి
   పుటలు 61–75, 85–94
   2. అనువాదన పద్ధతులు ఆచరణ సమస్యలు–చేకూరి రామారావు
   "భాషాంతరంగం", పుటలు 130–146, తెలుగు విశ్వవిద్యాలయం ప్రచురణ
6. ముద్రణా మాధ్యమం – చూ. మాధ్యమాలకు రచన, పుటలు 9–12
   – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
7. పత్రికా భాష – చూ. మాధ్యమాలకు రచన, పుటలు 67–74
   – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
8. పత్రికా రచన – చూ. తెలుగు– మౌలికాంశాలు, పుటలు 59–69
   – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
9. ప్రసార మాధ్యమాలు – చూ. మాధ్యమాలకు రచన, పుటలు 3-10
   – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
10. రేడియో రచన – చూ.మాధ్యమాలకు రచన, పుటలు 141-148
    – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
11. వ్యాఖ్యానం (యాంకరింగ్) – చూ.మాధ్యమాలకు రచన, పుటలు 178-181
    – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
12. టెలివిజన్ రచన – చూ.మాధ్యమాలకు రచన, పుటలు 153-160
    – డా॥ బి.ఆర్.అంబేద్కర్ విశ్వవిద్యాలయ ప్రచురణ
13. తెలుగు జర్నలిజం – డా॥ బూదరాజు రాధాకృష్ణ

సూచించబడిన సహపాఠ్య కార్యక్రమాలు

1. భాషాంశాలపై, వాక్య నిర్మాణంపై అసైన్‌మెంట్లు రాయించడం, పత్రికల్లోని సాహిత్య/భాషాంశాలను సేకరింపజేయడం.
2. విద్యార్థులచేత తెలుగుభాషా సాహిత్యాలపై ప్రసంగవ్యాసం ఇప్పించడం (సెమినార్/ అసైన్‌మెంట్)
3. వ్యాసరచన, లేఖారచన, స్వీయకవితలు రాయించి, తరగతిలో చదివింపచేయడం మొదలైనవి.
4. వివిధ కార్యక్రమాల్లో విద్యార్థులచేత సదస్సు నిర్వహణ, వ్యాఖ్యానం (యాంకరింగ్) చేయించడం.
5. సమకాలీన భాషాసమస్యలపై / ఉద్యమాలపై/సాంఘిక సమస్యలపై 'బృందచర్చ' (Group Discussion) నిర్వహింపచేయడం.
6. తెలుగుభాషా దినోత్సవం/అంతర్జాతీయ మాతృభాషా దినోత్సవం మొదలైన రోజుల్లో జరిగే సాంస్కృతిక కార్యక్రమాలు విద్యార్థులచేత నిర్వహింపజేయడం, వాటిపై సమీక్షలు/పత్రికా ప్రకటనలు రాయించడం.
7. సమకాలీన సంఘటనలపై సామాజిక మాధ్యమాల్లో/ టి.వి.ల్లో జరిగే చర్చలను నమోదు చేయించి సంకలనం చేయడం.
8. సాంస్కృతిక / చారిత్రక ప్రాశస్త్యం కలిగిన కట్టడాలు , దేవాలయాలు, కళానిలయాలను 'బృందపర్యటన/ క్షేత్ర పర్యటన' ద్వారా విద్యార్థులచేత సందర్శింపజేయడం.

✦ప్రశ్నాపత్ర నమూనా ✦

అ-విభాగము

సంక్షిప్త సమాధాన ప్రశ్నలు - ప్రతి యూనిట్ నుంచి తప్పనిసరిగా ఒక ప్రశ్న ఇస్తూ, మొత్తం ఎనిమిది ప్రశ్నలు ఇచ్చి, ఐదింటికి సమాధానం రాయమనాలి. 5×5=25 మా.

ఆ-విభాగము

వ్యాసరూప సమాధాన ప్రశ్నలు-ప్రతి యూనిట్ నుంచి తప్పనిసరిగా రెండు ప్రశ్నలు ఇచ్చి ఒక ప్రశ్నకు సమాధానం రాయమనాలి. మొత్తం ప్రశ్నలు 5. 5×10=50 మా.

✦ మాదిరి ప్రశ్నాపత్రం ✦

అ–విభాగము

క్రింది వానిలో ఐదింటికి సంక్షిప్త సమాధానాలు రాయండి. 8వ ప్రశ్నకు తప్పనిసరిగా సమాధానం రాయాలి. ప్రతి సమాధానానికి 5 మార్కులు. 5×5=25 మా.

1. భాష–ప్రయోజనాలు 2. వాక్యం–లక్షణాలు 3. టెలివిజన్ రచన 4. రేడియో రచన
5. ఉత్తమ వ్యాసం–లక్షణాలు 6. సంశ్లిష్ట వాక్యం 7. సంపాదకీయాలు
8. క్రింది అంశాన్ని తెలుగులోకి అనువదించి రాయండి.

To many, Indian thought, Indian manners, Indian customs, Indian Philoshophy, Indian Literature are repulsive at the first sight; but let them preservere, let them read, let them become familiar with the great principles underlying these ideas, and it is ninety-nine to one that the charm will come over them, and fascination will be the result. Slow and silent, as the gentle dew that falls in the morning, unseen and unheard yet producing, a most tremendous result, has been the work of the calm, patient, all-suffering spiritual race upon the World of thought.

ఆ–విభాగము

క్రింది వానిలో అన్ని ప్రశ్నలకు సమాధానాలు రాయండి.

ప్రతి సమాధానానికి 10 మార్కులు. 5×10=50 మా.

9. భాషానిర్మాణంలో 'వర్ణం–పదం–వాక్యా'ల ప్రాధాన్యతను వివరించండి. (లేదా)
   భాషను నిర్వచించి, లక్షణాలు రాసి, ప్రామాణిక భాషను పరిచయం చేయండి.
10. ఉత్తమ కవితా లక్షణాలను విశ్లేషించండి.
   (లేదా)
   ఉత్తమ కథా లక్షణాలను వివరించండి.
11. అనువాద సమస్యలను, వాటి పరిష్కారాలను గూర్చి రాయండి.
   (లేదా)
   అనువాద లక్షణాలను వివరిస్తూ, అనువాద పద్ధతులను గురించి రాయండి.
12. ముద్రణా మాధ్యమాన్ని పరిచయం చేస్తూ; దాని పరిధి, వికాసాలను వివరించండి.
   (లేదా)
   పత్రికా రచనను గురించి విశ్లేషణాత్మక వ్యాసం రాయండి.
13. ప్రసార మాధ్యమాల విస్తృతి, ప్రయోజనాలను సమీక్షించండి.
   (లేదా)
   యాంకరింగ్ నిర్వహణ, తీరుతెన్నులను వివరించండి.

SUBJECT EXPERTS

Prof.N.V.Krishna Rao
Dept of Telugu,
Acharya Nagarjuna University,
Nagarjuna Nagar

Dr.K.N.Sundareswara Rao,
Govt. College for Men(Autonomous),
Kadapa

SYLLABUS VETTED BY

Prof.S.Rajeswari,
Dept of Telugu Studies,
S V University,
Tirupati

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

3rd,4th and 5th floors, Neeladri Towers, Sri Ram Nagar, 6th Battalion Road,
Atmakur (V), Mangalagiri (M), Guntur-522 503, Andhra Pradesh
Web: www.apsche.org **Email**: acapsche@gmail.com

REVISED SYLLABUS OF ENGLISH under (Part – I)

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

B.A. /B.Sc./B.Com/BCA/BBM/BHM & CT, etc.

Andhra Pradesh State Council of Higher Education, Mangalagiri, Guntur District

Revised English Syllabus from 2020-21 Onwards

Under Choice Based Credit System

Introduction

The turn of the twenty first century has made the English Language skills a passport to the job market to all job seekers. Ability to communicate well in English has become a hallmark of good educational foundation and a prerequisite for all graduates. The students are expected to possess a measurable knowledge and a set of skills in using English language in personal and professional life. The present course **English Praxis** in three parts offers suitable context to teach, learn and practise target language skills. Each part of the course aims at certain specified skills which are taught through various text-based classroom activities and the English Language Laboratory activities. The syllabus of the course offers an open platform to the teacher to facilitate active participatory learning to the students. Hence the whole course is offered in three semesters. The first part of the course offers fundamentals of the English language in five units: Listening, Speaking, Grammar, Writing and Soft Skills. These introductory units are developed into full length courses in the subsequent semesters in addition to Reading Skills so as to prepare the learner into a fully equipped individual.

In addition to the classroom interaction, the course also aims at language enhancement through various ICT based online and offline activities in the English Language Laboratory. Each Unit is reinforced with Laboratory activities. The College administration will bestow special attention to make the **English Praxis** course an activity oriented one. The innovative methods and creativity of the English faculty will enhance the learners' participation in teaching and learning.

Semester-I English Praxis Course-I : **A Course in Communication and Soft Skills**

Semester-II English Praxis Course -II : **A Course in Reading & Writing Skills**

Semester-III English Praxis Course -III**: A Course in Conversational Skills**

English Syllabus-Semester-I

English Praxis Course-I

A Course in Communication and Soft Skills

Learning Outcomes

By the end of the course the learner will be able to :

- Use grammar effectively in writing and speaking.
- Demonstrate the use of good vocabulary
- Demonstrate an understating of writing skills
- Acquire ability to use Soft Skills in professional and daily life.
- Confidently use the tools of communication skills

I. UNIT: Listening Skills

i. Importance of Listening
ii. Types of Listening
iii. Barriers to Listening
iv. Effective Listening

II. UNIT: Speaking Skills

a. Sounds of English: Vowels and Consonants
b. Word Accent
c. Intonation

III. UNIT: Grammar

a) Concord
b) Modals
c) Tenses (Present/Past/Future)
d) Articles
e) Prepositions
f) Question Tags
g) Sentence Transformation (Voice, Reported Speech & Degrees of Comparison)
h) Error Correction

IV. UNIT: Writing

i. Punctuation
ii. Spelling
iii. Paragraph Writing

V. UNIT: Soft Skills

a. SWOC
b. Attitude
c. Emotional Intelligence
d. Telephone Etiquette
e. Interpersonal Skills

English Syllabus-Semester-II

English Praxis Course-II

A Course in Reading & Writing Skills

Learning Outcomes

By the end of the course the learner will be able to :

- Use reading skills effectively
- Comprehend different texts
- Interpret different types of texts
- Analyse what is being read
- Build up a repository of active vocabulary
- Use good writing strategies
- Write well for any purpose
- Improve writing skills independently for future needs

I. UNIT

Prose	: 1. How to Avoid Foolish Opinions	Bertrand Russell
Skills	: 2. Vocabulary: Conversion of Words	
	: 3. One Word Substitutes	
	: 4. Collocations	

II. UNIT

Prose	: 1. The Doll's House	Katherine Mansfield
Poetry	: 2. Ode to the West Wind	P B Shelley
Non-Detailed Text	: 3. Florence Nightingale	Abrar Mohsin
Skills	: 4. Skimming and Scanning	

III. UNIT

Prose	: 1. The Night Train at Deoli	Ruskin Bond
Poetry	: 2. Upagupta	Rabindranath Tagore
Skills	: 3. Reading Comprehension	
	: 4. Note Making/Taking	

IV. UNIT

Poetry	: 1. Coromandel Fishers	Sarojini Naidu
Skills	: 2. Expansion of Ideas	
	: 3. Notices, Agendas and Minutes	

V.UNIT

Non-Detailed Text	: 1. An Astrologer's Day	R K Narayan
Skills	: 2. Curriculum Vitae and Resume	
	: 3. Letters	
	: 4. E-Correspondence	

English Syllabus-Semester-III

English Praxis Course-III

A Course in Conversational Skills

Learning Outcomes

By the end of the course the learner will be able to :

- Speak fluently in English
- Participate confidently in any social interaction
- Face any professional discourse
- Demonstrate critical thinking
- Enhance conversational skills by observing the professional interviews

I. UNIT

Speech	: 1. Tryst with Destiny	Jawaharlal Nehru
Skills	: 2. Greetings	
	: 3. Introductions	

II. UNIT

Speech	: 1. Yes, We Can	Barack Obama
Interview	: 2. A Leader Should Know How to Manage Failure	
	Dr.A.P.J.Abdul Kalam/ India Knowledge at Wharton	
Skills	: 3. Requests	

III. UNIT

Interview	: 1. Nelson Mandela's Interview	With Larry King
Skills	: 2. Asking and Giving Information	
	: 3. Agreeing and Disagreeing	

IV. UNIT

Interview	: 1. JRD Tata's Interview	With T.N.Ninan
Skills	: 2. Dialogue Building	
	: 3. Giving Instructions/Directions	

V. UNIT

1. **Speech**	: 1. You've Got to Find What You Love	Steve Jobs
Skills	: 2. Debates	
	: 3. Descriptions	
	: 4. Role Play	

SUBJECT EXPERTS

Prof. K.Ratna Shiela Mani,
Department of English,
Acharya Nagarjuna University,
Nagarjuna Nagar.

Dr. I. Vijaya Babu,
Principal,
Government Degree College,
S.Kota, Vizianagaram District– 533255

SYLLABUS VETTED BY

Prof. C.L.L.Jayaprada,
Department of English (Retd),
Andhra University,
Visakhapatnam.

Hindi Syllabus for B.A, B.Con, B.Sc. First Semester.

1- गद्य संदेश (Prose)

1- साहित्य की महत्ता - महावीर प्रसाद द्विवेदी
2- सच्ची वीरता - सरदार पूर्णसिंह
3- मित्रता - आचार्य रामचंद्र शुक्ल

2- कथालोक (Short Stories)

1- मुक्तिधन. - मुन्शी प्रेमचंद
2- पुरस्कार - जयशंकर प्रसाद
3- उसने कहा था -चन्द्रधर शर्मा गुलेरी

3- व्याकरण (Grammar)

1- लिंग , वचन , शब्द. , काल. ,वाच्य. , वाक्यों की शुद्धि , शब्द- विलोम. ,अंग्रेजी - हिन्दी पारिभाषिक शब्द-सूची

4- कार्यालयीन हिन्दी (Official Language)

1- कार्यालयीन हिन्दी
2- शब्दावली

5- पत्र- लेखन (Letter Writing)

(M.V.L.Narasimham)
Chairman, B O S,
Department of HINDI
Sri Krishnadevaraya University,
ANANTAPURAM

Hindi Syllabus for B.A. ,B.Com. ,B.Sc. Second Semester.

1- गद्य संदेश (Prose)

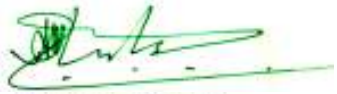
1- साहित्य और संस्कृति का परस्पर संबंध - डॉ जी सुन्दर रेड्डी
2- भारत एक है - रामधारी सिंह दिनकर
3- एच. आई. वी / एड्स -प्रकाश भातल खंडे
एवं डॉ रमण गंगा खडेकर
अनुवाद - श्रीमती साधना मौर्या

2- कथालोक (Short Stories)

1- वापसी - उषा प्रियंवदा
2- भूख हड़ताल- बालशौरि रेड्डी
3- परमात्मा का कुत्ता- मोहन राकेश

व्याकरण (Grammar)

1- कार्यालयी हिन्दी शब्दावली अंग्रेजी- हिन्दी
2-कार्यालयों में प्रयोग होने वाले हिन्दी- अंग्रेजी शब्द
3- वाक्यांश अंग्रेजी- हिन्दी शब्दों का वाक्य में प्रयोग
4- सन्धि- विच्छेद
5- पत्र-लेखन



(M.V.L.Narasimham)
Chairman, B O S,
Department of HINDI
Sri Krishnadevaraya University,
ANANTAPURAM

Hindi Syllabus for B.A. ,B.Com., B.Sc. Third Semester.

UNIT-1

1- काव्यदीप (Ancient and modern Poetry)

१- कबीर दास - साखी - 2-20
२- सूरदास का बाल वर्णन
३- मातृभूमि - मैथिलीशरण गुप्त
४- तोड़ती पत्थर - सूर्यकांत त्रिपाठी 'निराला'
५-देश कागज पर बना नक्शा नहीं है- सर्वेश्वर दयाल सक्सेना

UNIT-ll

2- हिन्दी साहित्य का इतिहास (History of Hindi literature)

१- भक्तिकाल
२-ज्ञानाश्रयी शाखा - कबीर
३-प्रेमाश्रयी शाखा - जायसी

UNIT-lll

3-साधारण निबंध (General Essays)

१- समाचार पत्र
२- बेकारी की समस्या
३-कम्प्यूटर
४- पर्यावरण और प्रदूषण

(M.V.L.Narasimham)
Chairman, B O S,
Department of HINDI
Sri Krishnadevaraya University,
ANANTAPURAM

५- साहित्य और समाज

UNIT- |V

4- अनुवाद. (Translation)

१-अनुवाद अभ्यास - अंग्रेजी से हिन्दी
(Four or five lines)

UNIT- V
5- प्रयोजनमूलक हिन्दी (Functional Hindi)

१- परिपत्र

२-कार्यालय ज्ञापन

३- अधिसूचना

(M.V.L.Narasimham)
Chairman, B O S,
Department of HINDI
Sri Krishnadevaraya University,
ANANTAPURAM

Syllabus for (B.A./ B.Com. / B.Sc.) U.G. under CBCS
Second Language – Urdu
First year Degree Course Second Language Part - 1(b)

Paper – I: URDU POETRY

SEMESTER - I

UNIT – I

1. GHAZAL
MEER – *Raah-e-Daur-e-Ishq me Roota hai kya*
2. NAZM
Nazeer Akbarabadi – *Kaljug*

UNIT – II

1. GHAZAL
GHALIB – *Dard Minnat kash-e-Dawa na hua*
2. NAZM
SHIBLI – *Adl-e-Farooqi*

UNIT – III

1. GHAZAL
MOMIN – *Who jo Hum me Tum me Qaraar tha*
2. NAZM
IQBAL – *Chaand aur Tare*

UNIT – IV

1. GHAZAL
DAGH DEHLAVI – *Duniya me Aadmi ko Museebat Kahan nahi*
2. NAZM
AKBAR – *Naseehat-e-Akhlaqi*

UNIT – V

1. GHAZAL
JIGAR MURADABADI – *Koi Ye Kehde Gulshan Gulshan*
2. NAZM
FAIZ – *Lauh-o-Qalam*

SUGGESTED READING:

URDU SHAIRY KA FANNI IRTEQA – FARMAN FATEHPOOR
URDU GHAZAL – KAAMIL QURAISHI
URDU SHAIRI KA TANQEEDI MUTA'A – SUMBUL NIGAAR

Approved By
BOS- Chairman
URDU

Syllabus for (B.A./ B.Com. / B.Sc.) U.G. under CBCS
Second Language – Urdu
First Year Degree Course Second Language Part - 1(b)

Paper – II: URDU POETRY

SEMESTER - II

UNIT – I **MASNAWI**
MEER HASAN – *Aaghaaz-e-Dastaan* (Sehrul Bayan)

UNIT – II **MARSIYA**
MEER ANEES – *Jab Qataa Ki Masafat-e-Shab Aaftaab ne*
(Ibtedayi 6 Bandh)

UNIT – III **QASEEDA**
GHALIB – *Dar Madh-e- Bahadur Shah Zafar*
(Haan Mahe Nau Sunen Hum Uska Naam)

UNIT – IV **RUBAIYAAT**

AMJAD HYDERABADI
1. ***Rutba Jise Duniya me Khuda Deta hai***
2. ***Har Cheez Mussabab-e-Sabab se Maangoo***

SAGHAR JAYYEDI
1. ***Tareef ki Meezan pe Tul jate hain***
2. ***Zulmat ka Toofan Utha deta hai***

UNIT – V **TA'ARUF**
Muthtasar Ta'aruf aur Sawanehi Haalat
1. ***Amjad Hyderabadi***
2. ***Saghar Jayyedi***

SUGGESTED READING:

URDU SHAIRI KA TANQEEDI MUTA'A – SUMBUL NIGAAR
TAREEK-E-ADAB-E-URDU – NOORUL HASAN NAQUI
MUKHTASAR TAREEK-E-ADAB-E-URDU – EJAZ HUSSAIN

Approved By
BOS-Chairman
URDU

Syllabus for (B.A./ B.Com. / B.Sc.) U.G. under CBCS
Second Language – Urdu
Second Year Degree Course Second Language Part - 1(b)

Paper – III: Urdu Prose Fiction

SEMESTER - III

UNIT – I	**AFSANAWI ADAB KA TA'ARUF**
UNIT – II	**DASTAN** ***Shuru Qisse ka*** **(Baagh-oBahar: Meer Amman)**
UNIT – III	**NOVEL** ***Kaleem ka Mirza Zahirdaar Baig ke yahan Mehmaan Jana*** **(Taubatun Nasooh: Dy. Nazeer Ahmed)**
UNIT – IV	**DRAMA** ***Gud Ki Makhkhiyaan*** **(Dr. Kareem Roomani)**
UNIT – V	**AFSANA** ***Ek Aur Din*** **(Abdus Samad)**

SUGGESTED READING:

URDU SHAIRI KA TANQEEDI MUTA'A – SUMBUL NIGAAR
TAREEK-E-ADAB-E-URDU – NOORUL HASAN NAQUI
MUKHTASAR TAREEK-E-ADAB-E-URDU – EJAZ HUSSAIN

Approved By
Ds. Fauzia
BOS - chairman
URDU

Syllabus for (B.A./ B.Com. / B.Sc.) U.G. under CBCS
Second Language – Urdu

Second Year Degree Course Second Language Part - 1(b)

Paper – III : Urdu Prose Non Fiction

SEMESTER - IV
URDU PROSE NON FICTION

UNIT – I GHAIR AFSANAWI ADAB KA TA'ARUF

UNIT – II MAZMOON
Guzra Hua Zamana (Sir Syed)

UNIT – III KHAKA
Nam Dev Maali (Baba-e-Urdu Maulvi Abdul Haq)

UNIT – IV INSHAIYYA
Diyasalaai (Khaja Hasan Nizami)

UNIT – V KHUTOOT-E-GHALIB
1. *Hatim Ali Mehr ke Naam*
2. *Meer Mehdi Majrooh ke Naam*

SUGGESTED READING:

GAIR AFSANAVI URDU NASR – ATIYA RAYEES
INSHAIYA AUR INSHAIYE – SYED MOHAMMED HASNAIN
GHALIB KE KHUTOOT – KHALIQ ANJUM

Approved By
Ds. Tanveer Begum
BOS. Chairman
URDU

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

3rd,4th and 5th floors, Neeladri Towers, Sri Ram Nagar, 6th Battalion Road,Atmakur(V),
Mangalagiri(M), Guntur-522 503, Andhra Pradesh
Web: www.apsche.org **Email**: acapsche@gmail.com

REVISED SYLLABUS OF B.A. /B.Sc. MATHEMATICS UNDER CBCS FRAMEWORK WITHEFFECT FROM 2020-2021

PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

MATHEMATICS

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P.)For Fifteen Courses of 1, 2, 3 & 4 Semesters)

(To be Implemented from 2020-21 Academic Year)

A.P. STATE COUNCIL OF HIGHER EDUCATION

B.A./B.Sc. MATHEMATICS

REVISED SYLLABUS FOR CORE COURSES

CBCS/ SEMESTER SYSTEM

(w.e.f. 2020-21 Admitted Batch)

CORE COURSES STRUCTURE

(Sem-I to Sem-IV)

Course	Subject	Hrs.	Credits	IA	ES	Total
Course-I	Differential Equations& Differential Equations Problem Solving Sessions	6	5	25	75	100
Course-II	Three dimensional analyticalSolid geometry & Three dimensional analyticalSolid Geometry Problem Solving Sessions	6	5	25	75	100
Course-III	Abstract Algebra& Abstract Algebra Problem Solving Sessions	6	5	25	75	100
Course-IV	Real Analysis& Real Analysis Problem Solving Sessions	6	5	25	75	100

Course -V	Linear Algebra& Linear Algebra Problem Solving Sessions	6	5	25	75	100

COURSE-I

CBCS/ SEMESTER SYSTEM

B.A./B.Sc. MATHEMATICS (w.e.f. 2020-21 Admitted Batch)

DIFFERENTIAL EQUATIONS

SYLLABUS (75 Hours)

Course Outcomes:

1. After successful completion of this course, the student will be able to; Solve linear differential equations
2. Convert nonexact homogeneous equations to exact differential equations by using integratingfactors.
3. Know the methods of finding solutions of differential equations of the first order but not of the first degree.
4. Solve higher-order linear differential equations, both homogeneous and non homogeneous, withconstant coefficients.
5. Understand the concept and apply appropriate methods for solving differential equations.

Course Syllabus:

UNIT – I (12 Hours)

Differential Equations of first order and first degree:

Linear Differential Equations; Differential equations reducible to linear form; Exact differential equations; Integrating factors; Change of variables.

UNIT – II (12 Hours)

Orthogonal Trajectories

Differential Equations of first order but not of the first degree:

Equations solvable for *p*; Equations solvable for *y*; Equations solvable for *x*; Equations that do notcontain x (or y); Equations homogeneous in x and y;Equations of the first degree in *x* and *y* – Clairaut's Equation.

UNIT – III (12 Hours)

Higher order linear differential equations-I:

Solution of homogeneous linear differential equations of order n with constant coefficients; Solution of the non-homogeneous linear differential equations with constant coefficients by means of polynomial operators.General Solution of f(D)y=0.

General Solution of f(D)y=Q when Q is a function of x, $\frac{1}{f}$ is expressed as partial fractions.

P.I. of f(D)y = Q when Q= be^{ax} (D)

P.I. of f(D)y = Q when Q is bsinax or b cos ax.

UNIT – IV (12 Hours)

Higher order linear differential equations-II:

Solution of the non-homogeneous linear differential equations with constant coefficients.

P.I. of f(D)y = Q when Q= bx^k

P.I. of f(D)y = Q when Q= $e^{ax}V$ **,** where V is a function of x.

P.I. of f(D)y = Q when Q= xV **,** where V is a function of x.

P.I. of f(D)y = Q when Q= x^mV **,** where V is a function of x.

UNIT –V (12 Hours)

Higher order linear differential equations-III :

Method of variation of parameters; Linear differential Equations with non-constant coefficients; The Cauchy-Euler Equation, Legendre's linear equations, miscellaneous differential equations.

Co-Curricular Activities(15 Hours)

Seminar/ Quiz/ Assignments/ Applications of Differential Equations to Real life Problem /Problem Solving.

Text Book :

Differential Equations and Their Applications by Zafar Ahsan, published by Prentice-Hall ofIndia Pvt. Ltd, New Delhi-Second edition.

Reference Books :

1. A text book of Mathematics for B.A/B.Sc, Vol 1, by N. Krishna Murthy & others, published byS.Chand & Company, New Delhi.
2. Ordinary and Partial Differential Equations by Dr. M.D,Raisinghania, published by S. Chand &Company, New Delhi.
3. Differential Equations with applications and programs – S. Balachandra Rao & HR Anuradha-Universities Press.
4. Differential Equations -Srinivas Vangala & Madhu Rajesh, published by Spectrum UniversityPress.

COURSE-II

CBCS/ SEMESTER SYSTEM

(w.e.f. 2020-21 Admitted Batch)B.A./B.Sc. MATHEMATICS

THREE DIMENSIONAL ANALYTICAL SOLID GEOMETRY

Syllabus (75 Hours)

Course Outcomes:

After successful completion of this course, the student will be able to;

1. get the knowledge of planes.
2. basic idea of lines, sphere and cones.
3. understand the properties of planes, lines, spheres and cones.
4. express the problems geometrically and then to get the solution.

Course Syllabus:

UNIT – I (12 Hours)

The Plane :

Equation of plane in terms of its intercepts on the axis, Equations of the plane through the given points, Length of the perpendicular from a given point to a given plane, Bisectors of angles between two planes, Combined equation of two planes, Orthogonal projection on a plane.

UNIT – II (12 hrs)

The Line :

Equation of a line; Angle between a line and a plane; The condition that a given line may lie in a given plane; The condition that two given lines are coplanar; Number of arbitrary constants in the equations of straight line; Sets of conditions which determine a line; The shortest distance between two lines; The length and equations of the line of shortest distance between two straight lines; Length of the perpendicular from a given point to a given line.

UNIT – III (12 hrs)

The Sphere :

Definition and equation of the sphere; Equation of the sphere through four given points; Planesections of a sphere; Intersection of two spheres; Equation of a circle; Sphere through a given circle;

Intersection of a sphere and a line; Power of a point; Tangent plane; Plane of contact; Polar plane; Pole ofa Plane; Conjugate points; Conjugate planes;

UNIT – IV (12 hrs)

The Sphere and Cones :

Angle of intersection of two spheres; Conditions for two spheres to be orthogonal; Radical plane; Coaxial system of spheres; Simplified from of the equation of two spheres.

Definitions of a cone; vertex; guiding curve; generators; Equation of the cone with a given vertex and guiding curve; equations of cones with vertex at origin are homogenous; Condition that the general equation of the second degree should represent a cone;

UNIT – V (12 hrs)

Cones :

Enveloping cone of a sphere; right circular cone: equation of the right circular cone with a given vertex, axis and semi vertical angle: Condition that a cone may have three mutually perpendicular generators; intersection of a line and a quadric cone; Tangent lines and tangent plane at a point; Condition that a plane may touch a cone; Reciprocal cones; Intersection of two cones with a common vertex.

Co-Curricular Activities(15 Hours)

Seminar/ Quiz/ Assignments/Three dimensional analytical Solid geometry and its applications/ ProblemSolving.

Text Book :

Analytical Solid Geometry by Shanti Narayan and P.K. Mittal, published by S. Chand & Company Ltd. 7th Edition.

Reference Books :

1. A text book of Mathematics for BA/B.Sc Vol 1, by V Krishna Murthy & Others, published by

   S. Chand & Company, New Delhi.

2. A text Book of Analytical Geometry of Three Dimensions, by P.K. Jain and Khaleel Ahmed,published by Wiley Eastern Ltd., 1999.

3. Co-ordinate Geometry of two and three dimensions by P. Balasubrahmanyam, K.Y. Subrahmanyam,

   G.R. Venkataraman published by Tata-MC Gran-Hill Publishers Company Ltd., New Delhi.

4. Solid Geometry by B.Rama Bhupal Reddy, published by Spectrum University Press.

COURSE-III

CBCS/ SEMESTER SYSTEM

(w.e.f. 2020-21 Admitted Batch)

B.A./B.Sc. MATHEMATICS ABSTRACT ALGEBRA SYLLABUS (75 Hours)

Course Outcomes:

After successful completion of this course, the student will be able to;

1. acquire the basic knowledge and structure of groups, subgroups and cyclic groups.
2. get the significance of the notation of a normal subgroups.
3. get the behavior of permutations and operations on them.
4. study the homomorphisms and isomorphisms with applications.
5. understand the ring theory concepts with the help of knowledge in group theory and to prove thetheorems.
6. understand the applications of ring theory in various fields.

Course Syllabus:

UNIT – I (12 Hours)

GROUPS :

Binary Operation – Algebraic structure – semi group-monoid – Group definition and elementaryproperties Finite and Infinite groups – examples – order of a group, Composition tables with examples.

UNIT – II (12 Hours)

SUB - GROUPS :

Complex Definition – Multiplication of two complexes Inverse of a complex-Subgroup definition- examples-criterion for a complex to be a subgroups. Criterion for the product of two subgroups to be a subgroup-union and Intersection of subgroups.

Co-sets and Lagrange's Theorem :

Cosets Definition – properties of Cosets–Index of a subgroups of a finite groups–Lagrange's Theorem.

UNIT –III (12 Hours)

NORMAL SUBGROUPS :

Definition of normal subgroup – proper and improper normal subgroup–Hamilton group – criterion for a subgroup to be a normal subgroup – intersection of two normal subgroups – Sub group of index 2 is a normal sub group –quotient group – criteria for the existence of a quotient group.

HOMOMORPHISM :

Definition of homomorphism – Image of homomorphism elementary properties of homomorphism – Isomorphism – automorphism definitions and elementary properties–kernel of a homomorphism – fundamental theorem on Homomorphism and applications.

UNIT – IV (12 Hours)PERMUTATIONS AND

CYCLIC GROUPS :

Definition of permutation – permutation multiplication – Inverse of a permutation – cyclic permutations – transposition – even and odd permutations – Cayley's theorem.

Cyclic Groups :- Definition of cyclic group – elementary properties – classification of cyclic groups.

UNIT – V (12 Hours)

RINGS :

Definition of Ring and basic properties, Boolean Rings, divisors of zero and cancellation laws Rings, Integral Domains, Division Ring and Fields, The characteristic of a ring - The characteristic of an Integral Domain, The characteristic of a Field. Sub Rings, Ideals

Co-Curricular Activities(15 Hours)

Seminar/ Quiz/ Assignments/ Group theory and its applications / Problem Solving.

Text Book :

A text book of Mathematics for B.A. / B.Sc. by B.V.S.S. SARMA and others, published by S.Chand & Company, New Delhi.

Reference Books :

1. Abstract Algebra by J.B. Fraleigh, Published by Narosa publishing house.

2. Modern Algebra by M.L. Khanna.

3. Rings and Linear Algebra by Pundir & Pundir, published by Pragathi Prakashan.

COURSE-IV

CBCS/ SEMESTER SYSTEM

(w.e.f. 2020-21 Admitted Batch)

B.A./B.Sc. MATHEMATICS REAL ANALYSIS

SYLLABUS (75 Hours)

Course Outcomes:

After successful completion of this course, the student will be able to

1. get clear idea about the real numbers and real valued functions.
2. obtain the skills of analyzing the concepts and applying appropriate methods fortesting convergence of a sequence/ series.
3. test the continuity and differentiability and Riemann integration of a function.
4. know the geometrical interpretation of mean value theorems.

Course Syllabus:

UNIT – I (12 Hours)

REAL NUMBERS :

The algebraic and order properties of R, Absolute value and Real line, Completeness property of R, Applications of supremum property; intervals. (No question is to be set from this portion).

Real Sequences:

Sequences and their limits, Range and Boundedness of Sequences, Limit of a sequence and Convergent sequence. The Cauchy's criterion, properly divergent sequences, Monotone sequences, Necessary and Sufficient condition for Convergence of Monotone Sequence, Limit Point of Sequence, Subsequences and the Bolzano-weierstrass theorem – Cauchy Sequences – Cauchy's general principle of convergence theorem.

UNIT –II (12 Hours)

INFINITIE SERIES :

Series : Introduction to series, convergence of series. Cauchy's general principle of convergence forseries tests for convergence of series, Series of Non-Negative Terms.

1. P-test
2. Cauchy's n^{th} root test or Root Test.

3. D'-Alemberts' Test or Ratio Test.

4. Alternating Series – Leibnitz Test.

Absolute convergence and conditional convergence.

UNIT – III (12 Hours)

CONTINUITY :

Limits : Real valued Functions, Boundedness of a function, Limits of functions. Some extensionsof the limit concept, Infinite Limits. Limits at infinity. (No question is to be set from this portion).

Continuous functions : Continuous functions, Combinations of continuous functions, Continuous Functions on intervals, uniform continuity.

UNIT – IV (12 Hours)

DIFFERENTIATION AND MEAN VALUE THEORMS :

The derivability of a function, on an interval, at a point, Derivability and continuity of a function, Graphical meaning of the Derivative, Mean value Theorems; Rolle's Theorem, Lagrange's Theorem, Cauchy's Mean value Theorem

UNIT – V (12 Hours)

RIEMANN INTEGRATION :

Riemann Integral, Riemann integral functions, Darboux theorem. Necessary and sufficient condition for R – integrability, Properties of integrable functions, Fundamental theorem of integral calculus, integral asthe limit of a sum, Mean value Theorems.

Co-Curricular Activities(15 Hours)

Seminar/ Quiz/ Assignments/ Real Analysis and its applications / Problem Solving.

Text Book:

Introduction to Real Analysis by Robert G.Bartle and Donlad R. Sherbert, published by John

Wiley.

Reference Books:

1.A Text Book of B.Sc Mathematics by B.V.S.S. Sarma and others, published by S. Chand & CompanyPvt. Ltd., New Delhi.

2.Elements of Real Analysis as per UGC Syllabus by Shanthi Narayan and Dr. M.D. Raisinghania, published by S. Chand & Company Pvt. Ltd., New Delhi.

COURSE-V

CBCS/ SEMESTER SYSTEM

(w.e.f. 2020-21 Admitted Batch)

B.A./B.Sc. MATHEMATICS LINEAR ALGEBRA SYLLABUS (75 Hours)

Course Outcomes:

After successful completion of this course, the student will be able to;

1. understand the concepts of vector spaces, subspaces, basises, dimension and their properties
2. understand the concepts of linear transformations and their properties
3. apply Cayley- Hamilton theorem to problems for finding the inverse of a matrix and higher powers of matrices without using routine methods
4. learn the properties of inner product spaces and determine orthogonality in inner product spaces.

Course Syllabus:

UNIT – I (12 Hours)

Vector Spaces-I:

Vector Spaces, General properties of vector spaces, n-dimensional Vectors, addition and scalar multiplication of Vectors, internal and external composition, Null space, Vector subspaces, Algebra of subspaces, Linear Sum of two subspaces, linear combination of Vectors, Linear span Linear independence and Linear dependence of Vectors.

UNIT –II (12 Hours)

Vector Spaces-II:

Basis of Vector space, Finite dimensional Vector spaces, basis extension, co-ordinates, Dimension of aVector space, Dimension of a subspace, Quotient space and Dimension of Quotient space.

UNIT –III (12 Hours)

Linear Transformations:

Linear transformations, linear operators, Properties of L.T, sum and product of LTs, Algebra of Linear Operators, Range and null space of linear transformation, Rank and Nullity of linear transformations – Rank – Nullity Theorem.

UNIT –IV (12 Hours)

Matrix :

Matrices, Elementary Properties of Matrices, Inverse Matrices, Rank of Matrix, Linear Equations, Characteristic equations, Characteristic Values & Vectors of square matrix, Cayley – Hamilton Theorem.

UNIT –V (12 Hours)

Inner product space :

Inner product spaces, Euclidean and unitary spaces, Norm or length of a Vector, Schwartz inequality, Triangle Inequality, Parallelogram law, Orthogonality, Orthonormal set, complete orthonormal set, Gram

– Schmidt orthogonalisation process. Bessel's inequality and Parseval's Identity.

Co-Curricular Activities(15 Hours)

Seminar/ Quiz/ Assignments/ Linear algebra and its applications / Problem Solving.

Text Book:

Linear Algebra by J.N. Sharma and A.R. Vasista, published by Krishna Prakashan Mandir, Meerut- 250002.

Reference Books :

1. Matrices by Shanti Narayana, published by S.Chand Publications.
2. Linear Algebra by Kenneth Hoffman and Ray Kunze, published by Pearson Education (low priced edition),New Delhi.
3. Linear Algebra by Stephen H. Friedberg et. al. published by Prentice Hall of India Pvt. Ltd.4^{th} Edition, 2007.

Recommended Question Paper Patterns and Models

BLUE PRINT FOR QUESTION PAPER PATTERNCOURSE-I, DIFFERENTIAL EQUATIONS

Unit	**TOPIC**	**S.A.Q**(including choice)	**E.Q**(including choice)	**Total Marks**
I	Differential Equations of 1st order and 1st degree	2	2	30
II	Orthogonal Trajectories, Differential Equations of 1st order but notof 1st degree	2	2	30
III	Higher Order Linear Differential Equations (with constant coefficients) – I	1	2	25
IV	Higher Order Linear Differential Equations (with constant coefficients) –II	2	2	30
V	Higher Order Linear DifferentialEquations (with non constant coefficients)	1	2	25
TOTAL		8	10	140

S.A.Q. = Short answer questions (5 marks)

E.Q. = Essay questions (10 marks)

Short answer questions : 5 X 5 M = 25 M

Essay questions : 5 X 10 M = 50 M

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Total Marks = 75 M

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CBCS/ SEMESTER SYSTEM

(W.e.f 2020-21 Admitted Batch)

B.A./B.Sc. MATHEMATICS

COURSE-I, DIFFERENTIAL EQUATIONSMATHEMATICS MODEL PAPER

Time: 3Hrs **Max.Marks:75M**

SECTION - A

Answer any FIVE questions. Each question carries FIVE marks5 X 5 M=25 M

1. Solve $(1 + e^{x/y})\,dx + e^{x/y}\left(1 - \frac{x}{y}\right)dy = 0.$

2. Solve $(y - e^{\sin^{-1}x})\frac{dx}{dy} + \sqrt{1 - x^2} = 0$

3. Solve $y + px = p^2x^4$.

4. Solve $(px - y)(py + x) = 2p$

5. Solve $(D^2 - 3D + 2) = \cosh x$

6. Solve$(D^2 - 4D + 3)y = \sin 3x \cos 2x.$

7. Solve $\frac{d^2y}{dx^2} - 6\frac{dy}{dx} + 13y = 8e^{3x}\sin 2x.$

8. Solve $x^2y'' - 2x(1 + x)y' + 2(1 + x)y = x^3$

SECTION - B

Answer ALL the questions. Each question carries TEN marks. 5 X 10 M = 50 M

9 a) Solve $x\frac{dy}{dx} + y = y^2 \log x.$

(Or)

9 b) Solve $(y + \frac{1}{3}y^3 + \frac{1}{2}x^2)\,dx + \frac{1}{4}(x + xy^2)\,dy = 0.$

10 a) Solve$ep^2 + 2pycotx = y^2.$

(Or)

10 b) Find the orthogonal trajectories of the family of curves

$x^{2/3} + y^{2/3} = a^{2/3}$ where 'a' is the parameter.

11 a) Solve$(D^3 + D^2 - D - 1)y$

(Or)

$= \cos 2x$.11 b) Solve$(D^2 - 3D +$

$2)y = \sin e^{-x}$.

12 a) Solve $(D^2 - 2D + 4)y = 8(x^2 + e^{2x} + \sin 2x)$

(Or)

12 b) $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = xe^x \sin x$

13 a) Solve $(D^2 - 2D)y = e^x \sin x$ by the method of variation of parameters.

(Or)

13 b) Solve $3x^2 \frac{d^2y}{dx^2} + x\frac{dy}{dx} + y = x$

BLUE PRINT FOR QUESTION PAPER PATTERN

COURSE-II, THREE DIMENSIONAL ANALYTICAL SOLID GEOMETRY

Unit	**TOPIC**	**S.A.Q**(including choice)	**E.Q**(including choice)	**Total Marks**
I	The Plane	2	2	30
II	The Right Line	2	2	30
III	The Sphere	2	2	30
IV	The Sphere & The Cone	1	2	25
V	The Cone	1	2	25
TOTAL		8	10	140

S.A.Q. = Short answer questions (5 marks)

E.Q. = Essay questions (10 marks)

Short answer questions : 5 X 5 M = 25 M

Essay questions : 5 X 10 M = 50 M

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Total Marks = 75 M

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CBCS/ SEMESTER SYSTEM

(w.e.f. 2020-21 Admitted Batch)

B.A./B.Sc. MATHEMATICS

COURSE-II, THREE DIMENSIONAL ANALYTICAL SOLID GEOMETRY

Time: 3Hrs **Max.Marks:75 M**

SECTION - A

Answer any FIVE questions. Each question carries FIVE marks 5 X 5 M=25 M

1. Find the equation of the plane through the point (-1,3,2) and perpendicular to the planes x+2y+2z=5 and 3x+3y+2z=8.
2. Find the bisecting plane of the acute angle between the planes 3x-2y-6z+2=0, -2x+y-2z-2=0.
3. Find the image of the point (2,-1,3) in the plane 3x-2y+z =9.
4. Show that the lines $2x + \ -4 \ = 0 \ = \ y \ + 2z$ and $x + \ 3z \ - 4 \ = 0$,$2x + \ 5z - 8 = 0$ are coplanar.
5. A variable plane passes through a fixed point (a, b, c). It meets the axes in A,B,C. Show that thecentre of the sphere OABC lies on $ax^{-1}+by^{-1}+cz^{-1}=2$.
6. Show that the plane 2x-2y+z+12=0 touches the sphere $x^2+y^2+z^2$-2x-4y+2z-3=0 and find thepoint of contact.
7. Find the equation to the cone which passes through the three coordinate axes and the lines $\frac{x}{1} = \frac{y}{-2} = \frac{z}{3}$ and $\frac{x}{2} = \frac{y}{1} = \frac{z}{1}$
8. Find the equation of the enveloping cone of the sphere $x^2 \ + \ y^2 \ + \ z^2 \ + \ 2x \ - 2y \ = \ 2$ with its vertex at (1, 1, 1).

SECTION - B

Answer ALL the questions. Each question carries TEN marks. 5 X 10 M = 50 M

9(a) A plane meets the coordinate axes in A, B, C. If the centroid of ΔABC is (a,b,c), show that the equation of the plane is $\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 3$.

(OR)

(b) A variable plane is at a constant distance p from the origin and meets the axesin A,B,C. Show that the locus of the centroid of the tetrahedron OABC is $x^{-2}+y^{-2}+z^{-2}=16p^{-2}$.

10(a) Find the shortest distance between the lines

$\frac{x-3}{3} = \frac{y-8}{-1} = \frac{z-3}{1}$; $\frac{x+3}{-3} = \frac{y+7}{2} = \frac{z-6}{4}$.

(OR)

(b) Prove that the lines $\frac{x-1}{2} = \frac{y-2}{3} = \frac{z-3}{4}$; $\frac{x-2}{3} = \frac{y-3}{4} = \frac{z-4}{5}$ are coplanar. Alsofind their point of intersection and the plane containing the lines.

11 (a) Show that the two circles $x^2+y^2+z^2-y+2z=0$, $x-y+z=2$; $x^2+y^2+z^2+x-3y+z-5=0$, $2x-y+4z-1=0$ lie on the same sphere and find itsequation.

(OR)

(b) Find the equation of the sphere which touches the plane $3x+2y-z+2=0$at (1,-2,1) and cuts orthogonally the sphere $x^2+y^2+z^2-4x+6y+4=0$.

12 (a) Find the limiting points of the coaxial system of spheres$x^2+y^2+z^2-8x+2y-2z+32=0$, $x^2+y^2+z^2-7x+z+23=0$.

(OR)

(b) Find the equation to the cone with vertex is the origin and whosebase curve is $x^2+y^2+z^2+2ux+d=0$.

13 (a) Prove that the equation $\sqrt{fx} \pm \sqrt{gy} \pm \sqrt{hz} = 0$ represents a cone thattouches the coordinate planes and find its reciprocal cone.

(OR)

(b) Find the equation of the sphere $x^2+y^2+z^2-2x+4y-1=0$ having itsgenerators parallel to the line x=y=z.

BLUE PRINT FOR QUESTION PAPER PATTERNCOURSE-III, ABSTRACT ALGEBRA

Unit	**TOPIC**	**S.A.Q**(including choice)	**E.Q**(including choice)	**Total Marks**
I	Groups	2	2	30
II	Subgroups, Cosets & Lagrange's theorem	1	2	25
III	Normal Subgroups and Homomorphism	1	2	25
IV	Permutations and Cyclic groups	2	2	30
V	Rings	2	2	30
Total		8	10	140

S.A.Q. = Short answer questions (5 marks)

E.Q. = Essay questions (10 marks)

Short answer questions : 5 X 5 M = 25 M

Essay questions : 5 X 10 M = 50 M

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Total Marks = 75 M

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CBCS/ SEMESTER SYSTEM

(w.e.f. 2020-21 Admitted Batch)

B.A./B.Sc. MATHEMATICS

COURSE-III, ABSTRACT ALGEBRA

Time: 3Hrs **Max.Marks:75M**

SECTION - A

Answer any FIVE questions. Each question carries FIVE marks 5 X 5 M=25 M

1. Show that the set G=$\{x/x = 2^a 3^b \text{ and } a,b \in Z\}$ is a group under multiplication

2. Define order of an element. In a group G, prove that if $a \in G$ then $O(a) = O(a)^{-1}$.

3. If H and K are two subgroups of a group G, then prove that HK is a subgroup $\Leftrightarrow$ HK=KH

4.If G is a group and H is a subgroup of index 2 in G then prove that H is a normalsubgroup.

5. Examine whether the following permutations are even or oddi)

$$\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 & 9 \\ 6 & 1 & 4 & 3 & 2 & 5 & 7 & 8 & 9 \end{pmatrix}$$

ii) $\begin{pmatrix} 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ 3 & 2 & 4 & 5 & 6 & 7 & 1 \end{pmatrix}$

6. Prove thata group of prime order is cyclic.

7.Prove that the characteristic of an integral domain is either prime or zero.

8. If F is a field then prove that $\{0\}$ and F are the only ideals of F.

SECTION - B

Answer ALL the questions. Each question carries TEN marks. 5 X 10 M = 50 M

9 a) Show that the set of n^{th} roots of unity forms an abelian group under multiplication.

(Or)

9 b) In a group G, for $a,b \in G$, O(a)=5, b ≠ e and $aba^{-1} = b^2$. Find O(b).

10 a) The Union of two subgroups is also a subgroup $\Leftrightarrow$ one is contained in theother.

(Or)

b) State and prove Langrage's theorem.

11 a) Prove that a subgroup H of a group G is a normal subgroup of G iff the productof two right cosets of H in G is again a right coset of H in G.

(Or)

11 b) State and prove fundamental theorem of homomorphisms of groups.

12 a) Let S_n be the symmetric group on n symbols and let A_n be the group of evenpermutations. Then show that A_n is normal in S_n and $O(A_n) = \frac{1}{2}(n!)$

(Or)

12 b)prove thatevery subgroup of cyclic group is cyclic.

13 a) Prove that every finite integral domain is a field.

(Or)

13 b) Define principal idea. Prove that every ideal of Z is a principal ideal.

BLUE PRINT FOR QUESTION PAPER PATTERNCOURSE-IV, REAL ANALYSIS

Unit	**TOPIC**	**S.A.Q**(including choice)	**E.Q**(including choice)	**Total Marks**
I	Real Number System and Real Sequence	2	2	30
II	Infinite Series	1	2	25
III	Limits and Continuity	1	2	25
IV	Differentiation and MeanValue Theorem	2	2	30
V	Riemann Integration	2	2	30
	TOTAL	8	10	140

S.A.Q. = Short answer questions (5 marks)

E.Q. = Essay questions (10 marks)

Short answer questions : 5 X 5 M = 25 M

Essay questions : 5 X 10 M = 50 M

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Total Marks = 75 M

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CBCS/ SEMESTER SYSTEM

(w.e.f. 2020-21 Admitted Batch)

B.A./B.Sc. MATHEMATICS COURSE-IV, REAL ANALYSIS

Time: 3Hrs **Max.Marks:75M**

SECTION - A

Answer any FIVE questions. Each question carries FIVE marks 5 X 5 M=25 M

1.Prove that every convergent sequence is bounded.

2. Show that $\lim(\frac{1}{(n+1)^2}+\frac{1}{(n+2)^2}+\text{----------}+\frac{1}{(n+n)^2})=0$.

3. Test the convergenceof the series $\sum_{n=1}^{\infty}(\sqrt[3]{n^3+1}-n)$.

4. Examine for continuity of the function *f* defined by $f(x)=|x|+|x-1|$ at x=0 and 1.

5. Show that $f(x)=x\sin\frac{1}{x},\ x\neq 0; f(x)=0, x=0$ is continuous but not derivable at x=0.

6.Verify Rolle's theorem for the function f(x) = x^3- $6x^2$+11x-6 on $[1,3]$.

7. If $f(x)=x^2\ \forall\, x\in[0,1]$ and $p=\{0,\frac{1}{4},\frac{2}{4},\frac{3}{4},1\}$ then find L(p, f) and U(p, f).

8.prove that if $f:[a,b]\to R$ is continuous on [a, b] then f is R- integrable on [a, b].

SECTION –B

Answer ALL the questions. Each question carries TEN marks. 5 X 10 M = 50 M

9.(a)If $s_n=1+\frac{1}{2!}+\frac{1}{3!}+-----+\frac{1}{n!}$ then show that $\{s_n\}$ converges.

(OR)

(b) State and prove Cauchy's general principle of convergence.

10.(a) State and Prove Cauchy's nth root test.

(OR)

(b) Test the convergence of $\sum \frac{x^n}{x^n+a^n}$ $(x > 0, a > 0)$.

11.(a) Let f: R→ R be such that

$$f(x) = \frac{\sin(a+1)x+\sin x}{x} \text{ for } x < 0$$

$$= c \quad \text{for } x = 0$$

$$= \frac{(x+bx^2)^{1/2}-x^{1/2}}{bx^{3/2}} \text{ for } x > 0$$

Determine the values of a, b, c for which the function f is continuous at x=0.

(OR)

(b) Define uniform continuity, If a function f is continuous on [a b] then f isuniformly continuous on [a b]

12.(a) Using Lagrange's theorem, show that $x > \log(1+x) > \frac{x}{(1+x)} \forall\, x > 0$.(OR)

(b) State and prove Cauchy's mean value theorem.

13.(a) State and prove Riemman's necessary and sufficient condition for R- integrability.

(OR)

(b) Prove that $\frac{\pi^3}{24} \leq \int_0^{\pi} \frac{x^2}{5+3\cos x}\,dx \leq \frac{\pi^3}{6}$.

BLUE PRINT FOR QUESTION PAPER PATTERNCOURSE-V, LINEAR ALGEBRA

Unit	TOPIC	S.A.Q (including choice)	E.Q (including choice)	Marks Allotted
I	Vector spaces - I	2	2	30
II	Vector spaces - II	1	2	25
III	Linear Transformation	2	2	30
IV	Char. values and char. vectors	1	2	25
V	Inner product spaces	2	2	30
Total		8	10	140

S.A.Q. = Short answer questions (5 marks)

E.Q. = Essay questions (10 marks)

Short answer questions : 5 X 5 M = 25 M

Essay questions : 5 X 10 M = 50 M

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Total Marks = 75 M

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CBCS/ SEMESTER SYSTEM

(w.e.f. 2020-21 Admitted Batch)

B.A./B.Sc. MATHEMATICS COURSE-V, LINEAR ALGEBRA

Time: 3Hrs **Max.Marks:75M**

SECTION - A

Answer any FIVE questions. Each question carries FIVE marks 5 X 5 M=25 M

1. Let p, q, r be fixed elements of a field F. Show that the set W of all triads (x, y, z) ofelements of F, such that px+qy+rz=0 is a vector subspace of $V_3(R)$.

2. Define linearly independent &linearly dependent vectors in a vector space. If α, β, γ are linearly independent vectors of $V(R)$ then show that $\alpha+\beta, \beta+\gamma, \gamma+\alpha$ arealso linearly independent.

3. Prove that every set of $(n+1)$ or more vectors in an n dimensional vector space islinearly dependent.

4. The mapping T : $V_3(R) \rightarrow V_3(R)$ is defined by T(x,y,z) = (x-y,x-z). Show that T is alinear transformation.

5. Let $T: R^3 \rightarrow R^2$ and $H: R^3 \rightarrow R^2$ be defined by T (x, y, z)= (3x, y+z) andH (x, y, z)= (2x-z, y). Compute i) T+H ii) 4T-5H iii) TH iv) HT.

6. If the matrix A is non-singular, show that the eigen values of A^{-1} are the reciprocalsof the eigen values of A.

7. State and prove parallelogram law in an inner product space V(F).

8. Prove that the set S = $\left\{\left(\frac{1}{3},\frac{-2}{3},\frac{-2}{3}\right),\left(\frac{2}{3},\frac{-1}{3},\frac{2}{3}\right),\left(\frac{2}{3},\frac{2}{3},\frac{-1}{3}\right)\right\}$ is an orthonormal set inthe inner product space $R^3(R)$ with the standard inner product.

SECTION - B

Answer ALL the questions. Each question carries TEN marks. 5 X 10 M = 50 M

9(a)) Define vector space. Let V (F) be a vector space. Let W be a non empty sub setof V. Prove that the necessary and sufficient condition for W to be a subspace of V is .

$a, b \in F$ and $\alpha, \beta \epsilon V \Rightarrow a\alpha + b\beta \epsilon W$

(OR)

(b) Prove that the four vectors (1,0,0), (0,1,0), (0,0,1) and (1,1,1) of $V_3(C)$ formlinearly dependent set, but any three of them are linearly independent.

10(a)Define dimension of a finite dimensional vector space. If W is a subspace of a finite dimensional vector space V(F) then prove that W is finite dimensional and dim W $\leq n$.

(OR)

(b) If W be a subspace of a finite dimensional vector space V(F) then Prove that $\dim {}^{V}/_{W} = \dim V - \dim W$.

11(a) Find T (x, y, z) where $T: R^3 \rightarrow R$ is defined by T (1, 1, 1) =3, T (0, 1, -2) =1, T (0, 0, 1) = -2

(OR)

(b) State and prove Rank Nullity theorem.

12(a) Find the eigen values and the corresponding eigen vectors of the matrix

$$A=\begin{pmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{pmatrix}.$$

(OR)

(b) State and prove Cayley-Hamilton theorem.

13(a) State and prove Schwarz's inequality in an Inner product space V(F).

(OR)

(b) Given $\{(2,1,3),(1,2,3),(1,1,1)\}$ is a basis of R^3(R).Construct an orthonormalbasis using Gram-Schmidt orthogonalisation process.

SUBJECT EXPERTS

Prof. GVR Babu

Dept of Mathematics,

Andhra University,

Visakhapatnam

Dr.K.Chitti Babu,

Lecturer in Mathematics,

Govt. Degree College,

Ramachandrapuram

SYLLABUS VETTED BY

Prof.D.Bharathi,
Dept of Mathematics,
S V University, Tirupati

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

3rd,4th and 5th floors, Neeladri Towers, Sri Ram Nagar,6th Battalion Road,
Atmakur(V), Mangalagiri(M), Guntur-522 503, Andhra Pradesh
Web: www.apsche.org **Email**: acapsche@gmail.com

REVISED SYLLABUS OF B.Sc. PHYSICS
(FOR MATHEMATICS COMBINATIONS)
UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-2021

PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

Physics for Mathematics Combinations

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P.)

For Fifteen Courses of 1, 2, 3 & 4 Semesters)

(To be Implemented from 2020-21 Academic Year)

AP STATE COUNCIL OF HIGHER EDUCATION

B.Sc. PHYSICSSYLLABUS UNDER CBCS

[For Mathematics combinations]

w.e.f. 2020-21 (Revised in May 2020)

First Semester

Course I: Mechanics, Waves and Oscillations

Practical Course I (Lab-1)

Second Semester

Course II: Wave Optics

Practical Course II (Lab-2)

Third Semester

Course III: Heat and Thermodynamics

Practical Course III (Lab-3)

Fourth Semester

Course IV: Electricity, Magnetism and Electronics

Practical Course IV (Lab- 4)

Course V:Modern Physics

Practical Course V (Lab-V)

B.Sc. PHYSICS COURSE STRUCTURE UNDER CBCS

Year	***Semester***	***Course***	***Title of the Course***	***Marks***	***No.ofHrs /Week***	***No.of Credits***
I	I	I	Mechanics, Waves and Oscillations	100	4	03
			Practical Course- I	50	2	02
	II	II	Wave Optics	100	4	03
			Practical Course – II	50	2	02
II	III	III	Heat and Thermodynamics	100	4	03
			Practical Course – III	50	2	02
	IV	IV	Electricity, Magnetism and Electronics	100	4	03
			Practical Course – IV	50	2	02
		V	Modern Physics	100	4	03
			Practical Course –V	50	2	02
Total No. of Courses : **05 (Five)**						

B.Sc. PHYSICS SYLLABUS UNDER CBCS

For Mathematics Combinations

[2020-21 Batch onwards]

I Year B.Sc.-Physics: I Semester

Course I: MECHANICS, WAVES AND OSCILLATIONS

Work load:60 hrs per semester **4 hrs/week**

Course outcomes:

On successful completion of this course, the students will be able to:

- *Understand Newton's laws of motion and motion of variable mass system and its application to rocket motion and the concepts of impact parameter, scattering cross section.*
- *Apply the rotational kinematic relations, the principle and working of gyroscope and it applications and the precessional motion of a freely rotating symmetric top.*
- *Comprehend the general characteristics of central forces and the application of Kepler's laws to describe the motion of planets and satellite in circular orbit through the study of law of Gravitation.*
- *Understand postulates of Special theory of relativity and its consequences such as length contraction, time dilation, relativistic mass and mass-energy equivalence.*
- *Examinephenomena of simple harmonic motion and the distinction between undamped,damped and forced oscillations and the concepts of resonance and quality factor with reference to damped harmonic oscillator.*
- *Appreciate the formulation of the problem of coupled oscillations and solve them to obtain normal modes of oscillation and their frequencies in simple mechanical systems.*
- *Figure out the formation of harmonics and overtones in a stretched string and acquire the knowledge on Ultrasonic waves, their production and detection and their applications in different fields.*

UNIT-I:

1. Mechanics of Particles (5 hrs)

Review of Newton's Laws of Motion, Motion of variable mass system, Motion of a rocket, Multistage rocket, Concept of impact parameter, scattering cross-section, Rutherford scattering-Derivation.

2. Mechanics of Rigid bodies (7 hrs)

Rigid body, rotational kinematic relations, Equation of motion for a rotating body, Angular momentum and Moment of inertia tensor, Euler equations, Precession of a spinning top, Gyroscope, Precession of atom and nucleus in magnetic field, Precession of the equinoxes

Unit-II:

3. Motion in a Central Force Field (12hrs)

Central forces, definition and examples, characteristics of central forces, conservative nature of central forces, Equation of motion under a central force, Kepler's laws of planetary motion-Proofs, Motion of satellites, Basic idea of Global Positioning System (GPS), weightlessness, Physiological effects of astronauts

UNIT-III:

4. Relativistic Mechanics (12hrs)

Introduction to relativity, Frames of reference, Galilean transformations, absolute frames, Michelson-Morley experiment, negative result, Postulates of Special theory of relativity, Lorentz transformation, time dilation, length contraction, variation of mass with velocity, Einstein's mass-energy relation

Unit-IV:

5. Undamped, Damped and Forced oscillations: (07 hrs)

Simple harmonic oscillator and solution of the differential equation, Damped harmonic oscillator, Forced harmonic oscillator – Their differential equations and solutions, Resonance, Logarithmic decrement, Relaxation time and Quality factor.

6. Coupled oscillations: (05 hrs)

Coupled oscillators-Introduction, Two coupled oscillators, Normal coordinates and Normal modes- N-coupled oscillators and wave equation

Unit-V:

7. Vibrating Strings: (07 hrs)

Transverse wave propagation along a stretched string, General solution of wave equation and its significance, Modes of vibration of stretched string clamped at ends, Overtones and Harmonics, Melde's strings.

8. Ultrasonics: (05 hrs)

Ultrasonics, General Properties of ultrasonic waves, Production of ultrasonics by piezoelectric and magnetostriction methods, Detection of ultrasonics, Applications of ultrasonic waves, SONAR

REFERENCE BOOKS:

- B. Sc. Physics, Vol.1, Telugu Academy, Hyderabad
- Fundamentals of Physics Vol. I - Resnick, Halliday, Krane ,Wiley India 2007
- College Physics-I. T. Bhimasankaram and G. Prasad. Himalaya Publishing House.
- University Physics-FW Sears, MW Zemansky& HD Young,Narosa Publications, Delhi
- Mechanics, S.G.Venkatachalapathy, Margham Publication, 2003.
- Waves and Oscillations. N. Subramanyam and Brijlal, VikasPulications.
- Unified Physics - Waves and Oscillations, Jai PrakashNath&Co.Ltd.
- Waves & Oscillations. S.Badami, V. Balasubramanian and K.R. Reddy, Orient Longman.
- The Physics of Waves and Oscillations, N.K.Bajaj, Tata McGraw Hill
- Science and Technology of Ultrasonics- Baldevraj, Narosa, New Delhi,2004

Practical Course 1: Mechanics, Waves and Oscillations

Work load: 30 hrs per semester **2 hrs/week**

Course outcomes (Practicals):

On successful completion of this practical course, the student will be able to;

- Perform experiments on Properties of matter such as the determination of moduli of elasticity *viz.*, Young's modulus, Rigidity modulus of certain materials; Surface tension of water , Coefficient of viscosity of a liquid , Moment of inertia of some regular bodies by different methods and compare the experimental values with the standard values.
- Know how to determine the acceleration due to gravity at a place using Compound pendulum and Simple pendulum.
- Notice the difference between flat resonance and sharp resonance in case of volume resonator and sonometer experiments respectively.
- Verify the laws of transverse vibrations in a stretched string using sonometer and comment on the relation between frequency, length and tension of a stretched string under vibration.
- Demonstrate the formation of stationary waves on a string in Melde's string experiment.
- Observe the motion of coupled oscillators and normal modes.

Minimum of 6 experiments to be done and recorded:

1. Young's modulus of the material of a bar (scale) by uniform bending
2. Young's modulus of the material a bar (scale) by non- uniform bending
3. Surface tension of a liquid by capillary rise method
4. Viscosity of liquid by the flow method (Poiseuille's method)
5. Bifilar suspension –Moment of inertia of a regular rectangular body.
6. Fly-wheel -Determination of moment of inertia
7. Rigidity modulus of material of a wire-Dynamic method (Torsional pendulum)
8. Volume resonator experiment
9. Determination of 'g' by compound/bar pendulum
10. Simple pendulum- normal distribution of errors-estimation of time period and the error of the mean by statistical analysis
11. Determination of the force constant of a spring by static and dynamic method.

12. Coupled oscillators
13. Verification of laws of vibrations of stretched string –Sonometer
14. Determination of frequency of a bar –Melde's experiment.
15. Study of a damped oscillation using the torsional pendulum immersed in liquid-decay constant and damping correction of the amplitude.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

MEASURABLE

- Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
- Student seminars (on topics of the syllabus and related aspects (individual activity)
- Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams)
- Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity)
- Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

GENERAL

- Group Discussion
- Visit to Research Stations, Science Museum Centres to understand the basic principles of mechanics with live examples and related industries
- Visit to Satellite launching station at Sri Harikota.

RECOMMENDED ASSESSMENT METHODS

Some of the following suggested assessment methodologies could be adopted;

- The oral and written examinations (Scheduled and surprise tests)
- Problem-solving exercises
- Practical assignments and Observation of practical skills
- Individual and group project reports
- Efficient delivery using seminar presentations
- Viva voce interviews.

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Determination of wavelength of monochromatic light, Michelson interferometer and determination of wavelength.

UNIT-II Diffraction of light:(12hrs)

Introduction, Types of diffraction: Fresnel and Fraunhoffer diffractions, Distinction between Fresnel and Fraunhoffer diffraction, Fraunhoffer diffraction at a single slit, Plane diffraction grating, Determination of wavelength of light using diffraction grating, Resolving power of grating, Fresnel's half period zones, Explanation of rectilinear propagation of light, Zone plate, comparison of zone plate with convex lens.

UNIT-III Polarisation of light:(12hrs)

Polarized light: Methods of production of plane polarized light, Double refraction, Brewster's law, Malus law, Nicol prism, Nicol prism as polarizer and analyzer, Quarter wave plate, Half wave plate, Plane, Circularly and Elliptically polarized light-Production and detection, Optical activity, Laurent's half shade polarimeter: determination of specific rotation, Basic principle of LCDs

UNIT-IV Aberrations and Fibre Optics: (12hrs)

Monochromatic aberrations, Spherical aberration, Methods of minimizing spherical aberration, Coma, Astigmatism and Curvature of field, Distortion; Chromatic aberration-the achromatic doublet; Achromatism for two lenses (i) in contact and (ii) separated by a distance.

Fibre optics: Introduction to Fibers, different types of fibers, rays and modes in an optical fiber, Principles of fiber communication (qualitative treatment only), Advantages of fiber optic communication.

UNIT-V Lasers and Holography:(12hrs)

Lasers: Introduction, Spontaneous emission, stimulated emission, Population Inversion, Laser principle, Einstein coefficients, Types of lasers-He-Ne laser, Ruby laser, Applications of lasers; Holography: Basic principle of holography, Applications of holography

REFERENCE BOOKS:

- BSc Physics, Vol.2, Telugu Akademy, Hyderabad
- A Text Book of Optics-N Subramanyam, L Brijlal, S.Chand& Co.
- Optics-Murugeshan, S.Chand& Co.

- Unified Physics Vol.IIOptics, Jai PrakashNath&Co.Ltd., Meerut
- Optics,F.A. Jenkins and H.G.White, McGraw-Hill
- Optics, AjoyGhatak,TataMcGraw-Hill.
- Introduction of Lasers – Avadhanulu, S.Chand& Co.
- Principles of Optics- BK Mathur, Gopala Printing Press, 1995

Practical Course II: Wave Optics

Work load: 30hrs **2 hrs/week**

Course outcomes (Practicals):

On successful completion of this practical course the student will be able to,

1. *Gain hands-on experience of using various optical instruments like spectrometer, polarimeter and making finer measurements of wavelength of light using Newton Rings experiment, diffraction grating etc.*
2. *Understand the principle of working of polarimeter and the measurement of specific rotatory power of sugar solution*
3. *Know the techniques involved in measuring the resolving power of telescope and dispersive power of the material of the prism.*
4. *Be familiar with the determination of refractive index of liquid by Boy's method andthe determination of thickness of a thin wire by wedge method.*

Minimum of 6 experiments to be done and recorded

1. Determination of radius of curvature of a given convex lens-Newton's rings.
2. Resolving power of grating.
3. Study of optical rotation –polarimeter.
4. Dispersive power of a prism.
5. Determination of wavelength of light using diffraction grating-minimum deviation method.
6. Determination of wavelength of light using diffraction grating-normal incidence method.
7. Resolving power of a telescope.
8. Refractive index of a liquid-hallow prism
9. Determination of thickness of a thin wire by wedge method
10. Determination of refractive index of liquid-Boy's method.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

MEASURABLE

- Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)

- Student seminars (on topics of the syllabus and related aspects (individual activity)
- Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams)
- Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

GENERAL

- Group Discussion
- Visit to Research Stations/laboratories and related industries

RECOMMENDED ASSESSMENT METHODS

Some of the following suggested assessment methodologies could be adopted;

- The oral and written examinations (Scheduled and surprise tests),
- Practical assignments and laboratory reports,
- Efficient delivery using seminar presentations,
- Viva voce interviews.

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and its identity with perfect gas scale, Second law of thermodynamics: Kelvin's and Clausius statements, Principle of refrigeration, Entropy, Physical significance, Change in entropy in reversible and irreversible processes; Entropy and disorder-Entropy of Universe; Temperature-Entropy (T-S) diagram and its uses ; change of entropy when ice changes into steam.

UNIT-III: Thermodynamic Potentials and Maxwell's equations: (12hrs)

Thermodynamic potentials-Internal Energy, Enthalpy, Helmholtz Free Energy, Gibb's Free Energy and their significance, Derivation of Maxwell's thermodynamic relations from thermodynamic potentials, Applications to (i) Clausius-Clayperon's equation (ii) Value of C_P-C_V (iii) Value of C_P/C_V (iv) Joule-Kelvin coefficient for ideal and Van der Waals' gases

UNIT-IV: Low temperature Physics: (12hrs)

Methods for producing very low temperatures, Joule Kelvin effect, Porous plug experiment , Joule expansion, Distinction between adiabatic and Joule Thomson expansion, Expression for Joule Thomson cooling, Liquefaction of air by Linde's method, Production of low temperatures by adiabatic demagnetization (qualitative), Practical applications of substances at low temperatures.

UNIT-V: Quantum theory of radiation: (12 hrs)

Blackbody and its spectral energy distribution of black body radiation, Kirchoff's law, Wein's displacement law, Stefan-Boltzmann's law and Rayleigh-Jean's law (No derivations), Planck's law of black body radiation-Derivation, Deduction of Wein's law and Rayleigh-Jean's law from Planck's law, Solar constant and its determination using Angstrom pyroheliometer, Estimation of surface temperature of Sun.

REFERENCE BOOKS:

- BSc Physics, Vol.2, Telugu Akademy, Hyderabad
- Thermodynamics, R.C.Srivastava, S.K.Saha&AbhayK.Jain, Eastern Economy Edition.
- Unified Physics Vol.2, Optics & Thermodynamics, Jai PrakashNath&Co.Ltd., Meerut
- Fundamentals of Physics. Halliday/Resnick/Walker.C. Wiley India Edition 2007
- Heat and Thermodynamics -N BrijLal, P Subrahmanyam, S.Chand& Co.,2012
- Heat and Thermodynamics- MS Yadav, Anmol Publications Pvt. Ltd, 2000
- University Physics, HD Young, MW Zemansky,FW Sears, Narosa Publishers, New Delhi

Practical Course-III: Heat and Thermodynamics

Work load: 30 hrs **2 hrs/week**

On successful completion of this practical course, the student will be able to;

- *Perform some basic experiments in thermal Physics, viz., determinations of Stefan's constant, coefficient of thermal conductivity, variation of thermo-emf of athermocouple with temperature difference at its two junctions, calibration of a thermocouple and Specific heat of a liquid.*

Minimum of 6 experiments to be done and recorded

1. Specific heat of a liquid –Joule's calorimeter –Barton's radiation correction
2. Thermal conductivity of bad conductor-Lee's method
3. Thermal conductivity of rubber.
4. Measurement of Stefan's constant.
5. Specific heat of a liquid by applying Newton's law of cooling correction.
6. Heating efficiency of electrical kettle with varying voltages.
7. Thermoemf- thermo couple - Potentiometer
8. Thermal behavior of an electric bulb (filament/torch light bulb)
9. Measurement of Stefan's constant- emissive method
10. Study of variation of resistance with temperature - Thermistor.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

MEASURABLE

- Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
- Student seminars (on topics of the syllabus and related aspects (individual activity))
- Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams)
- Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity)

- Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

GENERAL

- Group Discussion
- Visit to Research Stations/laboratories and related industries
- Others

RECOMMENDED ASSESSMENT METHODS

Some of the following suggested assessment methodologies could be adopted;

- The oral and written examinations (Scheduled and surprise tests),
- Problem-solving exercises,
- Efficient delivery using seminar presentations,
- Viva voce interviews.

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UNIT-I

1. Electrostatics: (6hrs)

Gauss's law-Statement and its proof, Electric field intensity due to (i) uniformly charged solid sphere and (ii) an infinite conducting sheet of charge, Deduction of Coulomb's law from Gauss law, Electrical potential–Equipotential surfaces, Potential due to a (i) dipole (ii)uniformly charged sphere

2.Dielectrics: (6 hrs)

Dielectrics-Polar and Non-polar dielectrics- Effect of electric field on dielectrics,Dielectric strength, Capacitance of a parallel plate condenser with dielectric slab between the plates, Electric displacement D, electric polarization P,Relation between D, E and P, Dielectric constant and electric susceptibility.

UNIT-II

3.Magnetostatics: (6 hrs)

Biot-Savart's law and its applications: (i) circular loop and (ii) solenoid, Divergence and curl of magnetic field, Ampere's Circuital Law and its application to Solenoid, Hall effect, determination of Hall coefficient and applications.

4.Electromagnetic Induction: (6 hrs)

Faraday's laws of electromagnetic induction, Lenz's law, Self induction and Mutual induction,Self inductance of a long solenoid, Mutual inductance of two coils, Energy stored in magnetic field, Eddy currents and Electromagnetic damping

UNIT-III

5.Alternating currents: (6 hrs)

Alternating current - Relation between current and voltage in LR and CR circuits, Phasor and Vector diagrams, LCR series and parallel resonant circuit, Q –factor, Power in ac circuits, Power factor.

6.Electromagnetic waves-Maxwell's equations: (6hrs)

Idea of displacement current, Maxwell's equations-Derivation, Maxwell's wave equation (with derivation), Transverse nature of electromagnetic waves, Poynting theorem (Statement andproof)

UNIT-IV

7. Basic Electronic devices: (12 hrs)

PN junction diode, Zenerdiode andLight Emitting Diode (LED) and their I-V characteristics, Zener diode as a regulator- Transistors and its operation, CB, CE and CC configurations, Input and output characteristicsofa transistor in CE mode, Relation between alpha, beta and gamma; Hybrid parameters, Determination of hybrid parameters from transistor characteristics; Transistor as an amplifier.

UNIT-V:

8. Digital Electronics: (12 hrs)

Number systems, Conversion of binary to decimal system and vice versa, Binary addition & Binary subtraction (1's and 2's complement methods), Laws of Boolean algebra, DeMorgan's laws-Statements and Proofs, Basic logic gates, NAND and NOR as universal gates, Exclusive-OR gate, Half adder and Full adder circuits.

REFERENCE BOOKS

- BSc Physics, Vol.3, Telugu Akademy, Hyderabad.
- Electricity and Magnetism, D.N. Vasudeva. S. Chand & Co.
- Electricity and Magnetism, B.D.Duggal and C.L.Chhabra. Shobanlal& Co.
- Electricity, Magnetism with Electronics, K.K.Tewari, R.Chand& Co.,
- Electricity and Magnetism, R.Murugeshan, S. Chand & Co.
- Principles of Electronics, V.K. Mehta, S.Chand& Co.,
- Digital Principles and Applications, A.P. Malvino and D.P.Leach, McGrawHill Edition.

Practical Course IV: Electricity, Magnetism and Electronics

Work load: 30 hrs **2 hrs/week**

Course outcomes (Practicals):

On successful completion of this practical course the student will be able to;

- *Measure the current sensitivity and figure of merit of a moving coil galvanometer.*
- *Observe the resonance condition in LCR series and parallel circuit*
- *Learn how a sonometer can be used to determine the frequency of AC-supply.*
- *Observe the variation of magnetic field along the axis of a circular coil carrying current using Stewart and Gee's apparatus.*
- *Understand the operation of PN junction diode, Zener diode and a transistor and their V-I characteristics.*
- *Construct the basic logic gates, half adder and full adder and verify their truth tables. Further, the student will understand how NAND and NOR gates can be used as universal building blocks.*

Minimum of 6 experiments to be done and recorded

1. Figure of merit of a moving coil galvanometer.
2. LCR circuit series/parallel resonance, Q factor.
3. Determination of ac-frequency –Sonometer.
4. Verification of Kirchoff's laws and Maximum Power Transfer theorem.
5. Field along the axis of a circular coil carrying current-Stewart & Gee's apparatus.
6. PN Junction Diode Characteristics
7. Zener Diode –V-I Characteristics
8. Zener Diode as a voltage regulator
9. Transistor CE Characteristics- Determination of hybrid parameters
10. Logic Gates- OR,AND,NOT and NAND gates. Verification of Truth Tables.
11. Verification of De Morgan's Theorems.
12. Construction of Half adder and Full adders-Verification of truth tables

RECOMMENDED CO-CURRICULAR ACTIVITIES:

MEASURABLE

- Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
- Student seminars (on topics of the syllabus and related aspects (individual activity))
- Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams)
- Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity)
- Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

GENERAL

- Group Discussion
- Visit to Research Stations/laboratories and related industries
- Others

RECOMMENDED ASSESSMENT METHODS

Some of the following suggested assessment methodologies could be adopted;

- The oral and written examinations (Scheduled and surprise tests),
- Practical assignments and laboratory reports,
- Observation of practical skills,
- Efficient delivery using seminar presentations,
- Viva voce interviews.

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B.Sc. PHYSICS SYLLABUS UNDER CBCS

For Mathematics Combinations

[2020-21 Batch onwards]

II Year B.Sc.-Physics: IV Semester

Course V: MODERN PHYSICS

Work load:60hrs per semester **4 hrs/week**

Course outcomes:

On successful completion of this course, the students will be able to:

- *Develop an understanding on the concepts of Atomic and Modern Physics, basic elementary quantum mechanics and nuclear physics.*
- *Develop critical understanding of concept of Matter waves and Uncertainty principle.*
- *Get familiarized with the principles of quantum mechanics and the formulation of Schrodinger wave equation and its applications.*
- *Examine the basic properties of nuclei, characteristics of Nuclear forces, salient features of Nuclear models and different nuclear radiation detectors.*
- *Classify Elementary particles based on their mass, charge, spin, half life and interaction.*
- *Get familiarized with the nano materials, their unique properties and applications.*
- *Increase the awareness and appreciation of superconductors and their practical applications.*

UNIT-I :

1. Atomic and Molecular Physics:(12 hrs)

Vector atom model and Stern-Gerlach experiment, Quantum numbers associated with it, Angular momentum of the atom, Coupling schemes, Spectral terms and spectral notations, Selection rules, Intensity rules, Fine structure of Sodium D-lines, Zeeman effect, Experimental arrangement to study Zeeman effect; Raman effect, Characteristics of Raman effect,

Experimental arrangement to study Raman effect, Quantum theory of Raman effect, Applications of Raman effect.

UNIT-II:

2. Matter waves & Uncertainty Principle: (12 hrs)

Matter waves, de Broglie's hypothesis, Wave length of matter waves, Properties of matter waves, Davisson and Germer's experiment, Phase and group velocities, Heisenberg's uncertainty principle for position and momentum& energy and time, Illustration of uncertainty principle using diffraction of beam of electrons (Diffraction by a single slit)and photons(Gamma ray microscope),Bohr's principle of complementarily.

UNIT-III:

3. Quantum (Wave) Mechanics:(12 hrs)

Basic postulates of quantum mechanics, Schrodinger time independent and time dependent wave equations-Derivations, Physical interpretation of wave function, Eigen functions, Eigen values, Application of Schrodinger wave equation to (i) one dimensional potential box of infinite height(Infinite Potential Well) and (ii) one dimensional harmonic oscillator

UNIT-IV:

4. Nuclear Physics:(12 hrs)

Nuclear Structure: General Properties of Nuclei, Mass defect, Binding energy; *Nuclear forces*: Characteristics of nuclear forces- Yukawa's meson theory; *Nuclear Models*: Liquid drop model, The Shell model, Magic numbers; *Nuclear Radiation detectors*: G.M. Counter, Cloud chamber, Solid State detector; *Elementary Particles*: Elementary Particles and their classification

UNIT-V:

5. Nano materials:(7hrs)

Nano materials – Introduction, Electron confinement, Size effect, Surface to volume ratio, Classification of nano materials– (0D, 1D, 2D); Quantum dots, Nano wires, Fullerene, CNT, Graphene (Mention of structures and properties),Distinct properties of nano materials (Mention-*mechanical, optical, electrical, and magnetic properties*); Mention of applications of

nano materials: (*Fuel cells,Phosphors for HD TV, Next Generation Computer chips, elimination of pollutants, sensors*)

6. Superconductivity: (5 hrs)

Introduction to Superconductivity, Experimental results-critical temperature, critical magnetic field, Meissner effect , Isotope effect, Type I and Type II superconductors, BCS theory (elementary ideas only),Applications of superconductors

REFERENCE BOOKS

- BSc Physics, Vol.4, Telugu Akademy, Hyderabad
- Atomic Physics by J.B. Rajam; S.Chand& Co.,
- Modern Physics by R. Murugeshan and Kiruthiga Siva Prasath. S. Chand & Co.
- Concepts of Modern Physics by Arthur Beiser. Tata McGraw-Hill Edition.
- Nuclear Physics, D.C.Tayal, Himalaya Publishing House.
- S.K. Kulkarni, Nanotechnology: Principles & Practices (Capital Publ.Co.)
- K.K.Chattopadhyay&A.N.Banerjee, Introd.to Nanoscience and Technology(PHI LearningPriv.Limited).
- Nano materials, A K Bandopadhyay. New Age International Pvt Ltd (2007)
- Textbook of Nanoscience and Nanotechnology, BS Murthy, P Shankar, Baldev Raj,BB Rath

and J Murday-Universities Press-IIM

Practical Course V:Modern Physics

Work load: 30 hrs **2 hrs/week**

On successful completion of this practical course, the student will be able to;

- *Measure charge of an electron ande/m value of an electron by Thomson method.*
- *Understand how the Planck's constant can be determined using Photocell and LEDs.*
- *Study the absorption of α-rays and β-rays, Range of β-particles and the characteristics of GM counter*
- *Determine the Energy gap of a semiconductor using thermistor and junction diode.*

Minimum of 6 experiments to be done and recorded

1. e/m of an electron by Thomson method.
2. Determination of Planck's Constant (photocell).
3. Verification of inverse square law of light using photovoltaic cell.
4. Determination of the Planck's constant using LEDs of at least 4 different colours.
5. Determination of work function of material of filament of directly heated vacuum diode.
6. Study of absorption of α-rays.
7. Study of absorption of β-rays.
8. Determination of Range of β-particles.
9. Determination of M & H.
10. Analysis of powder X-ray diffraction pattern to determine properties of crystals.
11. Energy gap of a semiconductor using junction diode.
12. Energy gap of a semiconductor using thermistor
13. GM counter characteristics

RECOMMENDED CO-CURRICULAR ACTIVITIES:

MEASURABLE

- Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
- Student seminars (on topics of the syllabus and related aspects (individual activity)

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- Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

GENERAL

- Group Discussion
- Visit to Research Stations/laboratories and related industries
- Others

RECOMMENDED ASSESSMENT METHODS

Some of the following suggested assessment methodologies could be adopted;

- The oral and written examinations (Scheduled and surprise tests),
- Practical assignments and laboratory reports,
- Efficient delivery using seminar presentations,
- Viva voce interviews.

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Note:

1. The duration of the examination for each theory course is 3.00 hrs.
   The duration of each practical examination is 3 hrs with 50 marks

2. Each course in theory is of 100 marks and practical course is of 50 marks.
   - Semester End University Examination in Theory Course: 75 marks [External evaluation]
   - Mid-Semester Examination in Theory Course at the college level: 25 marks [Internal evaluation]

3. The University (external) examination for Theory and Practical shall be conducted at the end of each Semester.

4. In each semester the evaluation in Practical courses shall be done by an external examiner appointed by the University.
   There shall not be Internal valuation in any semester end practical examinations.

5. The candidate shall prepare and submit at the time of practical examination a certified Record based on the practical course with a minimum of **6** experiments from each semester.

6. Numerical Problems must be solved at the end of every chapter of all Units.

7. Numerical problems, each having a weightage of 4 marks, should be asked in the Semester end University examinations.

8. The minimum passing marks in each theory course is 40 (External:30 and Internal:10)
   The minimum passing marks in each Practical/Lab course is 20.

9. The teaching work load per week for semesters I to IV is 4 hours for theory course and 2 hours for all laboratory (practical) courses.

10. Visits to industry, national research laboratories, and scientific exhibitions should be encouraged.

11. The syllabus for Practical courses is same for both Mathematics and Non-Mathematics combinations.

12. The marks distribution for the Semester End practical examination is as follows:

(i)	*Formula/ Principle / Statement with explanation of symbols and*	05
(ii)	*Diagram/Circuit Diagram / Tabular Columns ... ...*	10
(iii)	*Setting up of the experiment and taking readings/Observations*	10
(iv)	*Calculations (explicitly shown) + Graph + Result with Units...*	10
(v)	*Viva-voce ... ...*	05
(vi)	*Class Records (to be valued at the time of practical*	10
	Total Marks :	**50**

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B.Sc. PHYSICS

[For Mathematics combinations]

w.e.f. 2020-21 (Revised in May 2020)

MODEL QUESTION PAPER COMMON FOR ALL FIVE THEORY COURSES

Time : 3 hrs *Max marks : 75*

SECTION-A

(Essay Type Questions) *Marks* : 5x10M = 50M

Answer All questions with internal choice from each Unit

1. Essay type question from Unit-I

   Or

   Essay type question from Unit-I

2. Essay type question from Unit-II

   Or

   Essay type question from Unit-II

3. Essay type question from Unit-III

   Or

   Essay type question from Unit-III

4. Essay type question from Unit-IV

   Or

   Essay type question from Unit-IV

5. Essay type question from Unit-V

   Or

   Essay type question from Unit-V

SECTION-B

(Short Answer Type Questions) *Marks* : 5x5M = 25M

Answer any five out of the following ten questions

6. Short answer type question from Unit-I
7. Short answer type question from Unit-I
8. Short answer type question from Unit-II
9. Short answer type question from Unit-II
10. Short answer type question from Unit-III
11. Short answer type question from Unit-III
12. Short answer type question from Unit-IV
13. Short answer type question from Unit-IV
14. Short answer type question from Unit-V
15. Short answer type question from Unit-V

[**Note:** *Question Paper setters are instructed to add Numerical Problems (each of 4 marks) with a maximum weightage of 16 marks either in Section-A or Section-B covering all the five units in the syllabus*]

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SUBJECT EXPERTS

Prof.K.T.Rama Krishna Reddy
Dept of Physics,
S V University,
Tirupati

Dr.M.Ravi Kumar,
Lecturer in Physics,
Govt. Degree College,
Ananthapuram

SYLLABUS VETTED BY

Prof.R.Rama Krishna Reddy
Dept of Physics,
S K University,
Anantapur

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

3rd,4th and 5th floors, Neeladri Towers, Sri Ram Nagar,6th Battalion Road,
Atmakur (V), Mangalagiri (M), Guntur-522 503, Andhra Pradesh
Web: www.apsche.org **Email**: acapsche@gmail.com

REVISED SYLLABUS OF B.Sc. (Chemistry)

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

CHEMISTRY

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P.)

For Fifteen Courses of 1, 2, 3 & 4 Semesters)

(To be Implemented from 2020-21 Academic Year)

Andhra Pradesh State Council of Higher Education

B.Sc. Chemistry Revised Syllabus under CBCS

w.e.f. 2020-21

Structure of Chemistry Core Syllabus under CBCS

YEAR	SEMESTER	COURSE	TITLE	MARKS	CREDITS
I	I	I	Inorganic and Physical Chemistry	100	03
			Practical – I Analysis of SALT MIXTURE	50	02
	II	II	Organic and General Chemistry	100	03
			Practical – II Volumetric Analysis	50	02
II	III	III	Organic Chemistry and Spectroscopy	100	03
			Practical – IIIOrganic preparations and IR Spectral Analysis	50	02
	IV	IV	Inorganic, Organic and Physical Chemistry	100	03
			Practical – IVOrganic Qualitative analysis	50	02
		V	Inorganic and Physical Chemistry	100	02
			Practical-V Course Conductometric and Potentiometric Titrimetry	50	02

SEMESTER – I

Course I (Inorganic &Physical Chemistry) 60 hrs. (4h/w)

Course outcomes:

At the end of the course, the student will be able to;

1. Understand the basic concepts of p-block elements
2. Explainthe differencebetweensolid,liquidandgasesintermsof intermolecularinteractions.
3. Applytheconceptsofgasequations,pHandelectrolyteswhilestudyingotherchemistrycourses.

INORGANIC CHEMISTRY 24 h

UNIT –I

Chemistry of p-block elements 8h

Group 13: Preparation & structure of Diborane, Borazine

Group 14: Preparation, classification and uses of silicones

Group 15: Preparation & structures of Phosphonitrilic halides $\{(PNCl_2)_n$ where n=3, 4

Group 16: Oxides and Oxoacids of Sulphur (structures only)

Group 17: Pseudohalogens, Structures of Interhalogen compounds.

UNIT-II

1. Chemistry of d-block elements: 6h

Characteristics of d-block elements with special reference to electronic configuration, variable valence, magnetic properties, catalytic properties and ability to form complexes. Stability of various oxidation states.

2. Chemistry of f-block elements: 6h

Chemistry of lanthanides - electronic structure, oxidation states, lanthanide contraction, consequences of lanthanide contraction, magnetic properties. Chemistry of actinides - electronic configuration, oxidation states, actinide contraction, comparison of lanthanides and actinides.

3. Theories of bonding in metals: 4h

Valence bond theory and Free electron theory, explanation of thermal and electrical conductivity of metals based on these theories, Band theory- formation of bands, explanation of conductors, semiconductors and insulators.

PHYSICAL CHEMISTRY 36h

UNIT-III

Solid state 10h

Symmetry in crystals. Law of constancy of interfacial angles. The law of rationality of indices. The law of symmetry. Miller indices, Definition of lattice point, space lattice, unit cell. Bravais lattices and crystal systems. X-ray diffraction and crystal structure. Bragg's law. Powder method. Defects in crystals. Stoichiometric and non-stoichiometric defects.

UNIT-IV

1. Gaseous state 6h

van der Waal's equation of state. Andrew's isotherms of carbon dioxide, continuity of state. Critical phenomena. Relationship between critical constants and vander Waal's constants. Lawof corresponding states. Joule- Thomson effect. Inversion temperature.

2.Liquid state 4h

Liquid crystals,mesomorphicstate. Differences between liquid crystal and solid/liquid. Classification of liquid crystals into Smectic and Nematic. Application of liquid crystals as LCD devices.

UNIT-V

Solutions, Ionic equilibrium& dilute solutions

1. Solutions 6h

Azeotropes-HCl-H_2O system and ethanol-water system. Partially miscible liquids-phenol-water system. Critical solution temperature (CST), Effect of impurity on consulate temperature. Immiscible liquids and steam distillation.Nernst distribution law. Calculation of the partition coefficient. Applications of distribution law.

2. Ionic equilibrium 3h

Ionic product, common ion effect, solubility and solubility product. Calculations based on solubility product.

3. Dilute solutions 7h

Colligative properties- RLVP, Osmotic pressure, Elevation in boing point and depression in freezing point. Experimental methods for the determination of molar mass of a non-volatile

solute using osmotic pressure, Elevation in boing point and depression in freezing point. Abnormal colligative properties. Van't Hoff factor.

Co-curricular activities and Assessment Methods

1. ContinuousEvaluation:Monitoringtheprogressof student'slearning
2. ClassTests,WorksheetsandQuizzes
3. Presentations,ProjectsandAssignmentsandGroupDiscussions:Enhancescriticalthinking skillsand personality
4. Semester-endExamination:criticalindicatorofstudent'slearningandteachingmethodsadoptedby teachersthroughoutthesemester.

List of Reference Books

1. Principles of physical chemistry by Prutton and Marron
2. Solid State Chemistry and its applications by Anthony R. West
3. Text book of physical chemistry by K L Kapoor
4. Text book of physical chemistry by S Glasstone
5. Advanced physical chemistry by Bahl and Tuli
6. Inorganic Chemistry by J.E.Huheey
7. Basic Inorganic Chemistry by Cotton and Wilkinson
8. A textbook of qualitative inorganic analysis by A.I. Vogel
9. Atkins,P.W.&Paula,J.deAtkin'sPhysicalChemistryEd.,OxfordUniversityPress 10thEd(2014).
10. Castellan,G.W.PhysicalChemistry4thEd.Narosa(2004).
11. Mortimer,R. G.PhysicalChemistry3rdEd. Elsevier:NOIDA,UP(2009).
12. Barrow,G.M.PhysicalChemistry

LABORATORY COURSE -I **30**hrs (2 h / w)

Practical-I Analysis of SALT MIXTURE

(At the end of Semester-I)

Qualitative inorganic analysis (Minimum of Six mixtures should be analyzed) 50 M

Course outcomes:

At the end of the course, the student will be able to;

1. Understand the basic concepts of qualitative analysis of inorganic mixture
2. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
3. Apply the concepts of common ion effect, solubility product and concepts related to qualitative analysis

Analysis of SALT MIXTURE **50 M**

Analysis of mixture salt containing two anions and two cations (From two different groups) from the following:

Anions: Carbonate, Sulphate, Chloride, Bromide, Acetate, Nitrate, Borate, Phosphate.

Cations: Lead, Copper, Iron, Aluminium, Zinc, Nickel, Manganese, Calcium, Strontium, Barium, Potassium and Ammonium.

MODEL PAPER

FIRST YEAR B.Sc., DEGREE EXAMINATION

SEMESTER-I

CHEMISTRY Course-I: INORGANIC & PHYSICAL CHEMISTRY

Time: 3 hours Maximum Marks: 75

PART- A5 X 5 = 25 Marks

Answer any **FIVE** of the following questions. Each carries **FIVE** marks

1. Explain the preparation & structures of Phosphonitrilic compounds.
2. Explain in brief, catalytic properties & stability of various oxidation states of d-block elements.
3. Write short note on Bravais lattices and crystal systems.
4. What are Smectic&Nematic liquid Crystals? Explain.

5. Write account on Common ion effect & Solubility product.
6. Describe Andrew's isotherms of carbon dioxide.
7. Explain Actinide Constraction.
8. Explain the structure of Borazine.

PART- B5 X 10 = 50 Marks

Answer **ALL** the questions. Each carries **TEN** marks

9 (a). Explain Classification, Preparations & uses of Silicones

(or)

(b). (i) What are Pseudohalogens.
(ii) Explain the Structures of any one AX3& AX_5 interhalogen compounds.

10 (a). What is Lanthanide Contraction? Explain the Consequences of Lanthanide Contraction.

(or)

(b). (i) Explain the magnetic properties of d- block elements.
(ii) Explain about Conductors, Semi-Conductors& Insulators using Band Theory.

11.(a). Write an essay on Crystal defects.

(or)

(b). What is Bragg's Law. Explain the determination of structure of a crystal by powder method.

12.(a). Derive the relationship between Critical constants &Vanderwaal constants

(or)

(b).(i) Write any 5 differences between liquid crystals & liquids, solids
(ii) Write the applications of Liquid crystals.

13.(a). Explain Nernst distribution Law. Explain its applications

(or)

(b). What are colligative properties. Write experimental methods for determination of molar mass of a non-volatile solute by using Elevation in boiling point & depression in freezing point.

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SEMESTER – II

Course II – (Organic & General Chemistry) 60 hrs (4h/w)

Course outcomes:

At the end of the course, the student will be able to;

1. Understandandexplainthedifferentialbehaviorof organiccompoundsbasedonfundamental conceptslearnt.
2. Formulatethemechanismoforganicreactionsby recallingandcorrelatingthefundamentalproperties ofthereactantsinvolved.
3. LearnandidentifymanyorganicreactionmechanismsincludingFreeRadical Substitution, Electrophilic AdditionandElectrophilicAromaticSubstitution.
4. Correlateanddescribethestereochemicalpropertiesoforganiccompoundsand reactions.

ORGANIC CHEMISTRY **36h**

UNIT-I

Recapitulation of Basics of Organic Chemistry

Carbon-Carbon sigma bonds (Alkanes and Cycloalkanes) **12h**

General methods of preparation of alkanes- Wurtz and WurtzFittig reaction, Corey House synthesis, physical and chemical properties of alkanes, Isomerism and its effect on properties, Free radical substitutions; Halogenation, concept of relative reactivity v/s selectivity. Conformational analysis of alkanes (Conformations, relative stability and energy diagrams of Ethane, Propane and butane).General molecular formulae of cycloalkanes and relative stability, Baeyer strain theory, Cyclohexane conformations with energy diagram, Conformations of monosubstituted cyclohexane.

UNIT-II

Carbon-CarbonpiBonds(AlkenesandAlkynes) **12h**

Generalmethodsofpreparation,physicaland chemicalproperties.Mechanism ofE1,E2,E1cbreactions,SaytzeffandHoffmanneliminations, Electrophilic Additions,mechanism(Markownikoff/Antimarkownikoff addition) with suitableexamples,,*syn*and*anti*-addition;additionofH_2,X_2, HX. oxymercuration-

demercuration, hydroboration-oxidation,ozonolysis,hydroxylation, Diels Alderreaction,1,2-and1,4-additionreactionsinconjugateddienes.

Reactionsofalkynes;acidity,electrophilic andnucleophilicadditions,hydrationtoformcarbonyl compounds,Alkylationof terminalalkynes.

UNIT-III

Benzene and its reactivity 12h

Concept of aromaticity, Huckel's rule - application to Benzenoid (Benzene, Naphthalene) and Non - Benzenoid compounds (cyclopropenylcation, cyclopentadienyl anion and tropyliumcation)

Reactions - General mechanism of electrophilic aromatic substitution, mechanism of nitration, Friedel- Craft's alkylation and acylation. Orientation of aromatic substitution - ortho, para and meta directing groups. Ring activating and deactivating groups with examples (Electronic interpretation of various groups like NO_2 and Phenolic). Orientation of (i) Amino, methoxy and methyl groups (ii) Carboxy, nitro, nitrile, carbonyl and sulphonic acid groups (iii) Halogens

(Explanation by taking minimum of one example from each type)

GENERAL CHEMISTRY 24 h

UNIT-IV

1. Surface chemistry and chemical bonding

Surface chemistry 6h

Colloids- Coagulation of colloids- Hardy-Schulze rule. Stability of colloids,Protection of Colloids, Gold number.

Adsorption-Physical and chemical adsorption, Langmuir adsorption isotherm, applications of adsorption.

2. Chemical Bonding 6h

Valence bond theory, hybridization, VB theory as applied toClF_3**,**$Ni(CO)_4$**,** Molecular orbital theory -LCAO method, construction of M.O. diagrams for homo-nuclear and hetero-nuclear diatomic molecules (N_2, O_2, CO and NO).

3. HSAB **2h**

Pearson's concept, HSAB principle & its importance, bonding in Hard-Hard and Soft-Soft combinations.

UNIT-V

Stereochemistry of carbon compounds **10h**

Molecular representations- Wedge, Fischer, Newman and Saw-Horse formulae.

Optical isomerism: Optical activity- wave nature of light, plane polarised light, optical rotation and specific rotation.

Chiral molecules- definition and criteria(Symmetry elements)- Definition of enantiomers and diastereomers – Explanation of optical isomerism with examples- Glyceraldehyde, Lactic acid, Alanine, Tartaric acid, 2,3-dibromopentane.

D,L, R,S and E,Z- configuration with examples.

Definition of Racemic mixture – Resolution of racemic mixtures (any 3 techniques)

Co-curricular activities and Assessment Methods

ContinuousEvaluation:Monitoringtheprogressof student'slearning

ClassTests,WorksheetsandQuizzes

Presentations,ProjectsandAssignmentsandGroupDiscussions:Enhancescriticalthinkingskillsand personality

Semester-endExamination:criticalindicatorofstudent'slearningandteachingmethodsadoptedby teachersthroughoutthesemester.

List of Reference Books

Theory:

Morrison, R. N. & Boyd, R. N. Organic Chemistry, Dorling Kindersley (India) Pvt. Ltd. (PearsonEducation).

Finar, I. L. Organic Chemistry (Volume 1), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).

Finar, I. L. Organic Chemistry (Volume 2: Stereochemistry and the Chemistry of Natural Products), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education).

Eliel, E. L. &Wilen, S. H. Stereochemistry of Organic Compounds; Wiley: London, 1994.

Kalsi, P. S. Stereochemistry Conformation and Mechanism; New Age International, 2005.

Practical:

Ahluwalia, V.K. &Aggarwal, R. Comprehensive Practical Organic Chemistry: Preparation and Quantitative Analysis, University Press (2000).
Ahluwalia, V.K. &Dhingra, S. Comprehensive Practical Organic Chemistry: Qualitative Analysis, University Press (2000).
Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. Practical Organic Chemistry, 5th Ed., Pearson (2012)

Additional Resources:

Solomons, T. W. G.; Fryhle, C. B. &Snyder, S. A. Organic Chemistry, 12th Edition, Wiley.
Bruice, P. Y. Organic Chemistry, Eighth Edition, Pearson.
Clayden, J.; Greeves, N.&Warren, S. Organic Chemistry, Oxford.
Nasipuri, D. Stereochemistry of Organic Compounds: Principles and Applications, Third Edition, NewAge International.
Gunstone, F. D. Guidebook to Stereochemistry, Prentice Hall Press, 1975.

LABORATORY COURSE-II **30**hrs (2 h / w)

Practical-II Volumetric Analysis

(At the end of Semester-II)

Course outcomes:

At the end of the course, the student will be able to;

1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. Understandandexplainthevolumetric analysisbasedonfundamental conceptslearnt in ionic equilibria
3. Learnandidentifythe concepts of a standard solutions, primary and secondary standards
4. Facilitate the learner to make solutions of various molar concentrations. This may include: The concept of the mole; Converting moles to grams; Converting grams to moles; Defining concentration; Dilution of Solutions; Making different molar concentrations.

Volumetric analysis **50 M**

1. Estimation of sodium carbonate and sodium hydrogen carbonate present in a mixture.
2. Determination of Fe (II) using $KMnO_4$ with oxalic acid as primary standard.

3. Determination of Cu (II) using $Na_2S_2O_3$ with $K_2Cr_2O_7$ as primary standard.
4. Estimation of water of crystallization in Mohr's salt by titrating with $KMnO_4$

MODEL PAPER

FIRST YEAR B.Sc., DEGREE EXAMINATION

SEMESTER-II

CHEMISTRY COURSE -II: ORGANIC & GENERAL CHEMISTRY

Time: 3 hours Maximum Marks: 75

PART- A 5 X 5 = 25 Marks

Answer any **FIVE** of the following questions. Each carries **FIVE** marks

1. Write different conformations of n-butane. Explain their relative stability..
2. Explain 1,2- & 1,4- addition reactions of conjugated dienes.
3. Explain the orientation effect of halogens on mono substituted benzene.
4. Explain the mechanism of $E1^{CB}$ elimination reaction.
5. Explain the structure of ClF_3 by Valency Bond theory.
6. What are Hard & soft acids & bases? Explain with examples.
7. Draw the Wedge, Fischer, Newmann& saw-Horse representations for Tartaric acid.
8. Define Enantiomers and Diastereomers and give two examples for each.

PART- B 5 X 10 = 50 Marks

Answer **ALL** the questions. Each carries **TEN** marks

9 (a). (i) Write the preparation of alkanes by Wurtz and Corey-House reaction.
(ii) Explain Halogenation of alkanes. Explain the reactivity and selectivity in free radical substitutions.

(or)

(b). (i) Explain Baeyer Strain Theory
(ii) Draw the conformations of Cyclohexane and explain their stability by drawing energy profile diagram.

10 (a). (i) Write any two methods of preparation of alkenes.
(ii) Explain the mechanism of Markownikiff and Anti-Markownikoff addition of HBr to alkene.

(or)

(b). (i) Explain the acidity of 1-alkynes
(ii) How will you prepare acetaldehyde and acetone from alkynes?
(iii) Write alkylation reaction of terminal alkne.

11.(a). Define Huckel rule of aromatic compounds. What are benzenoid and non-benzenoid aromatic compounds? Give examples.

(or)

(b). Explain the mechanisms of Nitration and Friedel-Craft's alkylation of Benzene.

12.(a). (i) Define Hardy-Schulze rule & Gold number.
(ii) Differentiate Physisorption& Chemisorption. Explain Langmuir adsorption isotherm.

(or)

(b). Construct the Molecular Orbital diagram for O_2 and NO and explain their bond order and magnetic property.

13.(a). Define racemic mixture. Explain any two techniques for resolution of racemic mixture.

(or)

(b).(i) Define Optical activity and Specific rotation.
(ii) Draw the R- & S- isomers of Alanine, Glyceraldehyde.
(iii) Write the E- & Z- isomers of 2-butene.

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SEMESTER - III

Course III (ORGANICCHEMISTRY&SPECTROSCOPY) 60hrs (4 h / w)

Course outcomes:

At the end of the course, the student will be able to;

1. Understandpreparation,propertiesandreactionsofhaloalkanes,haloarenesand oxygencontaining functionalgroups.
2. Usethesyntheticchemistrylearntinthiscoursetodofunctionalgroup transformations.
3. Toproposeplausiblemechanismsforanyrelevantreaction

ORGANIC CHEMISTRY **34h**

UNIT – I

1. Chemistry of Halogenated Hydrocarbons: **6h**

Alkylhalides:Methodsofpreparationandproperties,nucleophilicsubstitutionreactions–SN1,SN2andSNimechanismswithstereochemicalaspectsandeffectofsolventetc.;nucleophilicsubstitutionvs. elimination, Williamson's synthesis.

Arylhalides:Preparation(includingpreparationfromdiazoniumsalts)andproperties,nucleophilicaromatic substitution;SNAr,Benzynemechanism.

Relativereactivityofalkyl,allyl,benzyl,vinylandarylhalidestowardsnucleophilicsubstitutionreactions.

2. Alcohols &Phenols **6h**

Alcohols: preparation, properties and relative reactivity of 1°, 2°, 3° alcohols, BouvaeltBlanc Reduction; Oxidationofdiolsbyperiodicacidandleadtetra acetate,Pinacol-Pinacolonerearrangement;

Phenols:Preparationandproperties;Acidityandfactorseffectingit, Ringsubstitution reactions, Reimer–Tiemannand Kolbe's–Schmidt Reactions, Fries and Claisenrearrangements with mechanism;

UNIT-II

CarbonylCompounds **10h**

Structure,reactivity,preparationandproperties;

Nucleophilicadditions,Nucleophilicaddition-eliminationreactionswithammoniaderivatives

MechanismsofAldolandBenzoincondensation, Claisan-Schmidt, Perkin, CannizzaroandWittigreaction,Beckmannhaloformreactionand BaeyerVilligeroxidation,α-substitutionreactions,oxidationsandreductions(Clemmensen, wolf –kishner, with LiAlH4 &NaBH4).

Additionreactionsof α,β-unsaturatedcarbonylcompounds:Michaeladdition.

Activemethylenecompounds: Keto-enoltautomerism.Preparationandsyntheticapplicationsofdiethyl malonateandethylacetoacetate.

UNIT-III

CarboxylicAcidsand their Derivatives **12h**

General methods of preparation, physical properties and reactions of monocarboxylic acids, effect of substituentsonacidicstrength.Typicalreactionsofdicarboxylicacids,hydroxyacidsandunsaturatedacids.

Preparationandreactionsofacidchlorides,anhydrides,estersandamides; Comparative study of nucleophilic substitutionatacyl group-Mechanism of acidicandalkaline hydrolysis of esters, Claisencondensation, Reform at sky reactions and Curtius rearrangement

Reactions involving H, OH and COOH groups- salt formation, anhydride formation, acid chloride formation, amide formation and esterification (mechanism). Degradation of carboxylic acids by Huns-Diecker reaction, decarboxylation by Schimdt reaction, Arndt-Eistert synthesis, halogenation by Hell- Volhard- Zelinsky reaction.

SPECTROSCOPY **26 h**

UNIT-IV

Molecular Spectroscopy: **18h**

Interactionofelectromagneticradiationwithmoleculesandvarioustypesof spectra;

Rotation spectroscopy: Selection rules, intensities of spectral lines, determination of bond lengths of diatomic and linear triatomic molecules, isotopic substitution.

Vibrational spectroscopy: Classical equation of vibration, computation of force constant, Harmonic and anharmonic oscillator, Morsepotential curve, vibrational degrees offered for polyatomic molecules, modesofvibration. Selection rules for vibrational transitions, Fundamental frequencies, overtones and hot bands.

Electronic spectroscopy: Energy levels of molecular orbitals (σ, π, n). Selection rules for electronic spectra. Types of electronic transitions in molecules, effect of conjugation. Concept of chromophore. bathochromic and hypsochromic shifts.Beer-Lambert's law and its limitations.

Nuclear Magnetic Resonance (NMR) spectroscopy: Principles of nuclear magnetic resonance, equivalent and non-equivalent protons, position of signals. Chemical shift, NMR splitting of signals - spin-spin coupling, coupling constants. Applications of NMR with suitable examples - ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromo ethane, ethyl acetate, toluene and acetophenone.

UNIT-V **8h**

Application of Spectroscopy to Simple Organic Molecules

Application of visible, ultraviolet and Infrared spectroscopy in organic molecules. Application of electronic spectroscopy and Woodward rules for calculating λ_{max} of conjugated dienes and α,β – unsaturated compounds.

Infrared radiation and types of molecular vibrations, functional group and fingerprint region. IR spectra of alkanes, alkenes and simple alcohols (inter and intramolecular hydrogen bonding), aldehydes, ketones, carboxylic acids and their derivatives (effect of substitution on >C=O stretching absorptions).

Co-curricular activities and Assessment Methods Continuous Evaluation: Monitoring the progress of student'slearning Class Tests, Work sheets and Quizzes Presentations, Projects and Assignments and Group Discussions: Enhances critical thinking skills and personality Semester-end Examination: critical indicator of student's learning and teaching methods adopted byteachers throughout the semester.

List of Reference Books

1. A Text Book of Organic Chemistry by Bahl and Arunbahl
2. A Text Book of Organic chemistry by I L FinarVol I
3. Organic chemistry by Bruice
4. Organic chemistry by Clayden
5. Spectroscopy by William Kemp
6. Spectroscopy by Pavia
7. Organic Spectroscopy by J. R. Dyer
8. Elementary organic spectroscopy by Y.R. Sharma
9. Spectroscopy by P.S.Kalsi
10. Spectrometric Identification of Organic Compounds by Robert M Silverstein, Francis X Webster
11. Mann, F.G. & Saunders, B.C. Practical Organic Chemistry, Pearson Education (2009)
12. Furniss, B.S., Hannaford, A.J., Smith, P.W.G. &Tatchell, A.R. Practical Organic Chemistry, 5th Ed. Pearson (2012)

13. Ahluwalia, V.K. & Aggarwal, R. Comprehensive Practical Organic Chemistry: Preparation and Quantitative Analysis, University Press (2000).

LABORATORY COURSE -III 30hrs (2 h / w)

Practical Course-IIIOrganic preparations and IR Spectral Analysis

(At the end of Semester- III)

Course outcomes:

Onthecompletionofthecourse,thestudentwillbe abletodothefollowing**:**

1. how to use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. how to calculate limiting reagent, theoretical yield, and percent yield
3. how to engage in safe laboratory practices by handling laboratory glassware, equipment, and chemical reagents appropriately
4. how to dispose of chemicals in a safe and responsible manner
5. how to perform common laboratory techniques including reflux, distillation, recrystallization, vacuum filtration.
6. how to create and carry out work up and separation procedures
7. how to critically evaluate data collected to determine the identity, purity, and percent yield of products and to summarize findings in writing in a clear and concise manner

Organic preparations: 40M

i. Acetylation of one of the following compounds:

amines (aniline, o-, m-, ptoluidines and o-, m-, p-anisidine) and phenols (β-naphthol, vanillin, salicylic acid) by any one method:

a. Using conventional method.

b. Using green approach

ii. Benzolyation of one of the following amines

(aniline, o-, m-, p- toluidines and o-, m-, p-anisidine)

iii. Nitration of any one of the following:

a. Acetanilide/nitrobenzene by conventional method

b. Salicylic acid by green approach (using ceric ammonium nitrate).

IR Spectral Analysis **10M**

IR Spectral Analysis of the following functional groups with examples

a) Hydroxyl groups

b) Carbonyl groups

c) Amino groups

d) Aromatic groups

MODEL PAPER

SECOND YEAR B.Sc., DEGREE EXAMINATION

SEMESTER-III

CHEMISTRY COURSE-III: ORGANIC CHEMISTRY & SPECTROSCOPY

Time: 3 hours Maximum Marks: 75

PART- A 5 X 5 = 25 Marks

Answer any **FIVE** of the following questions. Each carries **FIVE** marks

1. Discuss two methods for preparation of aryl halides.
2. Explain the mechanism for Pinacol-Pinacolone rearrangement.
3. Discuss the mechanism for Bayer-villiger oxidation reaction.
4. Explain the effect of substituents on acidic strength of mono-carboxylic acids.
5. Write the mechanism for Claisen Condensation reaction.
6. Write the selection rules in rotational spectroscopy.
7. Explain Spin – Spin coupling and Coupling Constant.
8. Explain types of electronic transitions in UV spectroscopy.

PART- B 5 X 10 = 50 Marks

Answer **ALL** the questions. Each carries **TEN** marks

9 (a). Give the mechanism & stereochemistry of SN^1& SN^2 reactions of alkyl halides with suitable example.

(or)

(b). Explain the following reactions with mechanism.
(i) Reimer-Tiemann reaction (ii) Fries rearrangement.

10 (a). Discuss the mechanism for following reactions.
(i) Perkin reaction. (ii) Cannizaro reaction

(or)

(b). Write the preparation and any three synthetic applications of diethyl malonate.

11.(a). Explain acid and base hydrolysis reaction of esters with mechanism.

(or)

(b). Explain the mechanisms of Curtius rearrangement & Arndt –Eistert reaction.

12.(a). (i) Write a note on vibrational degrees of freedom for polyatomic molecules.
(ii) Explain different modes of vibrations & selection rules in IR spectroscopy.

(or)

(b).(i) Define Bathochromic shift. Explain the effect of conjugation in U.V. spectroscopy.
(ii) Discuss the principle of NMR spectroscopy.

13.(a). Write Woodward-Fieser rules for calculating λmax for conjugated dienes and α,β – unsaturated carbonyl compounds , and apply them for one example each.

(or)

(b).(i) What is Fingerprint region. Explain its signigicance with an example.(ii) Write IR spectral data for any one alcohol, aldehyde and ketone

SEMESTER - IV

Course IV (INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY) 60hrs (4 h / w)

Course outcomes:

At the end of the course, the student will be able to;

1. Tolearnaboutthelawsofabsorptionoflightenergybymoleculesandthesubsequentphotochemical reactions.
2. Tounderstandtheconceptofquantumefficiencyandmechanismsofphotochemicalreactions.

UNIT - I

OrganometallicCompounds **8h**

Definition and classification of organometallic Compounds on the basis of bond type, Concept of hapticity of organicligands. Metalcarbonyls:18electronrule,electroncountofmononuclear, polynuclear and substituted metalcarbonyls of 3dseries.Generalmethods of preparation of mono and binuclear carbonyls of 3dseries.P-acceptor behaviour of carbon monoxide. Synergic effects (VB approach) - (MOdiagram of CO can be referred to for synergic effect to IR frequencies).

UNIT – II

Carbohydrates 8h

Occurrence,classificationandtheirbiologicalimportance,Monosaccharides: Constitution and absolute configuration of glucose and fructose, epimers and anomers, mutarotation, determination of ringsize of glucose and fructose, Haworth projections and conformationalstructures; Interconversions of aldosesandketoses; Killiani-Fischer synthesis and Ruffdegradation; Disaccharides– Elementary treatment of maltose, lactose and sucrose. Polysaccharides–Elementary treatment of starch.

UNIT- III

Amino acids and proteins 6h

Introduction: Definition of Amino acids, classification of Amino acids into alpha, beta, and gamma amino acids. Natural and essential amino acids - definition and examples, classification of alpha amino acids into acidic, basic and neutral amino acids with examples. Methods of synthesis: General methods of synthesis of alpha amino acids (specific examples - Glycine, Alanine, valine and leucine) by following methods: a) from halogenated carboxylic acid b) Gabriel Phthalimide synthesis c) strecker's synthesis.

Physical properties: Zwitter ion structure - salt like character - solubility, melting points, amphoteric character, definition of isoelectric point.

Chemical properties: General reactions due to amino and carboxyl groups - lactams from gamma and delta amino acids by heating- peptide bond (amide linkage). Structure and nomenclature of peptides and proteins.

Heterocyclic Compounds 7h

Introduction and definition: Simple five membered ring compounds with one hetero atom Ex. Furan. Thiophene and pyrrole - Aromatic character – Preparation from 1, 4, -dicarbonyl compounds, Paul-Knorr synthesis.

Properties: Acidic character of pyrrole - electrophillic substitution at 2 or 5 position, Halogenation, Nitration and Sulphonation under mild conditions - Diels Alder reaction in furan.

Pyridine – Structure - Basicity - Aromaticity- Comparison with pyrrole- one method of preparation and properties - Reactivity towards Nucleophilic substitution reaction.

UNIT- IV

Nitrogen Containing Functional Groups

Preparation, properties and important treactions of nitrocompounds, amines and diazonium salts.

1. Nitro hydrocarbons 3h

Nomenclature and classification-nitro hydrocarbons, structure -Tautomerism of nitroalkanes leading to aci and keto form, Preparation of Nitroalkanes, reactivity -halogenation, reaction with HONO (Nitrous acid), Nef reaction and Mannich reaction leading to Micheal addition and reduction.

2.Amines: 11h

Introduction, classification, chiralityin amines (pyramidal inversion), importance and general methods of preparation.

Properties : Physical properties, Basicity of amines: Effect of substituent, solvent and steric effects. Distinction between Primary, secondary and tertiary aminesusing Hinsberg's method and nitrousacid. Discussion of thefollowing reactions with emphasis on the mechanistic pathway: Gabriel Phthalimide synthesis, Hoffmann- Bromamidereaction, Carbylaminereaction, Mannichreaction, Hoffmann'sexhaustive methylation, Hofmann-elimination reaction and Copeelimination.

Diazonium Salts: Preparation and synthetic applications of diazonium salts including preparation of arenes, haloarenes, phenols, cyano and nitro compounds. Coupling reactions of diazonium salts (preparation of azo dyes).

UNIT- V

Photochemistry 5h

Difference between thermal and photochemical processes, Laws of photochemistry- Grothus-Draper's law and Stark-Einstein's law of photochemical equivalence, Quantum yield- Photochemical reaction mechanism- hydrogen- chlorine and hydrogen- bromine reaction. Qualitative description of fluorescence, phosphorescence, Jablonski diagram, Photosensitized reactions- energy transfer processes (simple example).

Thermodynamics **12 h**

The first law of thermodynamics-statement, definition of internal energy and enthalpy, Heat capacities and their relationship, Joule-Thomson effect- coefficient, Calculation of work for the expansion of perfect gas under isothermal and adiabatic conditions for reversible processes, State function. Temperature dependence of enthalpy of formation- Kirch off s equation, Second law of thermodynamics Different Statements of the law, Carnot cycle and its efficiency, Carnot theorem, Concept of entropy, entropy as a state function, entropy changes in reversible and irreversible processes. Entropy changes in spontaneous and equilibrium processes. Third law of thermodynamics, Nernst heat theorem, Spontaneous and non- spontaneous processes, Helmholtz and Gibbs energies-Criteria for spontaneity.

Co-curricular activities and Assessment Methods Continuous Evaluation : Monitoring the progress of student's learning Class Tests, Work sheets and Quizzes Presentations, Projects and Assignments and Group Discussions: Enhances critical thinking skills and personality Semester-end Examination: critical indicator of student's learning and teaching methods adopted byteachers throughout the semester.

List of Reference Books

1. Concise coordination chemistry by Gopalan and Ramalingam
2. Coordination Chemistry by Basalo and Johnson
3. Organic Chemistry by G.Mareloudan, Purdue Univ
4. Text book of physical chemistry by S Glasstone
6. Concise Inorganic Chemistry by J.D.Lee
7. Advanced Inorganic Chemistry Vol-I by Satyaprakash, Tuli, Basu and Madan
8. A Text Book of Organic Chemistry by Bahl and Arunbahl
9. A Text Book of Organic chemistry by I L FinarVol I
10. A Text Book of Organic chemistry by I L FinarVol II
11. Advanced physical chemistry by Gurudeep Raj

LABORATORY COURSE -IV 30hrs(2 h / w)

Practical Course-IV Organic Qualitative analysis 50 M

(At the end of Semester- IV)

Course outcomes:

At the end of the course, the student will be able to;

1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. Determine melting and boiling points of organic compounds
3. Understandtheapplication of concepts of different organic reactions studied in theory part of organic chemistry

Organic Qualitative analysis 50 M

Analysis of an organic compound through systematic qualitative procedure for functional group identification including the determination of melting point and boiling point with suitable derivatives.

Alcohols, Phenols, Aldehydes, Ketones, Carboxylic acids, Aromatic primary amines, amides and simple sugars

MODEL PAPER

SECOND YEAR B.Sc., DEGREE EXAMINATION

SEMESTER-IV

CHEMISTRY COURSE -IV: INORGANIC, ORGANIC & PHYSICAL CHEMISTRY

Time: 3 hours Maximum Marks: 75

PART- A 5 X 5 = 25 Marks

Answer any **FIVE** of the following questions. Each carries **FIVE** marks

1. Describe the 18 electron rule of mono nuclear and polynuclear metal carbonyls with suitable examples.
2. What are epimers and anomers. Give examples.
3. Discuss about iso electric point and zwitter ion.
4. Discuss the Paul-Knorr synthesis of five membered heterocyclic compounds.

5. Explain Tautomerism shown by nitro alkanes
6. Discuss the basic nature of amines.
7. Write the differences between thermal and photochemical reactions.
8. Derive heat capacities and derive $C_p - C_v = R$

PART- B 5 X 10 = 50 Marks

Answer **ALL** the questions. Each carries **TEN** marks

9 (a). What are organometallic compounds? Discuss their Classification on the basis of type of bonds with examples.

(or)

(b). Discuss the general methods of preparations of mono & bi-nuclear carbonyls of 3d series.

10 (a). Discuss the constitution, configuration and ring size of glucose. Draw the Haworth and Conformational structure of glucose.

(or)

(b). (i) Explain Ruff's degradation.
(ii) Explain Kiliani- Fischer synthesis.

11.(a). What are amino acids? Write any three general methods of preparation of amino acids.

(or)

(b). Discuss the aromatic character of Furan, Thiophene and Pyrrole.

12.(a). Write the mechanism for the following.
(i) Nef reaction (ii) Mannich reaction

(or)

(b).(i) Explain Hinsberg separation of amines.
(ii) Discuss any three synthetic applications of diazonium salts.

13.(a). What is quantum yield? Explain the photochemical combination of Hydrogen-Chlorine and Hydrogen - Bromine.

(or)

(b). Define entropy. Describe entropy changes in the reversible and irreversible process.

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SEMESTER - IV

CourseV(INORGANIC &PHYSICAL CHEMISTRY) 60 hrs (4 h / w)

Course outcomes:

At the end of the course, the student will be able to;

1. Understand concepts Of boundary conditions and quantization, probability distribution, most probable values,uncertainty and expectation values
2. Application of quantization to spectroscopy.
3. Various types of spectra and the irusein structure determination.

INORGANIC CHEMISTRY 26 h

UNIT –I

Coordination Chemistry 12 h

IUPAC nomenclature of coordination compounds, Structural and stereoisomerism in complexes with coordination numbers 4 and 6. Valence Bond Theory (VBT): Inner and outer orbital complexes. Limitations of VBT, Crystal field effect, octahedral symmetry. Crystal field stabilization energy (CFSE), Crystal field effects for weak and strong fields. Tetrahedral symmetry, Factors affecting the magnitude of crystal field splitting energy, Spectrochemical series, Comparison of CFSE for Octahedral and Tetrahedral complexes, Tetragonal distortion of octahedral geometry, Jahn-Teller distortion, square planar coordination.

UNIT –II

1. InorganicReactionMechanism: **4h**

Introduction to inorganic reaction mechanisms. Concept of reaction pathways, transitionstate, intermediate and activated complex. Labile and inert complexes, lig and substitution reactions - SN^1 and SN^2,Substitutionreactions in square planar complexes, Trans-effect, the ories of trans effect and its applications

2. Stability of metal complexes: 2h

Thermodynamic stability and kinetic stability, factors affecting the stability of metal complexes, chelate effect, determination of composition of complex by Job's method and mole ratio method.

Bioinorganic Chemistry: 8h

Metalions present inbiological systems, classification of elements according to their action in biolog ical system. Geochemical effect on the distribution of metals, Sodium/K- pump, carbonicanhydrase and carboxypeptidase.

Excess and deficiency of sometracemetals. Toxicityofmetalions(Hg,Pb,CdandAs), reasons fortoxicity, Use of chelatingagentsinmedicine, Cisplatinasananti-cancerdrug. Iron and its application in bio-systems, Haemoglobin, Myoglobin. Storage and transfer of iron.

PHYSICAL CHEMISTRY **34 h**

UNIT-III

1 .Phase rule

6Th Concept of phase, components, degrees of freedom. Thermodynamic derivation of Gibbs phase rule. Phase diagram of one component system - water system, Study of Phase diagrams of Simple eutectic systems i) Pb-Ag system, desilverisation of lead ii) NaCl-Water system, Congruent and incongruent melting point- Definition and examples for systems having congruent and incongruent melting point , freezing mixtures.

UNIT-IV

Electrochemistry **14h**

Specific conductance, equivalent conductance and molar conductance- Definition and effect of dilution. Cell constant. Strong and weak electrolytes, Kohlrausch's law and its applications, Definition of transport number, determination of transport number by Hittorf's method. Debye-Huckel-Onsagar's equation for strong electrolytes (elementary treatment only), Application of conductivity measurements- conductometric titrations.

Electrochemical Cells- Single electrode potential, Types of electrodes with examples: Metal-metal ion, Gas electrode, Inert electrode, Redox electrode, Metal-metal insoluble salt- salt anion. Determination of EMF of a cell, Nernst equation, Applications of EMF measurements - Potentiometric titrations.

Fuel cells- Basic concepts, examples and applications

UNIT-V

Chemical Kinetics: **14 h**

The concept of reaction rates. Effect of temperature, pressure, catalyst and other factors on reaction rates. Order and molecularity of a reaction, Derivation of integrated rate equations for zero, first and second order reactions (both for equal and unequal concentrations of reactants). Half–life of a reaction. General methods for determination of order of a reaction. Concept of activation energy and its calculation from Arrhenius equation. Theories of Reaction Rates: Collision theory and Activated Complex theory of bimolecular reactions. Comparison of the two theories (qualitative treatment only).Enzyme catalysis- Specificity,

factors affecting enzyme catalysis, Inhibitors and Lock & key model. Michaels- Menten equation- derivation, significance of Michaelis-Menten constant.

Co-curricular activities and Assessment Methods Continuous Evaluation: Monitoring the progress of student's learning Class Tests, Work sheets and Quizzes Presentations, Projects and Assignments and Group Discussions: Enhances critical thinking skills and personality Semester-end Examination: critical indicator of student's learning and teaching methods adopted byteachers throughout the semester.

List of Reference Books

1. . Text book of physical chemistry by S Glasstone
2. Concise Inorganic Chemistry by J.D.Lee
3. Advanced Inorganic Chemistry Vol-I by Satyaprakash, Tuli, Basu and Madan
4. Advanced physical chemistry by Gurudeep Raj
5. Principles of physical chemistry by Prutton and Marron
6. Advanced physical chemistry by Bahl and Tuli
7. Inorganic Chemistry by J.E.Huheey
8. Basic Inorganic Chemistry by Cotton and Wilkinson
9. A textbook of qualitative inorganic analysis by A.I. Vogel
10. Atkins,P.W.&Paula,J.deAtkin'sPhysicalChemistryEd.,OxfordUniversityPress 10thEd(2014).
11. Castellan,G.W.PhysicalChemistry4thEd.Narosa(2004).
12. Mortimer,R. G.PhysicalChemistry3rdEd. Elsevier:NOIDA,UP(2009).
13. Barrow,G.M.PhysicalChemistry

SEMESTER - IV

Course V **LABORATORY COURSE** **30**hrs (2 h / w)

Practical-Course -VConductometric and Potentiometric Titrimetry **50 M**

Course outcomes:

At the end of the course, the student will be able to;

1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
2. Apply concepts of electrochemistry in experiments
3. Be familiar with electro analytical methods and techniques in analytical chemistry which study an analyte by measuring the potential (volts) and/or current (amperes) in an electrochemical cell containing the analyte

Conductometric and Potentiometric Titrimetry **50 M**

1. **Conductometric titration**- Determination of concentration of HCl solution using standard NaOH solution.
2. **Conductometric titration**- Determination of concentration of CH_3COOH Solution using standard NaOH solution.
3. **Conductometric titration**- Determination of concentration of CH_3COOH and HCl in a mixture using standard NaOH solution.
4. **Potentiometric titration**- Determination of Fe (II) using standard $K_2Cr_2O_7$ solution.
5. Determination of rate constant for acid catalyzed ester hydrolysis.

MODEL PAPER

SECOND YEAR B.Sc., DEGREE EXAMINATION

SEMESTER-IV

CHEMISTRY COURSE V: INORGANIC & PHYSICAL CHEMISTRY

Time: 3 hours Maximum Marks: 75

PART- A 5 X 5 = 25 Marks

Answer any **FIVE** of the following questions. Each carries **FIVE** marks

1. Write note on Jahn-Teller distortion.
2. Explain Labile & inert complexes.
3. Explain Job's method for determination of composition of complex.
4. Explain Thermodynamic derivation of Gibb's phase rule.
5. Explain any two conductometric titrations.
6. Write note on Fuel Cells with examples and applications.
7. What is enzyme catalysis? Write any three factors effecting enzyme catalysis.
8. Derive Michaels- Menten equation.

PART- B 5 X 10 = 50 Marks

Answer **ALL** the questions. Each carries **TEN** marks

9 (a). Explain Valence Bond theory with Inner and Outer orbital complexes. Write limitations of VBT.

(or)

(b). Define CFSE. Explain the factors effecting the magnitude of crystal field splitting energy.

10 (a). Explain Trans effect. Explain the theories of trans effect and write any two applications of trans effect.

(or)

(b). (i) Write the biological functions of Haemoglobin and Myoglobin.
(ii) Write note on use of chelating agents in medicines.

11.(a). Define Phase rule and terms involved in it. Explain phase diagram of Pb-Ag system.

(or)

(b). (i) Explain phase diagram for NaCl-water system.

(ii) Explain briefly about Freezing mixtures.

12.(a). Define Transport number. Write experimental method for the determination of transport number by Hittorf method.

(or)

(b).(i) Define single electrode potential.
(ii) Explain four types of electrodes with examples.

13.(a). Explain general methods for determination of order of a reaction.

(or)

(b).Explain Collision theory and Activated complex theory of bimolecular reactions.

***

SUBJECT EXPERTS

Prof. C. Suresh Reddy
Professor, Department of Chemistry
S.V. University
Tirupati.

Dr. M. Mahaboob Pacha
Lecturer in Chemistry
Government Degree College
Ramachandrapuram – 533255

SYLLABUS VETTED BY

Prof. N.V.S. Naidu,
Professor, Department of Chemistry
S.V. University
Tirupati.

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

3rd,4th and 5th floors, Neeladri Towers,Sri Ram Nagar,6th Battalion Road,
Atmakur(V),Mangalagiri(M), Guntur-522 503, Andhra Pradesh
Web:www.apsche.org **Email**: acapsche@gmail.com

REVISED SYLLABUS OF B.Sc. (COMPUTER SCIENCE/ INFORMATION TECHNOLOGY) UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-2021

PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

B.Sc. Computer Science/ Information Technology (IT)

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P.)

For Fifteen Courses of 1, 2, 3 & 4 Semesters)

(To be Implemented from 2020-21 Academic Year)

Structure of Computer Science /Information Technology (IT)

Programme: B.Sc. with Computer Science as one of the Core Subjects.
Discipline: Computer Science

Year	Semester	Paper Code	Subject	Hrs. per Week	Credits	IA	ES	Total
First Year	I	C1	Problem Solving in C	4	3	25	75	100
	I	C1-P	Problem Solving in C Lab	2	2		50	50
	II	C2	Data Structures using C	4	3	25	75	100
	II	C2-P	Data Structures using C Lab	2	2		50	50
Second Year	III	C3	Database Management System	4	3	25	75	100
	III	C3-P	Database Management System Lab	2	2		50	50
	IV	C4	Object Oriented Programming using Java	4	3	25	75	100
	IV	C4-P	Object Oriented Programming using Java Lab	2	2		50	50
	IV	C5	Operating Systems	4	3	25	75	100
	IV	C5-P	Operating Systems Lab using C/Java	2	2		50	50

PROBLEM SOLVING IN C

Semester	Course Code	Course Title	Hours	Credits
I	C1	PROBLEM SOLVING IN C	60	3

Objectives:

This course aims to provide exposure to problem-solving through programming. It introduces the concepts of the C Programming language.

Course Learning Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand the evolution and functionality of a Digital Computer.
2. Apply logical skills to analyse a given problem
3. Develop an algorithm for solving a given problem.
4. Understand 'C' language constructs like Iterative statements, Array processing, Pointers, etc.
5. Apply 'C' language constructs to the algorithms towrite a 'C' language program.

UNIT I

General Fundamentals: Introduction to computers: Block diagram of a computer, characteristics and limitations of computers, applications of computers, types of computers, computer generations.

Introduction to Algorithms and Programming Languages: Algorithm – Key features of Algorithms, Flow Charts, Programming Languages – Generations of Programming Languages – Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs.

UNIT II

Introduction to C: Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments –

Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples.

Decision Control and Looping Statements: Introduction to Decision Control Statements– Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement

UNIT III

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array– Operations on Arrays – one dimensional, two dimensional and multi dimensional arrays, character handling and strings.

UNIT IV

Functions: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions.

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions– Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types.

UNIT V

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

Files: Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments.

BOOKS

1. E Balagurusamy – Programming in ANSIC – Tata McGraw-Hill publications.
2. Brain W Kernighan and Dennis M Ritchie - The 'C' Programming language" - Pearson publications.
3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publications.
4. YashavantKanetkar - Let Us 'C' – BPB Publications.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,

5. Observation of practical skills,
6. Individual and group project reports like “Creating Text Editor in C”.
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

Semester	Course Code	Course Title	Hours	Credits
I	**C1-P**	**PROBLEM SOLVING IN C LAB**	**30**	**2**

Problem solving in C LAB

1. Write a program to check whether the given number is Armstrong or not.
2. Write a program to find the sum of individual digits of a positive integer.
3. Write a program to generate the first n terms of the Fibonacci sequence.
4. Write a program to find both the largest and smallest number in a list of integer values
5. Write a program to demonstrate refection of parameters in swapping of two integer values using **Call by Value**&**Call by Address**
6. Write a program that uses functions to add two matrices.
7. Write a program to calculate factorial of given integer value using recursive functions
8. Write a program for multiplication of twoN X N matrices.
9. Write a program to perform various string operations.
10. Write a program to search an element in a given list of values.
11. Write a program to sort a given list of integers in ascending order.
12. Write a program to calculate the salaries of all employees using ***Employee (ID, Name, Designation, Basic Pay, DA, HRA, Gross Salary, Deduction, Net Salary)*** structure.
    a. DA is 30 % of Basic Pay
    b. HRA is 15% of Basic Pay
    c. Deduction is 10% of (Basic Pay + DA)
    d. Gross Salary = Basic Pay + DA+ HRA
    e. Net Salary = Gross Salary - Deduction
13. Write a program to illustrate pointer arithmetic.

14. Write a program to read the data character by character from a file.
15. Write a program to create***Book (ISBN,Title, Author, Price, Pages, Publisher)***structureand store book details in a file and perform the following operations
    a. Add book details
    b. Search a book details for a given ISBN and display book details, if available
    c. Update a book details using ISBN
    d. Delete book details for a given ISBN and display list of remaining Books

DATA STRUCTURES USING C

Semester	Course Code	Course Title	Hours	Credits
II	C2	DATA STRUCTURES USING C	60	3

Course Objectives

To introduce the fundamental concept of data structures and to emphasize the importance of various data structures in developing and implementing efficient algorithms.

Course Learning Outcomes:

Upon successful completion of the course, a student will be able to:

1. Understand available Data Structures for data storage and processing.
2. ComprehendData Structure and their real-time applications - Stack, Queue, Linked List, Trees and Graph
3. Choose a suitable Data Structures for an application
4. Develop ability to implement different Sorting and Search methods
5. Have knowledge onData Structures basic operations like insert, delete, search,update and traversal
6. Design and develop programs using various data structures
7. Implement the applications of algorithms for sorting, pattern matching etc

UNIT – I:

Introduction to Data Structures: Introduction to the Theory of Data Structures, Data Representation, Abstract Data Types, Data Types, Primitive Data Types, Data Structure and Structured Type, Atomic Type, Difference between Abstract Data Types, Data Types, and Data Structures, Refinement Stages

Principles of Programming and Analysis of Algorithms: Software Engineering, Program Design, Algorithms, Different Approaches to Designing an Algorithm, Complexity, Big ‘O’ Notation, Algorithm Analysis, Structured Approach to Programming, Recursion, Tips and Techniques for Writing Programs in ‘C’

UNIT – II:

Arrays: Introduction to Linear and Non- Linear Data Structures, One- Dimensional Arrays, Array Operations, Two- Dimensional arrays, Multidimensional Arrays, Pointers and Arrays, an Overview of Pointers

Linked Lists: Introduction to Lists and Linked Lists, Dynamic Memory Allocation, Basic Linked List Operations, Doubly Linked List, Circular Linked List, Atomic Linked List, Linked List in Arrays, Linked List versus Arrays

UNIT – III:

Stacks: Introduction to Stacks, Stack as an Abstract Data Type, Representation of Stacks through Arrays, Representation of Stacks through Linked Lists, Applications of Stacks, Stacks and Recursion

Queues: Introduction, Queue as an Abstract data Type, Representation of Queues, Circular Queues, Double Ended Queues- Deques, Priority Queues, Application of Queues

UNIT – IV:

Binary Trees: Introduction to Non- Linear Data Structures, Introduction Binary Trees, Types of Trees, Basic Definition of Binary Trees, Properties of Binary Trees, Representation of Binary Trees, Operations on a Binary Search Tree, Binary Tree Traversal, Counting Number of Binary Trees, Applications of Binary Tree

UNIT – V:

Searching and sorting: Sorting – An Introduction, Bubble Sort, Insertion Sort, Merge Sort, Searching – An Introduction, Linear or Sequential Search, Binary Search, Indexed Sequential Search

Graphs: Introduction to Graphs, Terms Associated with Graphs, Sequential Representation of Graphs, Linked Representation of Graphs, Traversal of Graphs, Spanning Trees, Shortest Path, Application of Graphs.

BOOKS:

1. “Data Structures using C”, ISRD group Second Edition, TMH

2. “Data Structures through C”, Yashavant Kanetkar, BPB Publications
3. “Data Structures Using C” Balagurusamy E. TMH

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

B. General

1. Group Discussion
2. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Programming exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports.
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

Semester	Course Code	Course Title	Hours	Credits
II	**C2-P**	**DATA STRUCTURES USING C LAB**	**30**	**2**

1. Write a program to read 'N' numbers of elements into an array and also perform the following operation on an array
    a. Add an element at the begging of an array
    b. Insert an element at given index of array
    c. Update a element using a values and index
    d. Delete an existing element
2. Write a program using stacks to convert a given
    a. postfix expression to prefix
    b. prefix expression to postfix
    c. infix expression to postfix
3. Write Programs to implement the Stack operations using an array
4. Write Programs to implement the Stack operations using Liked List.
5. Write Programs to implement the Queue operations using an array.
6. Write Programs to implement the Queue operations using Liked List.
7. Write a program for arithmetic expression evaluation.
8. Write a program for Binary Search Tree Traversals
9. Write a program to implement dequeue using a doubly linked list.
10. Write a program to search an item in a given list using the following Searching Algorithms
    a. Linear Search
    b. Binary Search.
11. Write a program for implementation of the following Sorting Algorithms
    a. Bubble Sort
    b. Insertion Sort
    c. Quick Sort
12. Write a program for polynomial addition using single linked list
13. Write a program to find out shortest path between given Source Node and Destination Node in a given graph using Dijkstrar's algorithm.

14. Write a program to implement Depth First Search graph traversals algorithm
15. Write a program to implement Breadth First Search graph traversals algorithm

DATABASE MANAGEMENT SYSTEMS

Semester	Course Code	Course Title	Hours	Credits
III	**C3**	**DATABASE MANAGEMENT SYSTEMS**	**60**	**3**

Course Objective:

The objective of the course is to introduce the design and development of databases with special emphasis on relational databases.

Course Learning Outcomes:

On completing the subject, students will be able to:

1. Gain knowledge of Database and DBMS.
2. Understand the fundamental concepts of DBMS with special emphasis on relational data model.
3. Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database
4. Model database using ER Diagrams and design database schemas based on the model.
5. Create a small database using SQL.
6. Store, Retrieve data in database.

UNIT I

Overview of Database Management System: Introduction to data, information, database, database management systems, file-based system, Drawbacks of file-Based System, database approach, Classification of Database Management Systems, advantages of database approach, Various Data Models, Components of Database Management System, three schema architecture of data base, costs and risks of database approach.

UNIT II

Entity-Relationship Model: Introduction, the building blocks of an entity relationship diagram, classification of entity sets, attribute classification, relationship degree, relationship classification, reducing ER diagram to tables, enhanced entity-relationship model (EER

model), generalization and specialization, **IS A** relationship and attribute inheritance, multiple inheritance, constraints on specialization and generalization, advantages of ER modeling.

UNIT III

Relational Model: Introduction, CODD Rules, relational data model, concept of key, relational integrity, relational algebra, relational algebra operations, advantages of relational algebra, limitations of relational algebra, relational calculus, tuple relational calculus, domain relational Calculus (DRC), Functional dependencies and normal forms upto 3rd normal form.

UNIT IV

Structured Query Language: Introduction, History of SQL Standard, Commands in SQL, Data Types in SQL, Data Definition Language, Selection Operation, Projection Operation, Aggregate functions, Data Manipulation Language, Table Modification Commands, Join Operation, Set Operations, View, Sub Query.

UNIT V

PL/SQL: Introduction, Shortcomings of SQL, Structure of PL/SQL, PL/SQL Language Elements, Data Types, Operators Precedence, Control Structure, Steps to Create a PL/SQL, Program, Iterative Control, Procedure, Function, Database Triggers, Types of Triggers.

BOOKS:

1. Database System Concepts by Abraham Silberschatz, Henry Korth, and S. Sudarshan, McGrawhill
2. Database Management Systems by Raghu Ramakrishnan, McGrawhill
3. Principles of Database Systems by J. D. Ullman
4. Fundamentals of Database Systems by R. Elmasri and S. Navathe
5. SQL: The Ultimate Beginners Guide by Steve Tale.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

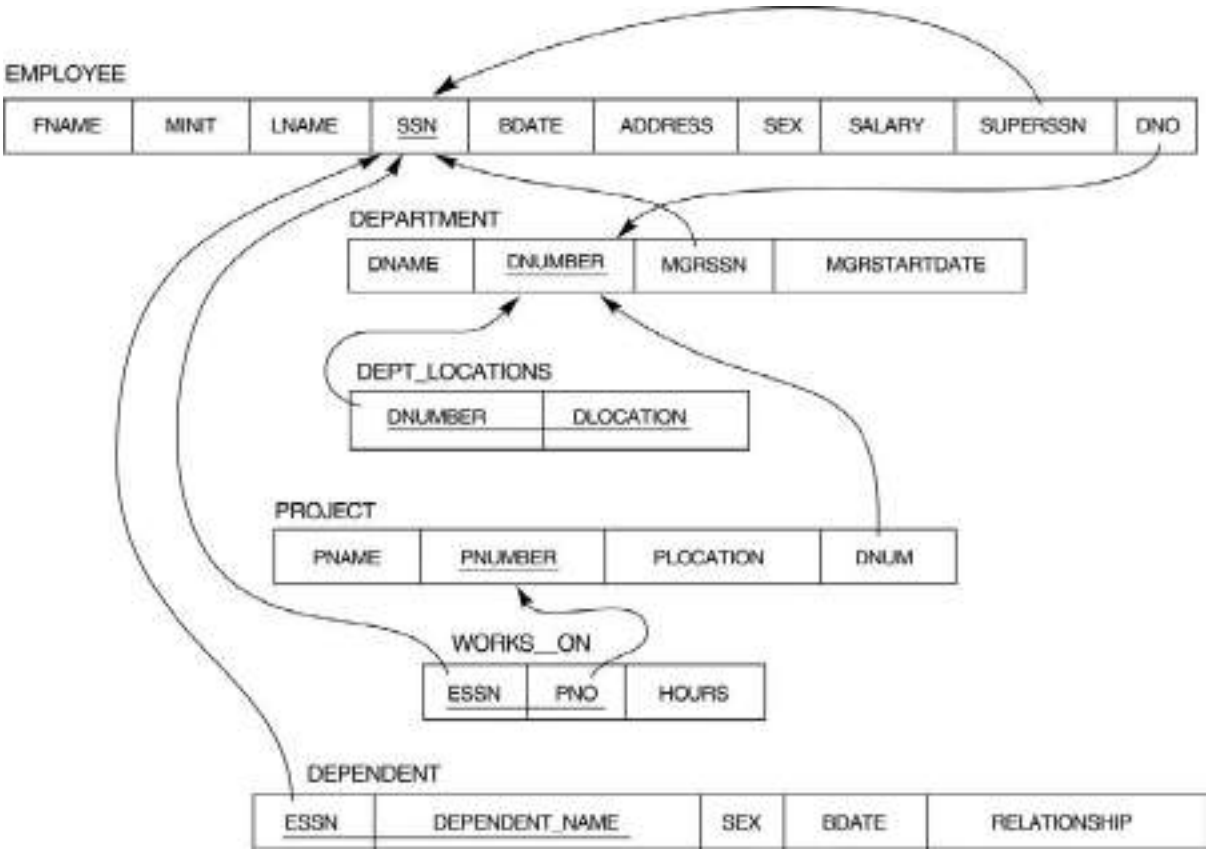
1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Practical assignments and laboratory reports,
4. Observation of practical skills,

5. Individual and group project reports like Create your college database for placement purpose.
6. Efficient delivery using seminar presentations,
7. Viva voce interviews.
8. Computerized adaptive testing, literature surveys and evaluations,
9. Peers and self-assessment, outputs form individual and collaborative work

Semester	Course Code	Course Title	Hours	Credits
III	C3-P	DATABASE MANAGEMENT SYSTEMS LAB	30	2

1. Draw ER diagram for hospital administration
2. Creation of college database and establish relationships between tables
3. Relational database schema of a company is given in the following figure.

Relational Database Schema - COMPANY



Questions to be performed on above schema

1. Create above tables with relevant ***Primary Key, Foreign Key and other constraints***
2. Populate the tables with data
3. Display all the details of all employees working in the company.
4. Display ***ssn, lname, fname, address*** of employees who work in department no 7.

5. Retrieve the ***Birthdate and Address*** of the employee whose name is 'Franklin T. Wong'
6. Retrieve the name and salary of every employee
7. Retrieve all distinct salary values
8. Retrieve all employee names whose address is in ‘Bellaire’
9. Retrieve all employees who were born during the 1950s
10. Retrieve all employees in department 5 whose salary is between 50,000 and 60,000(inclusive)
11. Retrieve the names of all employees who do not have supervisors
12. Retrieve SSN and department name for all employees
13. Retrieve the name and address of all employees who work for the 'Research' department
14. For every project located in 'Stafford', list the project number, the controlling department number, and the department manager's last name, address, and birth date.
15. For each employee, retrieve the employee's name, and the name of his or her immediate supervisor.
16. Retrieve all combinations of Employee Name and Department Name
17. Make a list of all project numbers for projects that involve an employee whose last name is 'Narayan’ either as a worker or as a manager of the department that controls the project.
18. Increase the salary of all employees working on the 'ProductX' project by 15%. Retrieve employee name and increased salary of these employees.
19. Retrieve a list of employees and the project name each works in, ordered by the employee's department, and within each department ordered alphabetically by employee first name.
20. Select the names of employees whose salary does not match with salary of any employee in department 10.
21. Retrieve the employee numbers of all employees who work on project located in Bellaire, Houston, or Stafford.
22. Find the sum of the salaries of all employees, the maximum salary, the minimum salary, and the average salary. Display with proper headings.
23. Find the sum of the salaries and number of employees of all employees of the ‘Marketing’ department, as well as the maximum salary, the minimum salary, and the average salary in this department.

24. Select the names of employees whose salary is greater than the average salary of all employees in department 10.
25. Delete all dependents of employee whose ***ssn is '123456789'***.
26. Perform a query using alter command to drop/add field and a constraint in Employee table.

OBJECT ORIENTATED PROGRAMMING THROUGH JAVA

Semester	Course Code	Course Title	Hours	Credits
IV	**C4**	**OBJECT ORIENTATED PROGRAMMING THROUGH JAVA**	**60**	**3**

Objectives:

To introduce the fundamental concepts of Object-Oriented programming and to design & implement object oriented programming concepts in Java.

Course Learning Outcomes: At the end of this course student will:

1. Understand the benefits of a well-structured program
2. Understand different computer programming paradigms
3. Understand underlying principles of Object-Oriented Programming in Java
4. Develop problem-solving and programming skills using OOP concepts
5. Develop the ability to solve real-world problems through software development in high-level programming language like Java

UNIT – I

Introduction to Java: Features of Java, The Java virtual Machine, Parts of Java

Naming Conventions and Data Types: Naming Conventions in Java, Data Types in Java, Literals

Operators in Java: Operators, Priority of Operators

Control Statements in Java: if... else Statement, do... while Statement, while Loop, for Loop, switch Statement, break Statement, continue Statement, return Statement

Input and Output: Accepting Input from the Keyboard, Reading Input with Java.util.Scanner Class, Displaying Output with System.out.printf(), Displaying Formatted Output with String.format()

Arrays: Types of Arrays, Three Dimensional Arrays (3D array), arrayname.length, Command Line Arguments

UNIT – II

Strings: Creating Strings, String Class Methods, String Comparison, Immutability of Strings

Introduction to OOPs: Problems in Procedure Oriented Approach, Features of Object-Oriented Programming System (OOPS)

Classes and Objects: Object Creation, Initializing the Instance Variables, Access Specifiers, Constructors

Methods in Java: Method Header or Method Prototype, Method Body, Understanding Methods, Static Methods, Static Block, The keyword 'this', Instance Methods, Passing Primitive Data Types to Methods, Passing Objects to Methods, Passing Arrays to Methods, Recursion, Factory Methods

Inheritance: Inheritance, The keyword 'super', The Protected Specifier, Types of Inheritance

UNIT – III

Polymorphism: Polymorphism with Variables, Polymorphism using Methods, Polymorphism with Static Methods, Polymorphism with Private Methods, Polymorphism with Final Methods, final Class

Type Casting: Types of Data Types, Casting Primitive Data Types, Casting Referenced Data Types, The Object Class

Abstract Classes: Abstract Method and Abstract Class

Interfaces: Interface, Multiple Inheritance using Interfaces

Packages: Package, Different Types of Packages, The JAR Files, Interfaces in a Package, Creating Sub Package in a Package, Access Specifiers in Java, Creating API Document

Exception Handling: Errors in Java Program, Exceptions, throws Clause, throw Clause, Types of Exceptions, Re – throwing an Exception

UNIT – IV

Streams: Stream, Creating a File using FileOutputStream, Reading Data from a File uingFileInputStream, Creating a File using FileWriter, Reading a File using FileReader, Zipping and Unzipping Files, Serialization of Objects, Counting Number of Characters in a File, File Copy, File Class

Threads: Single Tasking, Multi Tasking, Uses of Threads, Creating a Thread and Running it, Terminating the Thread, Single Tasking Using a Thread, Multi Tasking Using Threads, Multiple Threads Acting on Single Object, Thread Class Methods, Deadlock of Threads,

Thread Communication, Thread Priorities, thread Group, Daemon Threads, Applications of Threads, Thread Life Cycle

UNIT – V

Applets: Creating an Applet, Uses of Applets, <APPLET> tag, A Simple Applet, An Applet with Swing Components, Animation in Applets, A Simple Game with an Applet, Applet Parameters

Java Database Connectivity: Database Servers, Database Clients, JDBC (Java Database Connectivity), Working with Oracle Database, Working with MySQL Database, Stages in a JDBC Program, Registering the Driver, Connecting to a Database, Preparing SQL Statements, Using jdbc–odbc Bridge Driver to Connect to Oracle Database, Retrieving Data from MySQL Database, Retrieving Data from MS Access Database, Stored Procedures and CallableStatements, Types of Result Sets

BOOKS:

1. Core Java: An Integrated Approach, Authored by Dr. R. Nageswara Rao &Kogent Learning Solutions Inc.
2. E.Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGraw-Hill Company.
3. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline Series, TMH.
4. Deitel&Deitel. Java TM: How to Program, PHI (2007)

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Programming exercises,

4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports.
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

Semester	Course Code	Course Title	Hours	Credits
IV	**C4-P**	**OBJECT ORIENTATED PROGRAMMING THROUGH JAVA LAB**	**30**	**2**

1. Write a program to read ***Student Name, Reg.No, Marks[5]*** and calculate ***Total***, ***Percentage, Result***. Display all the details of students
2. Write a program to perform the following String Operations
    a. Read a string
    b. Find out whether there is a given substring or not
    c. Compare existing string by another string and display status
    d. Replace existing string character with another character
    e. Count number of works in a string
3. Java program to implements Addition and Multiplication of two N X N matrices.
4. Java program to demonstrate the use of Constructor.
5. Calculate area of the following shapes using method overloading.
    a. Triangle
    b. Rectangle
    c. Circle
    d. Square
6. Implement inheritance between ***Person (Aadhar, Surname, Name, DOB, and Age)*** and ***Student (Admission Number, College, Course, Year)***classes where ReadData(), DisplayData() are overriding methods.
7. Java program for implementing Interfaces
8. Java program on Multiple Inheritance.
9. Java program for to display ***Serial Number from 1 to N*** by creating two Threads
10. Java program to demonstrate the following exception handlings
    a. Divided by Zero
    b. Array Index Out of Bound
    c. File Not Found
    d. Arithmetic Exception
    e. User Defined Exception

11. Create an Applet to display different shapes such as Circle, Oval, Rectangle, Square and Triangle.

12. Write a program to create ***Book (ISBN,Title, Author, Price, Pages, Publisher)***structure and store book details in a file and perform the following operations

a. Add book details

b. Search a book details for a given ISBN and display book details, if available

c. Update a book details using ISBN

d. Delete book details for a given ISBN and display list of remaining Books

OPERATING SYSTEMS

Semester	Course Code	Course Title	Hours	Credits
IV	C5	OPERATING SYSTEMS	60	2

Objectives:

This course aims to introduce the structure and organization of a file system. It emphasizes various functions of an operating system like memory management, process management, device management, etc.

Course Learning Outcomes:

Upon successful completion of the course, a student will be able to:

1. Know Computer system resources and the role of operating system in resource management with algorithms
2. Understand Operating System Architectural design and its services.
3. Gain knowledge of various types of operating systems including Unix and Android.
4. Understand various process management concepts including scheduling, synchronization, and deadlocks.
5. Have a basic knowledge about multithreading.
6. Comprehenddifferent approaches for memory management.
7. Understand and identify potential threats to operating systems and the security features design to guard against them.
8. Specify objectives of modern operating systems and describe how operating systems have evolved over time.
9. Describe the functions of a contemporary operating system

UNIT- I

What is Operating System? History and Evolution of OS, Basic OS functions, Resource Abstraction, Types of Operating Systems– Multiprogramming Systems, Batch Systems, Time Sharing Systems; Operating Systems for Personal Computers, Workstations and Hand-held Devices, Process Control & Real time Systems.

UNIT- II

Processor and User Modes, Kernels, System Calls and System Programs, System View of the Process and Resources, Process Abstraction, Process Hierarchy, Threads, Threading Issues, Thread Libraries; Process Scheduling, Non-Preemptive and Preemptive Scheduling Algorithms.

UNIT III

Process Management: Deadlock, Deadlock Characterization, Necessary and Sufficient Conditions for Deadlock, Deadlock Handling Approaches: Deadlock Prevention, Deadlock Avoidance and Deadlock Detection and Recovery.

Concurrent and Dependent Processes, Critical Section, Semaphores, Methods for Inter-process Communication; Process Synchronization, Classical Process Synchronization Problems: Producer-Consumer, Reader-Writer.

UNIT IV

Memory Management: Physical and Virtual Address Space; Memory Allocation Strategies– Fixed and -Variable Partitions, Paging, Segmentation, Virtual Memory.

UNIT V

File and I/O Management, OS security : Directory Structure, File Operations, File Allocation Methods, Device Management, Pipes, Buffer, Shared Memory, Security Policy Mechanism, Protection, Authentication and Internal Access Authorization

Introduction to Android Operating System, Android Development Framework, Android Application Architecture, Android Process Management and File System, Small Application Development using Android Development Framework.

REFERENCE BOOKS:

1. Operating System Principles by Abraham Silberschatz, Peter Baer Galvin and Greg Gagne (7thEdition) Wiley India Edition.
2. Operating Systems: Internals and Design Principles by Stallings (Pearson)
3. Operating Systems by J. Archer Harris (Author), Jyoti Singh (Author) (TMH)
4. Online Resources for UNIT V

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Programming exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports.

7. Efficient delivery using seminar presentations,
8. Viva-Voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

Semester	Course Code	Course Title	Hours	Credits
IV	**C-5**	**OPERATING SYSTEMS LAB USING C/Java**	**30**	**2**

1. Write a program to implement Round Robin CPU Scheduling algorithm
2. Simulate SJF CPU Scheduling algorithm
3. Write a program the FCFS CPU Scheduling algorithm
4. Write a program to Priority CPU Scheduling algorithm
5. Simulate Sequential file allocation strategies
6. Simulate Indexed file allocation strategies
7. Simulate Linked file allocation strategies
8. Simulate MVT and MFT memory management techniques
9. Simulate Single level directory File organization techniques
10. Simulate Two level File organization techniques
11. Simulate Hierarchical File organization techniques
12. Write a program for Bankers Algorithm for Dead Lock Avoidance
13. Implement Bankers Algorithm Dead Lock Prevention.
14. Simulate all Page replacement algorithms.
    a) FIFO
    b) LRU
    c) LFU
15. Simulate Paging Techniques of memory management

SUBJECT EXPERTS

Dr.M.Ussenaiah
Dept of Computer Science,
Vikrama Simhapuri University

Dr.A.Kavitha,
Govt. Degree College,
Repalle

SYLLABUS VETTED BY

Dr.Gangadhar,
Dept of Computer Science
Acgharya Nagarjuna University,
Nagarjuna Nagar

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

PROGRAMME: THREE-YEAR B.Sc.

(With Zoology, Sericulture and Chemistry Disciplines)

DOMAIN SUBJECT

SERICULTURE

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P
for Five Courses of 1, 2, 3 & 4 Semesters)
(To Be Implemented From 2020-21 Academic Year)

SUBJECT EXPERTS

Prof. S. Smitha

Principal,
Department of Sericulture
Sri Tayi Surya Narayana Govt.Degree College,Kadiri
Ananthapuramu.Dt

Affiliated to
Sri Krishna Devaraya University
Ananthapuramu.Dt

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

CBCS – UG SYLLABUS SUBJECT REVIEW COMMITTEE

(To Be Implemented From 2020-21 Academic Year)

PROGRAMME: THREE-YEAR B.Sc (With Zoology, Sericulture and Chemistry Disciplines)

Domain Subject: Sericulture

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P for Five Courses of 1, 2, 3 & 4 Semesters)

Structure of SERICULTURE Syllabus under CBCS for 3-year B.Sc. Programme (with domain subject covered during the first 4 Semesters with 5 Courses)

Sl. No	Code	Sem	Courses 1, II, III, IV & 'O'	Name of Course (Each Course consists 5 Units with each Unit having 12 hours of class-work)	Hours/ Week	Credits	Marks	
							Mid Sem	Sem End
1		I	I	Biology of mulberry & production technology	**5**	**4**	**25**	**75**
2		II	II	Cytogenetics and breeding of mulberry	**5**	**4**	**25**	**75**
3		III	III	Biology & rearing technology of silkworm	**5**	**4**	**25**	**75**
4		IV	IV	Silkworm seed organization, technology& pathology	**5**	**4**	**25**	**75**
5		**Open (either 2/3/4)**	**'O'**	Silkworm Cytogenetics and Breeding	**5**	**4**	**25**	**75**
					Total	**20**	**125**	**375**

PROGRAMME: THREE-YEAR B.Sc.

(With Zoology, Sericulture and Chemistry Disciplines)

Course Code:

Domain Subject: Sericulture

Semester-wise Syllabus under CBCS I

Year B. Sc. –Semester – I

Course1: BIOLOGY OF MULBERRY & PRODUCTION TECHNOLOGY

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Classification of plant kingdom
- Anatomy- root, stem and leaf of mulberry
- Income generation and economics
- Nursery Management - Kissan Nursery&Economics
- Cultivation package practices
- Growth Parameters

Syllabus:

Unit - 1 TAXONOMY & ANATOMY OF MULBERRY

Botanical Description and taxonomical characters of Mulberry Varieties and Species- Anatomy of Root (Primary & Secondary), Stem (Primary & Secondary), Petiole and leaf- Influence of Environment on Mulberry growth and development- Soil- Physical and Chemical Properties of soils, soil texture, soil structure and their classification in relation to mulberry growth red loamy soils, clay soils, sandy soils and black soils.

Unit - II MULBERRY PROPAGATION Asexual Propagation or Vegetative Propagation-Propagation by cuttings-Grafting- Stem, Bud and root grafting-Layering- Simple, Air, Trench-Sexual Propagation through seeds and seedlings preparation-Nursery Technology

Unit - III MULBERRY PRODUCTION & MANAGEMENT -I:Factors of soil for mulberry growth -Mulberry cultivation. Selection of the Land-Preparation of the Land-Planting material-Methods of Planting-a) Pit system, b) Row system-Irrigation methods- Flatbed method, basin method, furrow method, sprinkler or over head method, drip irrigation-Manuring

Unit - IV

MULBERRY PRODUCTION &MANAGEMENT - II

Inter Cultivation and Weeding, Systematic position of Common weeds of mulberry garden, Preventive & Control measures. Integrated Weed Control.-2. Methods of pruning- low cut, high cut, and middle cut, Head and non-head type of pruning-3. Methods of leaf harvest- leaf picking, branch harvest and whole shoot harvest- Preservation.

Unit - V

PHYSIOLOGY & GROWTH OF MULBERRY:

Brief Account of Photosynthesis; Carbon Fixation and their relation to leaf quality and productivity-Chemical Composition of Mulberry leaf. In relation to environmental conditions, soil conditions, cultural practices-Plant Nutrition- A. Macronutrients; Micronutrients their role in growth and respective deficiency syndromes-Growth regulating substances and their application in improvement of mulberry.

Practical components-Sem.1

1. **Taxonomy**: moraceae.
2. **Anatomy:**
    1. T.s. primary and secondary roots and stems of mulberry.
    2. Leaf and petiole.
3. **Mulberry propagation:**
    1. Stem cutting
    2. Nursery preparation.
    3. Bud grafting– root grafting - layering
4. Collection of mulberry seeds for germplasm development
5. Land preparation and mulberry plantation
6. Inter cultivation of mulberry
7. Morphology and systematic position of common weeds of mulberry.

References:

1. Bongale, U.D (1995) Fertilizers in mulberry cultivation. Pushpa Sree Publications, Thalaghattapura, Bangalore.
2. Dokuhon, Z.S (1998). Illustrated Textbook on Sericulture. Oxford & IBH publishing Co, Pvt. Ltd, New Delhi, Calcutta.
3. Guptta, R.K & Mittal, R.K (1983) Bibliography of Indian Weeds. Associated Pub. Co. New Dehli.
4. Hasao Aruga (1994) Principles of Sericulture (Translated from Japanese) Oxford & IBH publishing Co, Pvt. Ltd, New Delhi.
5. Hortmann and Kesler (1993) Plant Propagation, principles and practices. Prentice Hall, Hemel Nemstead.
6. Krishnamurthy, N. (1981) Plant growth substances including application in Agriculture. Tata McGraw Hill Pub. Co. Ltd. New Delhi.
7. Shankar, M.A (1998) Handbook on mulberry Nutrition, Multiplex, Bangalore.
8. Subba Rao, N.S (1998) Biofertilisers in Agriculture. Oxford & IBH Pub. Co, Pvt. Ltd, New Delhi.
9. A text Book on Mulberry Crop Protection. Govindaiah, V.P Gupta, D.D Sharma, S. Rajadurai and V. Nishitha Naik, Published by Central Silk Board, Bangalore-68, India. 2005.
10. Rajanna L, Das P.K, Ravindra S, Bhogesha K, Mishra R.K, Singhvi N.R, Katigar R.S and Jayaram H. Mulberry Cultivation and Physiology.2005

11. .Sericulture Manual – 1 (Mulberry cultivation) (1972)Food and Agriculture Organization of the United Nations, Rome.
12. Lecturers on Sericulture-Edited by G.Boraiah, SBS Publishers Distributors, BANGALORE
13. Comprehensive Sericulture Manual-M.Madan Mohan Rao, B.S.Publications, HYDERABAD.
14. Patti sankethika vignana sasthram-Developed by APSSRDI, Kirikera
15. Pattu parisrama-Telugu academy
16. Photosynthesis and plant physiology

Mandatory Co-Curricular Activity:

Mulberry Cultivation should be a compulsory activity as it helps student to understand vividly and clearly than the text and **should be made part of Internal Examination by allotting 10 marks out of 25 marks for this skill-based activity.**

Suggested Co-Curricular Activities

A. Measurable

- Assignments/Team Projects –Textual form/garden establishment/Gene Banks/Vermicompost units/panchagavya/jeevamrytham/organic pesticide preparations/
- Student seminars& Debates – Why Sericulture/impact on Economy & Economics/ Field constrains/Govt subsidiary schemes/Sericulture extension & Scope/Research inventions/State and Central depts. of Sericulture-
- Quiz Programmes –ICT based/Kahooth/h5P/Google forms/plickers
- Individual Field Studies –Institute- Village Linked programmes/Data Collection/Paper presentation/Molakala cheruvu-a model village
- Study Tour-CSR&TI, Mysore, CST&RI,B'lore
- Students can be asked to create a chart of SILK ROAD charting the dates of key events. This can be applied to an historical event or the sequence of events.
- Students should be asked to maintain a SILK MUSEUM with inventory items cocoon handicrafts, silk fabrics, bouquets etc

B GENERAL **:**

- Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
- Discussion Forums-Participation by joining ONLINE Sericulture Technology
- Designing of online course/Moodle -Any similar activities with imaginative thinking.

CONTINUOUS COMPREHENSIVE ASSESSMENT METHODS

- The oral and written examinations (Scheduled and surprise tests),
- Closed-book and open-book tests/Concept paper writing,
- Problem-solving exercises,
- Practical assignments and survey reports,
- Observation of practical skills,
- Individual and group project reports,
- Efficient delivery using seminar presentations,Viva voce interviews.
- Computerized adaptive testing, literature surveys and evaluations,
- Peers and self-assessment, outputs form individual and collaborative work

Study Tour:

- Mulberry Farms, Mulberry Nursery, Gene Banks, RSRS, Rapthadu
- AP State Sericulture Department, Kadiri; AP Agriculture Research Station, Kadiri;
- AP State Sericulture Research and Development Institute, Hindupur;
- Regional SericultureResearchStation, Rapthadu; Department of Sericulture, Sri Padmavathi Mahila University, Tirupati;
- Sericulture Department, SK University;GKVK, Hebbal, Bangalore.

PROGRAMME: THREE-YEAR B.Sc.

(With Zoology, Sericulture and Chemistry Disciplines)

Course Code:

Domain Subject: Sericulture

Semester-wise Syllabus under CBCS I Year B. Sc. –Semester –II

Course2: CYTOGENETICS AND BREEDING OF MULBERRY

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Germplasm resources of host plants of silkworms and their exploration
- Conservation of germplasm of host plants of silkworm
- Role of germplasm in crop improvement
- Inheritance of economic characters
- Breeding methods
- Back cross method of breeding and Application of tissue culture technique in mulberry its importance

Syllabus:

Unit - 1	**EMBRYOLOGY:-** Sporogenesis-. Microsporogenesis- Development of microspores;Megasporogenesis -Development of megaspores-Fertilization-Embryo Development-Polyembryony; Parthenogenesis; Parthenocarpy
Unit - II	**CYTOLOGY, GENETICS, BREEDING OF MULBERRY** Cytological aspects of Mulberry-Brief account of Mendelian genetics, selection, scope and methods.Collectionand maintenance of Germplasm Bank.Breeding of Mulberry-Plant introduction and acclimatization.Hybridization-Scope, application and limitationsPolyploidy- Euploidy, Aneuploidy, Introduction of Polyploidy and their significance.Mutations-Natural, Induced-Techniques, applications, Limitations.
Unit - III	**BIOTECHNOLOGY IN MULBERRY:** Introduction and Scope of biotechnology in mulberry improvement Biofertilizers –Bio-fertilizers and their application in mulberry cultivation, methods of application, scope and limitation. VermiTechnology. Mulching: Mulches and their significance in soil conservation -Tissue Culture – Tissue culture techniques in mulberry anther/ pollen culture, callus culture, somoclonal variants, somatic, hybrid in *vitro* screening cryopreservation.
Unit - IV	**DISEASES & PESTS OF MULBERRY, INTEGRATED PEST MANAGEMENT (IPM):** **Introduction to Plant diseases** Foliar Diseases- Powdery mildew- Rust- Leaf Spot; D.Tukra. Stem Diseases- Trunk rot-. Dogare blight-

Root Diseases- White root-rot. Violet root-rot Root-Knot.
Prevention and Control of Mulberry Diseases

Pest Attack on Mulberry:

Identification of different types of leaf eating caterpillars, Jassids, Mealy Bugs, Thrips, Scale Insects, Beetles, Nature of damage, Preventive and control measures. Common Pesticides, Chemical nature, Mode of action. Integrated Pest Management methods.

Unit - V

RESOURCE MANAGEMENT & ECONOMICS OF MULBERRY

Water management and Watershed management concept – significance of recharging technologies-Intercropping and uses for soil management-
Economics of mulberry cultivation – Bye – products of mulberry and their indu use

PRACTICALS-Sem II

1. Identification of different mulberry genotypes
2. Bio – Fertilizers – Identification, Preparation of panchagavya & Jeevamrutha.
3. Vermin Technology
4. By – Products of Mulberry and their utilization – Fruit jam preparation
5. Identification of mulberry diseases and pests Identification,

REFERENCES

1. Chopra, V.L (1985). Plant Breeding: Theory and Practice. Oxford &IBH Publishing Co, Pvt. Ltd. New Delhi.
2. Darlington, C.D. and Wylie, A.P (1970). Handling of chrosomes. George Allen and Unwin Ltd, London.
3. Gupta, P.K (1995). Cytogenesis. Rastogi Publication, Meerut.
4. Kuckuch, H., Kobabe, G. Wenzel, G (1993) Fundaments of plant Breeding. Narasa Publishing House, New Delhi, Bombay, Calcutta.
5. A.Bayly, Indian Society and the Making of the British Empire
History of India, 2nd Part, Telugu Academy

Mandatory Co-Curricular Activity:

Establishment of Gene Bankmof Mulberry genotypes should be a compulsory activity as it helps student to understand the varied genetic resources vividly and clearly than the text and should be made part of Internal Examination by allotting marks for this skill-based activity.

Suggested Co-Curricular Activities

A. Measurable

- Assignments/Team Projects –Textual form/Tissue culture/Biofertilizer preparations/Vermin compost/INM/IPM/Herbarium/Disease management/Byproduct preparation
- Student seminars& Debates – Resource management/Breeding strategies/Seribiotechnology
- Quiz Programmes –ICT based/Kahooth/h5P/Google forms/plickers
- Individual Field Studies –Institute- Village Linked programmes/Data Collection/Paper presentation/ Study Tour-CSR&TI, Mysore, CST&RI,B'lore
- Students can be asked to create a chart of SILK ROAD charting the dates of key events. This can be applied to an historical event or the sequence of events.
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B General

- Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
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CONTINUOUS COMPREHENSIVE ASSESSMENT METHODS

- The oral and written examinations (Scheduled and surprise tests),
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- Observation of practical skills,
- Individual and group project reports,
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- Sericulture Department, SK University;
- GKVK, Hebbal, Bangalore.

PROGRAMME: THREE-YEAR B.Sc

(With Zoology, Sericulture and Chemistry Disciplines)

Course Code:

Domain Subject: Sericulture

Semester-wise Syllabus under CBCS

I Year B. Sc. – Semester – III

Course 3: BIOLOGY & REARING TECHNOLOGY OF SILKWORM

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Biodiversity of silkworms in India and World wide
- Authorized Silkworm Races suitable for different regions
- Differences between rearing of crossbreed and bivoltine silkworm
- Rearing houses, plan and maintenance. Rearing of chawki worms and methods appliances.
- Record maintenance and logistics at Chawki Rearing Centres
- Calculation of Effective Rate of Rearing

Syllabus:

Unit - 1 SYSTEMATICS & SILKWORM BIODIVERSITY:

Systematic position of Mulberry and Non mulberry silkworms in the animal kingdom (Taxonomic Classification)-Kinds of Silkworms & geographical distribution (Mulberry and Non Mulberry Silkworms) -Life cycle (Holometabola) of silkworm – egg stage, larva stage, pupa stage and adult stage

Unit - II SILKWORM ANATOMY AND PHYSIOLOGY:

Morphology of Silkworm Egg, Larva, Pupa & Moth.

Anatomy of Silkworm larva-Digestive System, Excretory System ,

Respiratory, Circulatory and Central Nervous System and Silk glands Male and Female reproductive system. - Introduction, Structure and functions of Endocrine Glands (Brain, Corpora allatum, Prothoracic gland, Corpora cardiaca & Sub oesophageal ganglion).

Unit - III THE SILKWORM AND THE ENVIRONMENT:

Introduction of silkworm rearing

Rearing Equipment - rearing stand, rearing trays, ant wells, paraffin papers, foam rubber pads, chopsticks, feathers, chopping boards, leaf chambers, cleaning nets, mountages -Disinfection of rearing house - methods, eco-friendly disinfectants-Precautions during disinfection - Rearing and Impact of Environmental factors.

Unit - IV INCUBATION AND PRESERVATION OF SILKWORM EGGS:

Preparatory Work for Incubation of Silkworm Egg

Development of Silkworm Embryo-Environmental conditions for Incubation-Technical Management in Incubation-Preservation of eggs for

initiation of rearing.

Unit - V PRINCIPLES AND BV&MV SILKWORM REARING MANAGEMENT

Rearing of Chawki Silkworms: Paraffin Paper method-Box rearing Cooperative Rearing-Scientific Rearing Technology - Brushing, feeding, bed cleaning, spacing-Moulting and care during moulting-Adult Silkworm Rearing Methods - Mounting-Methods-Various Mountages,Spinning and Harvesting

PRACTICALS-Sem-3

1. Biology of silkworms:

1. Morphology and life cycle of silkworms.
2. Comparative stages of egg, larva.
3. Male pupa, Female pupa, Male moth and Female moth.
4. Digestive system and silk glands of silkworm.
5. Female Reproductive system and Nervous system.

2. Silkworm Rearing:

1. Model rearing house.
2. Chopping Boards, Chopping Knives, Leaf Chambers, Ant wells.
3. Basin Stand, Cleaning Nets.
4. Feeding Stand, Chopsticks and feathers.
5. Hygrometer, Thermometer.
6. Rearing Stands, Chandrikae, Wooden tray.

Study Tour:

Grainages- APSSericulture dept, Kutagulla
Chawki Rearing Centers, - APSSericulture dept CRC
Seed Farms (P2) station , Horsely Hills, Madanapalli,

Referrences

1. Charsley, S.R. (1982). Culture and Sericulture. Academic Press Inc., New York, U.S.A
2. Chowdhury, S.N. (1998) Muga Culture. Central Silk Board, Bangalore, India
3. Dokuhon, Z.S. (1998). Illustrated Textbook on Sericulture. Oxford & IBH publishing Co., Pvt. Ltd. Calcutta.
4. Hamamura, Y. (2001). Silkworm rearing on Artificial Diet. Oxford & IBH publishing Co., Pvt. Ltd. New Delhi.
5. Hasao Aruga (1994). Principles of Sericulture (Translated from Japanese) Oxford & IBH publishing Co., Pvt. Ltd. New Delhi.
6. Jolly, M.S. Chowdhuty, S.N and Sen. (1975). Non-Mulberry Sericulture in India. Central Silk Board, Bombay, India.
7. Jolly, M.S (1998). Tasar Culture. Central Silk Board, Bangalore, India.
8. Sarkar, D.C. (1998) Eri Culture. Central Silk Board, Bangalore
9. Techniques of Silkworm rearing in the tropics. Economic and Social commission of Asia and the Pacific. United Nations, New York. 1993.
10. Veda, K. Nagai, I., Horikomi, M (1997) Silkworm Rearing (Translated from Japanese. Oxford & IBH publishing co., Co., Pvt. Ltd. New Delhi.
11. Wu Pang-Chuan and Chen Da-Chuang. (1994) Silkworm rearing. Oxford & IBH publishing Co., Pvt. Ltd. New Delhi.
12. Proceedings of the 20th Congress of the International Sericulture Commission-2005. Volume-2. Published by Central Silk Board, Bangalore-68, India.
13. Rajan, R.K. Hemanth Raju 2005, Text Book on silkworm rearing, Central Silk Board, Bangalore.

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Mandatory Co-Curricular Activity:

Silkworm Rearing should be a compulsory activity as it helps student to understand vividly and clearly than the text and should be made part of Internal Examination by allotting 10 marks for this skill-based activity.

Suggested Co-Curricular Activities

Students should be asked to maintain a SILK MUSEUM with inventory items cocoon handicrafts, silk fabrics, bouquets etc

A.MEASURABLE

- Assignments/Team Projects –Textual form/Silkworm Rearing/Cocoon production/Marketing/Income generation/Economics-analysis
- Student seminars& Debates – Why Sericulture/impact on Economy & Economics/ Field constrains/Govt subsidiary schemes/Sericulture extension & Scope/Research inventions/State and Central depts. of Sericulture-
- Quiz Programmes –ICT based/Kahooth/h5P/Google forms/plickers
- Individual Field Studies –Institute- Village Linked programmes/Data Collection/Paper presentation/Molakala cheruvu-a model village
- Study Tour-CSR&TI, Mysore, CST&RI,B'lore
- Students can be asked to create a chart of SILK ROAD charting the dates of key events. This can be applied to an historical event or the sequence of events.

B .GENERAL

- Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
- Discussion Forums-Participation by joining ONLINE Sericulture Technology-Designing of online course/Moodle -Any similar activities with imaginative thinking

CONTINUOUS COMPREHENSIVE ASSESSMENT METHODS

- The oral and written examinations (Scheduled and surprise tests),
- Closed-book and open-book tests/Concept paper writing,
- Problem-solving exercises,
- Practical assignments and survey reports,
- Observation of practical skills,Individual and group project reports,
- Efficient delivery using seminar presentations,
- Viva voce interviews.
- Computerized adaptive testing, literature surveys and evaluations,
- Peers and self-assessment, outputs form individual and collaborative work

PROGRAMME: THREE-YEAR B.Sc

(With Zoology, Sericulture and Chemistry Disciplines)

Course Code:

Domain Subject: Sericulture

Semester-wise Syllabus under CBCS

II Year B. Sc. – Semester – IV

Course.4:SILKWORM SEED ORGANIZATION, TECHNOLOGY& PATHOLOGY

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Indian sericulture scenario in egg production
- Seed Multiplication
- Preparation for Egg Production
- Bivoltine seed production, importance and characteristic features
- Eonomics and self Employability
- Indian sericulture scenario in egg production
- Seed Multiplication
- Preparation for Egg Production

Syllabus:

Unit - 1 SILKWORM SEED TECHNOLOGY

Grainage introduction:

Indian sericulture scenario in egg production - Grainage system in A.P - Model Grainage - Grainage Equipment - Economics of Egg - Production

Unit - II SILKWORM SEED COCOON PROCESSING

Grainage activities(Hybrid Disease free egg laying):

Disinfection of grainage - P1 Seed cocoon procurement and transportation of seed cocoons - Cocoon Sorting and Cocoon arrangements - Sex Separation, Moth Emergence & Synchronization of moth emergence, Pairing & De - pairingOviposition, Refrigeration of Male moths- Pupal gut examination - Moth Examination: (Individual, Sampling and Mass Moth examination Artificial hatching - Hot and Cold Acid Treatment - Postponement of hatching by Chilling - Hibernation and Incubation of Eggs.

Unit –III SEED ORGANIZATION:

Objectives of seed organization - Types of cocoon production areas - Industrial cocoon production areas - seed cocoon production areas - P4 Stations (Evolution of new silkworm breeds) - P3 Stations (Basic Seed Farms) - P2 Stations (Seed Multiplication Farms) and P1 centers (Parent Seed Cocoon Production Centers)

Unit - IV SILKWORM PATHOLOGY:

Introduction of Parasitism, Commensalism, Symbiosis and Parasite relationship - Mulberry Silkworm Diseases: Introduction, types, Pebrine, Grasserie, Muscardine, Flacherie, Symptoms and Pathogens, Mode of Infection, Prevention and Control -Non – mulberry silkworm

diseases: Pebrine, Bacterial and viral diseases.

Unit - V SILKWORM PESTS AND PREDATORS:

Introduction, types of pests – Indian and Japan Uzi fly Life Cycle - Nature of Damage, Preventive and control measure and other pests Demisted beetles - Brief Account of Predators of Silkworms, Cockroaches, Ants, Beetles, Lizards, and Rodents - Nature of damage and control measures.

PRACTICALS

Seed Technology & Pathology

1. Model grainage equipment: Wooden Stand, Bamboo tray, Ant wells, Thermometer, Hygro meter, cellules, Moth crushing set, Microscope, Acid treatment equipment.
2. Sexing of pupae and moth, Moth emergence, Preparation of loose eggs, Preparation of disease free layings.
3. Moth examination for Pebrine, acid treatment (Hot acid and cold acid treatment).
4. Identification of different types of eggs: Hybernative and Non-hybernative eggs, fertilized and unfertilized and dead eggs. Counting of eggs and hatching percentage.
5. Identification of diseased silkworm larvae:
    1. Muscardine
    2. Grasserie
    3. Flacherie
6. Collection and identification of Pests of Mulberry silkworms: Uzi fly, its life cycle.
7. Morphology of predators of silkworm (Beetles, ants and Rats).

References:

1. Anon. (1972). Manual on Sericulture.. Vol. II Silkworm Rearing FAO, Agriculture Services. Bulletin No. 72/2, Rome, Italy.
2. Narasimhanna and Ullal (1978). Handbook of silkworm egg production, CSB Publications,
3. Ullal and Narasimhanna (1978). Handbook of practical sericulture, CSB Publications, Bangalore.
4. Wang San-Wing (1994). Silkworm seed production Vol. III Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.
5. Narasimhanna. M.N. (1998). Manual on Silkworm egg Production. CSB., Govt. of India, Bangalore
6. Silkworm egg production, (Translated from Japanese), (1997), Oxford & IBH Publishing Co. New Delhi.

Mandatory Co-Curricular Activity:

Silkworm egg Production and processing should be a compulsory activity as it helps student to understand vividly and clearly than the text and should be made part of Internal Examination by allotting 10 marks for this skill-based activity.

Suggested Co-Curricular Activities

A.MEASURABLE

- Assignments/Team Projects –Textual form/silkworm seed production
- Student seminars& Debates – Grainage system in AP, Karnataka and neighbouring states
- Quiz Programmes –ICT based/Kahooth/h5P/Google forms/plickers
- Individual Field Studies –Grainages in Dharmavaram, HDP, Demand and Status
- Study Tour-CSR&TI, Mysore, CST&RI,B'lore
- Students can be asked to create a chart of capacity of Grainages and Seed Cocoon prices

B GENERAL :

- **C**ollection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
- Discussion Forums-Participation by joining ONLINE Sericulture Technology
- Designing of online course/Moodle -Any similar activities with imaginative thinking.

CONTINUOUS COMPREHENSIVE ASSESSMENT METHODS

- The oral and written examinations (Scheduled and surprise tests),
- Closed-book and open-book tests/Concept paper writing,
- Problem-solving exercises,
- Practical assignments and survey reports,
- Observation of practical skills,
- Individual and group project reports,
- Efficient delivery using seminar presentations,Viva voce interviews.
- Computerized adaptive testing, literature surveys and evaluations,
- Peers and self-assessment, outputs form individual and collaborative work

PROGRAMME: THREE-YEAR B.Sc
(With Zoology,Sericulture and Sericulture Disciplines)

Course Code:
Domain Subject: Sericulture
Semester-wise Syllabus under CBCS
I/II Year B. Sc. – Semester 2/3/4
Course 'O': SILKWORM CYTO GENETICS AND BREEDING

Learning Outcomes:
After successful completion of this course, the student will be able to:

- History of silkworm breeding Japan, China, India
- Silkworm gene bank and maintaining germplasm
- Hybridization programme & Heterosis in different crossing systems
- Authorization of parental breeds, hybrids and Authorization committee – role
- Phases of silkworm breeds developed, prospects and its applications
- Molecular markers in silkworm breedings

Syllabus:

Unit - 1	CYTOLOGY: Mitosis, Meiosis, Chromosome number in Mulberry and Non-Mulberry Silkworms - Gametogenesis,Oogenesis and Spermatogenesis
Unit - II	DEVELOPMENTAL BIOLOGY Embryonic development-Cleavage-Blastoderm-germ band formation – Blastokinesis-Appendage formation-Organogenesis - Sex determination in silkworms.
Unit - III	GENETICS Linkage and Crossing Over, Linkage Maps, factors influencing crossing over, Linkage groups - Parthenogenesis with reference to silkworm-types and methods, induction of parthenogenesis.Merits and limitations - Multiple alleles. Genetic control of Voltinism and Moultinism, relation between genes and hormones.
Unit - IV	Genetics of cocoon colours Mutations- Mutation - radiation and chemical mutagenesis – radiation sensitivity - types of chemical mutagens, importance of mutagens in induction of mutations.
Unit - V	BREEDING: Aim of Breeding, inbreeding, Inbreeding depression, out breeding, consequence of homozygocity - Selection-Hybridization- Heterosis-theories-manifestation of hybrid vigor. Evolution of new breeds, Sex Limited races - GeneticEngineering-rDNA technology-Transgenic Silkworms-Restriction Enzymes-Vectors Plasmids

REFERENCES:

1. CHRISTOPHER Howe. (1995). Gene Cloning and Manipulation Cambridge Univ. Press.
2. Goldsmith, M and Wilkinson, A.S. (1996) Molecular model system in Lepidopterons. Cambridge Press, London.
3. Hiratsuka. (1999) Silkworm Breeding Oxford & IBH publishing Co, Pvt. Ltd. New Delhi. Calcutta.
4. Morohoshi, S (2000) Development, and Physiology of Silkworm. Oxford & IBH Publishing Co, Pvt. Ltd., New Delhi.
5. Sreeramreddy (ed), G. (1998). Silkworm Breeding. IBM Publishers, New Delhi.
6. Strickberger, M.W.(1996). GENETICS. Prentice-Hall of India, New Delhi.

Mandatory Co-Curricular Activity:

Collection of Silkworm varieties and maintenance should be a compulsory activity as it helps student to understand vividly and clearly than the text and should be made part of Internal Examination by allotting marks for this skill-based activity.

Suggested Co-Curricular Activities

A.MEASURABLE

- Assignments/Team Projects –Textual form/Incubation of eggs/induction of Parthenogenesis
- Student seminars& Debates – Transgenics and Breeding,Role played by Research Institutess
- Quiz Programmes –ICT based/Kahooth/h5P/Google forms/plickers
- Individual Field Studies –Grainages in Dharmavaram, HDP, Demand and Status
- Study Tour-CSR&TI, Mysore, CST&RI,B'lore
- Students can be asked to create a chart of capacity of Grainages and Seed Cocoon prices

B.GENERAL :

- **C**ollection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
- Discussion Forums-Participation by joining ONLINE Sericulture Technology
- Designing of online course/Moodle -Any similar activities with imaginative thinking.

CONTINUOUS COMPREHENSIVE ASSESSMENT METHODS

- The oral and written examinations (Scheduled and surprise tests),
- Closed-book and open-book tests/Concept paper writing,
- Problem-solving exercises,
- Practical assignments and survey reports,
- Observation of practical skills,
- Individual and group project reports,
- Efficient delivery using seminar presentations,Viva voce interviews.
- Computerized adaptive testing, literature surveys and evaluations,
- Peers and self-assessment, outputs form individual and collaborative work

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

3rd,4th and 5th floors, Neeladri Towers, Sri Ram Nagar, 6th Battalion Road,
Atmakur (V), Mangalagiri (M), Guntur-522 503, Andhra Pradesh
Web: www.apsche.org **Email**: secretaryapsche@gmail.com

REVISED SYLLABUS OF BOTANY UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

BOTANY

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P.)

For Fifteen Courses of 1, 2, 3 & 4 Semesters)

(To be Implemented from 2020-21 Academic Year)

APSCHE/ REVISION OF C.B.C.S – BOTANY COURSE W.E.F.2020-21

S. No.	Semester	Title of the Course (Paper)	Hours /week	Max. Marks (SEE)	Marks in CIA	Credits
1.	Sem.-I/ Course-1	Fundamentals of Microbes and Non-vascular Plants	04	75	25	03
	Course-1 Practical	Fundamentals of Microbes and Non-vascular Plants	03	Max. Marks-50 Internal assessment at Semester end		02
2.	Sem.-II/ Course-2	Basics of Vascular plants and Phytogeography	04	75	25	03
	Course-2 Practical	Basics of Vascular plants and Phytogeography	03	Max. Marks-50 External assessment at Semester end		02
3.	Sem.-III/ Course-3	Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity	04	75	25	03
	Course-3 Practical	Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity	03	Max. Marks-50 Internal assessment at Semester end		02
4.	Sem.-IV Course-4	Plant Physiology and Metabolism	03	75	25	03
	Course-4Practical	Plant Physiology and Metabolism	03	Max. Marks-50 External assessment at Semester end		02
5.	Sem.- IV Course- 5	Cell Biology, Genetics and Plant Breeding	04	75	25	03
	Course-5Practical	Cell Biology, Genetics and Plant Breeding	03	Max. Marks-50 External assessment at Semester end		02
6.	Sem.– V Course – 6 & 7	Domain related Skill Enhancement Courses (02) - Three (3) pairs ofcourses (each pair has 2 related courses) will be offered, student has to choose a pair of courses.	03	75	25	03
			03	Max. Marks-50 Internal assessment at Semester end		02
			03	75	25	03
			03	Max. Marks-50 Internal assessment at Semester end		02

CBCS / Semester System (w.e.f. 2020-'21 Admitted Batch)

I Semester /Botany Core Course - 1

Fundamentals of Microbes and Non-vascular Plants

(Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)

(Total hours of teaching – 60 @ 04 Hrs./Week)

Theory:

Learning Outcomes:

On successful completion of this course, the students will be able to:

- Explain origin of life on the earth.
- Illustrate diversity among the viruses and prokaryotic organisms and can categorize them.
- Classify fungi, lichens, algaeand bryophytes based on theirstructure, reproduction and life cycles.
- Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi.
- Recall and explain theevolutionary trends among amphibians of plant kingdom for their shift to land habitat.
- Evaluate the ecological and economic value of microbes, thallophytes and bryophytes.

Unit – 1:Origin of life and Viruses 12Hrs.

1. Origin of life, concept of primary Abiogenesis;Miller and Urey experiment.Five kingdom classification of R.H. Whittaker
2. Discovery of microorganisms,Pasteur experiments, germ theory of diseases.
3. Shape and symmetry of viruses; structure of TMV and Gemini virus; multiplicationof TMV; A brief account of Prions and Viroids.
4. A general account on symptoms of plant diseases caused by Viruses.Transmission of plant viruses and their control.
5. Significance of viruses in vaccine production,bio-pesticides and as cloning vectors.

Unit – 2:Special groups of Bacteria and Eubacteria 12Hrs.

1. Brief account of Archaebacteria, ActinomycetesandCyanobacteria.
2. Cell structure and nutritionof Eubacteria.

3. Reproduction- Asexual (Binary fission and endospores) and bacterial recombination (Conjugation, Transformation,Transduction).
4. Economic importance of Bacteria with reference to their role in Agriculture and industry (fermentation and medicine).
5. A general account on symptoms of plant diseases caused by Bacteria; Citrus canker.

Unit – 3: Fungi & Lichens 12 Hrs.

1. General characteristics of fungi and Ainsworth classification (upto classes).
2. Structure, reproductionand life history of(a)*Rhizopus*(Zygomycota)and (b)*Puccinia* (Basidiomycota).
3. Economic uses of fungi in food industry, pharmacy and agriculture.
4. A general account on symptoms of plant diseases caused by Fungi; Blast of Rice.
5. Lichens- structure and reproduction; ecological and economic importance.

Unit – 4: Algae 12 Hrs.

1. General characteristics of Algae (pigments, flagella and reserve food material);Fritsch classification (upto classes).
2. Thallus organization and life cycles in Algae.
3. Occurrence, structure, reproduction and life cycle of (a) *Spirogyra* (Chlorophyceae) and (b) *Polysiphonia* (Rhodophyceae).
4. Economic importance of Algae.

Unit – 5:Bryophytes 12 Hrs.

1. General characteristics of Bryophytes; classification upto classes.
2. Occurrence, morphology, anatomy, reproduction (developmental details are not needed) and life cycle of (a) *Marchantia* (Hepaticopsida) and (b) *Funaria*(Bryopsida).
3. General account on evolution of saprophytes in Bryophyte.

Text books:

- Botany – I (Vrukshasastram-I) : Telugu Akademi, Hyderabad
- Pandey, B.P. (2013) *College Botany, Volume-I*, S. Chand Publishing, New Delhi
- Hait,G., K.Bhattacharya&A.K.Ghosh (2011) *A Text Book of Botany, Volume-I*, New Central Book Agency Pvt. Ltd., Kolkata
- Bhattacharjee, R.N., (2017) *Introduction to Microbiology and Microbial Diversity,* Kalyani Publishers, New Delhi.

Books for Reference:

- Dubey, R.C. &D.K.Maheswari (2013) *A Text Book of Microbiology*,S.Chand& Company Ltd., New Delhi
- Pelczar Jr., M.J., E.C.N. Chan &N.R.Krieg (2001)*Microbiology*, Tata McGraw-Hill Co, New Delhi
- Presscott, L. Harley, J. and Klein, D. (2005)*Microbiology, 6th edition*, Tata McGraw –Hill Co. New Delhi.
- Alexopoulos, C.J., C.W.Mims&M.Blackwell (2007) *Introductory Mycology*,Wiley& Sons, Inc., New York
- Mehrotra, R.S. & K. R. Aneja (1990)*An Introduction to Mycology*. New Age International Publishers, New Delhi
- Kevin Kavanagh (2005) *Fungi ; Biology and Applications* John Wiley & Sons, Ltd.,West Sussex, England
- John Webster & R. W. S. Weber (2007) *Introduction to Fungi*,Cambridge University Press, New York
- Fritsch, F.E. (1945)*The Structure & Reproduction of Algae (Vol. I & Vol. II)*Cambridge UniversityPress Cambridge, U.K..
- Bold, H.C. & M. J. Wynne (1984)*Introduction to the Algae*, Prentice-Hall Inc., New Jersey
- Robert Edward Lee (2008)*Phycology*. Cambridge University Press, New York
- Van Den Hoek, C., D.G.Mann&H.M.Jahns (1996)*Algae : An Introduction to Phycology*. Cambridge University Press, New York
- Shaw, A.J.&B.Goffinet (2000)*Bryophyte Biology* .Cambridge University Press, New York.

Practical syllabus of Botany Core Course – 1/ Semester –

I Fundamentals of Microbes and Non-vascular Plants

(Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)

(Total hours of laboratory exercises 30 Hrs. @ 02 Hrs./Week)

Course Outcomes: On successful completion of this practical course, student shall be ableto;

1. Demonstrate the techniques of use of lab equipment, preparing slides and identify the material and draw diagrams exactly as it appears.
2. Observe and identify microbes and lower groups of plants on their own.
3. Demonstrate the techniques of inoculation, preparation of media etc.
4. Identify the material in the permanent slides etc.

Practical Syllabus:

1. Knowledge of Microbiology laboratory practices and safety rules.
2. Knowledge of different equipment for Microbiology laboratory (Spirit lamp, Inoculation loop, Hot-air oven, Autoclave/Pressure cooker, Laminar air flow chamber and Incubator) and their working principles. (In case of the non-availability of the laboratory equipment the students can be taken to the local college/clinical lab. with required infrastructural facilities or they can enter a linkage with the college/lab for future developments and it will fetch creditsduring the accreditation by NAAC).
3. Demonstration of Gram's staining technique for Bacteria.
4. Study of Viruses (Corona, Gemini and TMV) using electron micrographs/ models.
5. Study of Archaebacteriaand Actinomycetes using permanent slides/ electron micrographs/diagrams.
6. Study of *Anabaena* and *Oscillatoria*using permanent/temporary slides.
7. Study of different bacteria (Cocci, Bacillus, Vibrio and Spirillum) using permanent or temporary slides/ electron micrographs/ diagrams.
8. Study/ microscopic observation of vegetative, sectional/anatomical and reproductive structures of the following using temporary or permanent slides/ specimens/ mounts :
   a. Fungi : *Rhizopus*,*Penicillium*and*Puccinia*

b. Lichens: Crustose, foliose and fruiticose

c. Algae :*Volvox, Spirogyra*, *Ectocarpus*and *Polysiphonia*

d. Bryophyta : *Marchantia*and *Funaria*

9. Study of specimens of Tobacco mosaic disease, Citrus canker and Blast of Rice.

Model Question Paper for Practical Examination

Semester – I/ Botany Core Course – 1

Fundamentals of Microbes and Non-vascular Plants

(Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)

Max. Time: 3 Hrs. Max. Marks: 50

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1. Take the T.S. of material 'A' (Fungi), make a temporary mount and make comments about identification. 10 M
2. Identify any 2 algae from the mixture (material 'B') given with specific comments about identification. 10 M
3. Take the T.S. of material 'C' (Bryophyta), make a temporary mount and make comments about identification. 10 M
4. Identify the following with specific reasons. 4x 3 = 12 M
   D. A laboratory equipment of Microbiology
   E. Virus
   F. Archaebacteria /Ascomycete /Cyanobacteria/ Eu-Bacteria
   G. Lichen
5. Record + Viva-voce 5+3 = 8 M

Suggested co-curricular activities for Botany Core Course-1 in Semester-I:

A. Measurable :

a. Student seminars :

1. Baltimore classification of Viruses.
2. Lytic and lysogenic cycle of T- even Bacteriophages.
3. Viral diseases of humans and animals.
4. Retroviruses
5. Bacterial diseases of humans and animals.
6. Significance of Bacteria in Biotechnology and Genetic engineering.
7. Fungi responsible for major famines in the world.
8. Poisonous mushrooms (Toad stools).
9. Algae as Single Cell Proteins (SCPs)
10. Parasitic algae

11. Origin of Bryophytes through : Algae vsPteridophytes
12. Fossil Bryophytes
13. Evolution of gametophytes in Bryophyta.
14. Ecological and economic importance of Bryophytes.

b. Student Study Projects :

1. Isolation and identification of microbes from soil, water and air.
2. Collection and identification of algae from fresh /estuarine /marine water.
3. Collection and identification of fruiting bodies of Basidiomycetes and Ascomycetes.
4. Collection and identification of Lichens from their native localities.
5. Collection of diseased plants/parts and identification of symptoms.
6. Collection and identification of Bryophytes from their native localities.

c. Assignments: Written assignment at home / during '0' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General :

1. Visit to Agriculture and/or Horticulture University/College/Research station to learn about microbial diseases of plants.
2. Visit to industries working on microbial, fungal and algal products.
3. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.

II Semester /Botany Core Course – 2

Basics of Vascular plants and Phytogeography

(Pteridophytes, Gymnosperms, Taxonomy of Angiosperms and Phytogeography)

(Total hours of teaching – 60 @ 02 Hrs./Week)

Theory:

Learning Outcomes:

On successful completion of this course, the students will be able to:

- Classify and compare Pteridophytes and Gymnosperms based on their morphology, anatomy, reproduction and life cycles.
- Justifyevolutionary trends in tracheophytes to adapt for land habitat.
- Explain the process of fossilization and compare the characteristics of extinct and extant plants.
- Critically understand various taxonomical aids for identification of Angiosperms.
- Analyze the morphology of the most common Angiospermplants of their localitiesand recognize their families.
- Evaluate the ecological, ethnic and economic value of different tracheophytes and summarize their goods and services for human welfare.
- Locate different phytogeographical regions of the world and India and can analyze their floristic wealth.

Unit – 1:Pteridophytes **12 Hrs.**

1. General characteristics of Pteridophyta; classification of Smith (1955) uptodivisions.
2. Occurrence, morphology,anatomy, reproduction (developmental details are notneeded) and life historyof (a) *Lycopodium* (Lycopsida) and (b) *Marsilea* (Filicopsida).
3. Stelar evolution in Pteridophytes;
4. Heterospory and seed habit.

Unit – 2:Gymnosperms **14 Hrs.**

1. General characteristics of Gymnosperms; Sporneclassification uptoclasses.
2. Occurrence, morphology, anatomy, reproduction (developmental details are not needed) and life history of (a) *Cycas*(Cycadopsida) and (b) *Gnetum* (Gnetopsida).
3. Outlines of geological time scale.
4. A brief account on *Cycadeoidea.*

Unit – 3:Basic aspects of Taxonomy **13Hrs.**

1. Aim and scope of taxonomy; Species concept: Taxonomic hierarchy, species, genus and family.
2. Plant nomenclature: Binomial system, ICBN- rules for nomenclature.
3. Herbarium and its techniques,BSI herbarium and Kew herbarium; concept of digital herbaria.
4. Bentham and Hooker system of classification;
5. Systematic description and economic importance of the following families:
   (a) Annonaceae (b) Curcurbitaceae

Unit – 4: Systematic Taxonomy **13 Hrs.**

1. Systematic description and economic importance of the following families:
   (a) Asteraceae (b) Asclepiadaceae (c)Amaranthaceae(d) Euphorbiaceae
   (e) Arecaceaeand (f) Poaceae
2. Outlines of Angiosperm Phylogeny Group (APG IV).

Unit – 5:Phytogeography **08 Hrs.**

1. Principles of Phytogeography, Distribution (wides, endemic, discontinuous species)
2. Endemism – types and causes.
3. Phytogeographic regions of World.
4. Phytogeographic regions of India.
5. Vegetation types in Andhra Pradesh.

Text books:

- Botany – I (Vrukshasastram-I) : Telugu Akademi, Hyderabad
- Botany – II (Vrukshasastram-II) : Telugu Akademi, Hyderabad
- Acharya, B.C., (2019) *Archchegoniates,* Kalyani Publishers, New Delhi
- Bhattacharya, K., G. Hait&Ghosh, A. K., (2011) *A Text Book of Botany, Volume-II,* New Central Book Agency Pvt. Ltd., Kolkata
- Hait,G., K.Bhattacharya&A.K.Ghosh (2011) *A Text Book of Botany, Volume-I,* New Central Book Agency Pvt. Ltd., Kolkata
- Pandey, B.P. (2013)*College Botany, Volume-I,* S. Chand Publishing, New Delhi
- Pandey, B.P. (2013)*College Botany, Volume-II,* S. Chand Publishing, New Delhi

Books for Reference:

- Smith, G.M. (1971)*CryptogamicBotanyVol. II*., Tata McGraw Hill, New Delhi
- Sharma,O.P.(2012)Pteridophyta. Tata McGraw-Hill, New Delhi
- Kramer, K.U.&P. S. Green (1990) *The Families and Genera of Vascular Plants, Volume –I*: *Pteridophytes and Gymnosperms*(Ed.K.Kubitzki) Springe-Verlag, New York
- Bhatnagar, S.P. &AlokMoitra (1996)*Gymnosperms*. New Age International, New Delhi
- Coulter, J.M. &C.J.Chamberlain(1910) *Morphology of Gymnosperms,*The University of Chicago Press, Chicago, Illinois
- Govil, C.M. (2007)*Gymnosperms : Extinct and Extant*. KRISHNA Prakashan Media (P) Ltd.Meerut& Delhi
- Sporne, K.R.(1971)*The Morphology of Gymnosperms.*Hutchinsons Co. Ltd., London
- Arnold, C.A., (1947) *An introduction to Paleobotany*McGraw –Hill Book Company,INC, New York
- Stewart,W.N., and G.W.Rothwell (2005) *Paleobotany and the evolution of plants* Cambridge University Press, New York
- Lawrence, George H.M. (1951) *Taxonomy of Vascular Plants.* The McMillan Co., New York
- Heywood, V. H. and D. M. Moore (1984)*Current Concepts in Plant Taxonomy.* Academic Press, London.

- Jeffrey, C. (1982)*An Introduction to Plant Taxonomy.* Cambridge University Press, Cambridge. London.
- Sambamurty, A.V.S.S. (2005)*Taxonomy of Angiosperms* I. K .International Pvt. Ltd., New Delhi
- Singh, G. (2012*). Plant Systematics: Theory and Practice.*Oxford & IBH Pvt. Ltd., NewDelhi.
- Simpson, M.G. (2006). *Plant Systematics.* Elsevier Academic Press, San Diego, CA,U.S.A.
- Cain, S.A . (1944)*Foundations of Plant Geography*Harper & Brothers, N.Y.
- Good, R. (1997)*The Geography of flowering Plants (2nd Edn.)*Longmans, Green &

  Co., Inc., London & Allied Science Publishers, New Delhi
- Mani, M.S (1974)*Ecology & Biogeography of India*Dr. W. Junk Publishers, The Haque

Practical syllabus of Botany Core Course – 2/ Semester –

IIBasics of Vascular plants and Phytogeography

(Pteridophytes, Gymnosperms, Taxonomy of Angiosperms and Phytogeography)(Total hours of laboratory exercises 30 Hrs. @ 02 Hrs. /Week)

Course Outcomes:

On successful completion of this course students shall be able to:

1. Demonstrate the techniques of section cutting, preparing slides, identifying of the material and drawing exact figures.
2. Compare and contrast the morphological, anatomical and reproductive features of vascular plants.
3. Identify the local angiosperms of the families prescribed to their genus and species level and prepare herbarium.
4. Exhibit skills of preparing slides, identifying the given twigs in the lab and drawing figures of plant twigs, flowers and floral diagrams as they are.
5. Prepare and preserve specimens of local wild plants using herbarium techniques.

Practical Syllabus:

1. Study/ microscopic observation of vegetative, sectional/anatomical and reproductive structures of the following using temporary or permanent slides/ specimens/ mounts :
   a. Pteridophyta : *Lycopodium* and *Marselia*
   b. Gymnosperms : *Cycas*and *Gnetum*
2. Study of fossil specimens of *Cycadeoidea* and *Pentoxylon*(photographs /diagrams can be shown if specimens are not available).
3. Demonstration of herbarium techniques.
4. Systematic / taxonomic study of locally available plants belonging to the familiesprescribed in theory syllabus. (Submission of 30 number of Herbarium sheets ofwild plants with the standard system is mandatory).
5. Mapping of phytogeographical regions of the globe and India.

Model Question Paper for Practical Examination

Semester – II/ Botany Core Course – 2

Basics of Vascular plants and Phytogeography

(Pteridophytes, Gymnosperms, Taxonomy of Angiosperms and Phytogeography)

Max. Time: 3 Hrs. Max. Marks: 50

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1. Take T.S. of the material 'A' (Pteridophyta), make a temporary slide and justify the identification with apt points. 10 M
2. Take T.S. of the material 'B' (Gymnosperms), make a temporary slide and justify the identification with apt points. 10 M
3. Describe the vegetative and floral characters of the material 'C' (Taxonomy of Angiosperms) and derive its systematic position. 10 M
4. Identify the specimen 'D' (Fossil Gymnosperm) and give specific reasons. 5 M
5. Locate the specified phytogeographical regions (2x2M) in the world / India (E) map supplied to you. 4 M
6. Record + Herbarium & Field note book + Viva-voce 5 +4+3 = 12 M

Suggested co-curricular activities for Botany Core Course-2 in Semester-II:

A. Measurable :

a. Student seminars :

1. Fossil Pteridophytes.
2. Aquatic ferns and tree ferns
3. Ecological and economic importance of Pteridophytes
4. Evolution of male and female gametophytes in Gymnosperms.
5. Endemic and endangered Gymnosperms.
6. Ecological and economic importance of Gymnosperms.
7. Floras and their importance: Flora of British India and Flora of Madras Presidency.
8. Botanical gardens and their importance:National Botanic garden and Royal Botanic garden.
9. Artificial, Natural and Phylogenetic classification systems.
10. Molecular markers used in APG system of classification.
11. Vessel less angiosperms.

12. Insectivorous plants.
13. Parasitic angiosperms.
14. Continental drift theory and species isolation.

b. Student Study Projects :

1. Collection and identification of Pteridophytes from their native locality/ making

an album by collecting photographs of Pteridophytes.

2. Collection and identification of Gymnosperms from their native locality/making an album by collecting photographs of Gymnosperms.

4. Collection of information on famous herbaria in the world and preparation of a report.
5. Collection of information on famous botanic gardens in the world and preparation of a report.
6. Collection of data on vegetables (leafy and fruity) plants in the market and and preparation of a report on their taxonomy.
7. Collection and identification of fresh and dry fruits plants in the market andand preparation of a report on their taxonomy.
8. Collection of data on plants of ethnic and ethnobotanical importance from their native locality.
9. Preparation of a local flora by enlisting the plants of their native place.

c. Assignments: Written assignment at home / during '0' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General :

1. Visit to Botanic garden in a Research institute/University to see the live plants.
2. Virtual tour in websites for digital herbaria and botanic gardens.
3. Acquaint with standard floras like – Flora of Madras Presidency, Flora of their respective district in Andhra Pradesh.
4. Looking into vegetation of different phytogeographical regions using web resources.
5. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.

III **Semester /Botany Core Course - 3**

Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity

(Total hours of teaching – 60 @ 04 Hrs./Week)

Theory:

Learning outcomes:

On successful completion of this course, the students will be able to;

- Understand on the organization of tissues and tissue systems in plants.
- Illustrate and interpret various aspects of embryology.
- Discuss the basic concepts of plant ecology, and evaluate the effects ofenvironmental and biotic factors on plant communities.
- Appraise various qualitative and quantitative parameters to study the population and community ecology.
- Correlate the importance of biodiversity and consequences due to its loss.
- Enlist the endemic/endangered flora and fauna from two biodiversity hot spots inIndia and assess strategies for their conservation.

Unit – 1: Anatomy of Angiosperms **12 Hrs.**

1. Organization of apical meristems: Tunica-carpus theory and Histogen theory.
2. Tissue systems–Epidermal, ground and vascular.
3. Anomalous secondary growth in *Boerhaavia* and *Dracaena.*
4. Study of timbers of economic importance - Teak, Red sanders and Rosewood.

Unit – 2: Embryology of Angiosperms **12 Hrs.**

1. Structure of anther, anther wall, types of tapetum. Microsporogenesis and development of male gametophyte.
2. Structure of ovule, megasporogenesis; monosporic (*Polygonum*), bisporic (*Allium*) and tetrasporic (*Peperomia*) types of embryo sacs.
3. Outlines of pollination, pollen – pistil interaction and fertilization.
4. Endosperm - Types and biological importance - Free nuclear, cellular,helobialand ruminate.
5. Development of Dicot (*Capsella bursa-pastoris*) embryo.

Unit – 3: Basics of Ecology **12 Hrs.**

1. Ecology: definition, branches and significance of ecology.
2. Ecosystem: Concept and components, energy flow, food chain, food web, ecologicalpyramids.
4. Plants and environment: Climatic (light and temperature), edaphic and biotic factors.
5. Ecological succession:Hydrosere and Xerosere.

Unit – 4:Population, Community and Production Ecology **12 Hrs.**

1. Population ecology: Natality, mortality, growth curves, ecotypes, ecads
2. Community ecology: Frequency, density, cover, life forms, biological spectrum
3. Concepts of productivity: GPP, NPP and Community Respiration
4. Secondary production, P/R ratio and Ecosystems.

Unit – 5:Basics of Biodiversity **12 Hrs.**

1. Biodiversity: Basic concepts, Convention on Biodiversity - Earth Summit.
2. Value of Biodiversity; types and levels of biodiversity and Threats to biodiversity
3. Biodiversity Hot spots in India. Biodiversity in North Eastern Himalayas andWestern Ghats.
4. Principles of conservation: IUCN threat-categories, RED data book
5. Role of NBPGR and NBA in the conservation of Biodiversity.

Text books:

- Botany – III (Vrukshasastram-I) : Telugu Akademi, Hyderabad
- Botany – IV (Vrukshasastram-II) : Telugu Akademi, Hyderabad
- Pandey, B.P. (2013) *College Botany, Volume-II,* S. Chand Publishing, New Delhi
- Pandey, B.P. (2013) *College Botany, Volume-III,* S. Chand Publishing, New Delhi
- Bhattacharya, K., G. Hait&Ghosh, A. K., (2011) *A Text Book of Botany, Volume-II,* New Central Book Agency Pvt. Ltd., Kolkata

Books for Reference:

- Esau, K. (1971)*Anatomy of Seed Plants.* John Wiley and Son, USA.
- Fahn, A. (1990)*Plant Anatomy,* Pergamon Press, Oxford.
- Cutler, D.F., T. Botha & D. Wm. Stevenson (2008)*Plant Anatomy: An Applied Approach,* Wiley, USA.
- Paula Rudall (1987)*Anatomy of Flowering Plants: An Introduction to Structure and Development.* Cambridge University Press, London
- Bhojwani, S. S. and S. P. Bhatnagar (2000)*The Embryology of Angiosperms (4th Ed.),*Vikas Publishing House, Delhi.
- Pandey, A. K. (2000) *Introduction to Embryology of Angiosperms*. CBS Publishers & Distributors Pvt. Ltd. , New Delhi
- Maheswari, P. (1971)*An Introduction to Embryology of Angiosperms*. McGraw Hill Book Co., London.
- Johri, B.M. (2011)*Embryology of Angiosperms.* Springer-Verlag, Berlin
- Pandey, B.P. (2013)*College Botany, Volume-III,* S. Chand Publishing, New Delhi
- Bhattacharya, K., A. K. Ghosh, & G. Hait (2011) *A Text Book of Botany, Volume-IV,* New Central Book Agency Pvt. Ltd., Kolkata
- Kormondy, Edward J. (1996) *Concepts of Ecology,*Prentice-Hall of India Private Limited, New Delhi
- Begon, M., J.L. Harper & C.R. Townsend (2003) *Ecology,* Blackwell Science Ltd., U.S.A.
- Eugene P. Odum (1996)*Fundamentals of Ecology*,Natraj Publishers, Dehradun
- Sharma, P.D. (2012) *Ecology and Environment*. Rastogi Publications, Meerut, India.
- N.S.Subrahmanyam& A.V.S.S. Sambamurty (2008)*Ecology*Narosa Publishing House,

New Delhi

- A. K. Agrawal& P.P. Deo (2010) *Plant Ecology,*Agrobios (India), Jodhpur
- Kumar, H.D. (1992) *Modern Concepts of Ecology (7th Edn.,)*Vikas Publishing Co.,

  New Delhi.
- Newman, E.I. (2000): *Applied Ecology*Blackwell Scientific Publisher, U.K.
- Chapman, J.L&M.J. Reiss (1992): *Ecology - Principles & Applications.*Cambridge

  University Press, U.K.
- Kumar H.D. (2000)*Biodiversity & Sustainable Conservation* Oxford & IBH

  Publishing Co Ltd. New Delhi.
- U. Kumar (2007) *Biodiversity : Principles & Conservation,*Agrobios (India), Jodhpur

Practical syllabus of Botany Core Course – 3 /Semester – III

Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity

(Total hours of laboratory exercises 30 Hrs. @ 02 Hrs./Week)

Course Outcomes:

On successful completion of this practical course students shall be able to:

1. Get familiarized with techniques of section making, staining and microscopic study of vegetative, anatomical and reproductive structure of plants.
2. Observe externally and under microscope, identify and draw exact diagrams of the material in the lab.
3. Demonstrate application of methods in plant ecology and conservation of biodiversity and qualitative and quantitative aspects related to populations and communities of plants.

Practical Syllabus

1. Tissue organization in root and shoot apices using permanent slides.
2. Anomalous secondary growth in stems of *Boerhavia* and *Dracaena*.
3. Study of anther and ovule using permanent slides/photographs.
4. Study of pollen germination and pollen viability.
5. Dissection and observation of Embryo sac haustoria in *Santalum*or*Argemone.*
6. Structure of endosperm (nuclear and cellular) using permanent slides / Photographs.
7. Dissection and observation of Endosperm haustoria in *Crotalaria* or *Coccinia*.
8. Developmental stages of dicot and monocot embryos using permanent slides / photographs.
9. Study of instruments used to measure microclimatic variables; soil thermometer, maximum and minimum thermometer, anemometer, rain gauze, and lux meter. (visit to the nearest/local meteorology station where the data is being collected regularly and record the field visit summary for the submission in the practical).
10. Study of morphological and anatomical adaptations of hydrophytes and xerophytes (02 each).
11. Quantitative analysis of herbaceous vegetation in the college campus for frequency, density and abundance.

12. Identification of vegetation/various plants in college campus and comparison with Raunkiaer's frequency distribution law.
13. Find out the alpha-diversity of plants in the area
14. Mapping of biodiversity hotspots of the world and India.

Model paper for Practical Examination

Semester – III/ Botany Core Course – 3

Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity

Max. Time: 3 Hrs. Max. Marks: 50

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1. Take T.S. of the material 'A' (Anatomy), prepare a temporary slide and justify the identification with specific reasons. 10 M
2. Write the procedure for the experiment 'B' (Embryology) and demonstrate the same. 10 M
3. Take T.S. of the material 'C', prepare a temporary slide and justify the identification with specific reasons. 10 M
4. Identify the following with specific reasons. 4 x 3 = 12 M
   D. Anatomy/Embryology
   E. Ecology instrument
   F. Mapping of Biodiversity hot spot
   G. Endemic/endangered plant/animal
5. Record + Viva-voce 5 + 3 = 8 M

Suggested co-curricular activities for Botany CoreCourse-3 in Semester-III:

A. Measurable :

a. Student seminars :

1. Anatomy in relation to taxonomy of Angiosperms.
2. Nodal anatomy
3. Floral anatomy
4. Embryology in relation to taxonomy of Angiosperms.
5. Apomictics and polyembryony.
6. Biogeochemical cycles- Carbon, Nitrogen and Phosphorous.
7. Deforestation and Afforestation.
8. Green house effect and ocean acidification.
9. The Montreal protocol and the Kyoto protocol.
10. Productivity of aquatic ecosystems.
11. Mangrove ecosystems in India.
12. Kollerulake – Ramsar site.
13. Biodiversity hotspots of the world.
14. Origin of Crop plants - Vavilov centers
15. Agrobiodiversity
16. International organizations working on conservation of Biodiversity
17. Nagoya protocol – ABS system.
18. Endemic and endangered plants in Andhra Pradesh.

b. Student Study Projects :

1. Stomata structure in plants from college campus/ their native place.
2. Report on xylem elements in plants using maceration technique.
3. Collection of information on famous herbaria in the world and preparation of a report.
4. Microscopic observations on pollen morphology from plants in college Campus/ their native locality.
5. Study report on germination and viability of pollen in different plants.
6. Observation of anthesis time in different plants and their pollinators.
7. A report on autecology and synecology of some plants in college campus or their native place.
8. Collection of photos of endemic/endangered plant and animal species to Makean album.

9. Biodiversity of the college or their own residential/ native area.
10. Collection of seeds/vegetative organs of rare plant species from their localities and to raise/grow in college garden

c. Assignments: Written assignment at home / during '0' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General :

1. Visit to an arboretum / silviculture station/Forest research institute to see the live timber yielding plants or to visit a local timber depot. to observe various woods.
2. Field visit to a nearby ecosystem to observe the abiotic-biotic relationships.
3. Visit to National park/Sanctuary/Biosphere reserve etc., to observe in-situ conservation of plants and animals.
4. Visit to a Botanical garden or Zoo to learn about ex-situ conservation of rare plants or animals.
5. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.

IV Semester/ Botany Core Course –

4 Plant Physiology and Metabolism

(Total hours of teaching – 60 @ 04 Hrs./Week)

Theory:

Learning outcomes:

On successful completion of this course, the students will be able to;

- Comprehend the importance of water in plant life and mechanisms for transport ofwater and solutes in plants.
- Evaluate the role of minerals in plant nutrition and their deficiency symptoms.
- Interpret the role of enzymes in plant metabolism.
- Critically understand the light reactions and carbon assimilation processes responsible for synthesis of food in plants.
- Analyze the biochemical reactions in relation to Nitrogen and lipid metabolisms.
- Evaluate the physiological factors that regulate growth and development in plants.
- Examine the role of light on flowering and explain physiology of plants under stress conditions.

Unit – 1: Plant-Water relations 10 Hrs.

1. Importance of water to plant life, physical properties of water, diffusion, imbibition, osmosis. water potential, osmotic potential, pressure potential.
2. Absorption and lateral transport of water; Ascent of sap
3. Transpiration: stomata structure and mechanism of stomatal movements (K^+ ion flux).
4. Mechanism of phloem transport; source-sink relationships.

Unit – 2: Mineral nutrition, Enzymes and Respiration 14 Hrs.

1. Essential macro and micro mineral nutrients and their role in plants; symptoms of mineral deficiency
2. Absorption of mineral ions; passive and active processes.
3. Characteristics, nomenclature and classification of Enzymes. Mechanism of enzyme action, enzyme kinetics.

4. Respiration: Aerobic and Anaerobic; Glycolysis, Krebs cycle; electron transport system, mechanism of oxidative phosphorylation, Pentose Phosphate Pathway (HMP shunt).

Unit – 3: Photosynthesis and Photorespiration 12 Hrs.

1. Photosynthesis: Photosynthetic pigments, absorption and action spectra; Red drop and Emerson enhancement effect
2. Concept of two photosystems; mechanism of photosynthetic electron transport and evolution of oxygen; photophosphorylation
3. Carbon assimilation pathways (C3,C4 and CAM);
4. Photorespiration - C2 pathway

Unit – 4: Nitrogen and lipid metabolism 12 Hrs.

1. Nitrogen metabolism: Biological nitrogen fixation – asymbiotic and symbiotic nitrogen fixing organisms. Nitrogenase enzyme system.
2. Lipid metabolism: Classification of Plant lipids, saturated and unsaturated fatty acids.
3. Anabolism of triglycerides, β-oxidation of fatty acids, Glyoxylate cycle.

Unit – 5: Plant growth - development and stress physiology 12 Hrs.

1. Growth and Development: Definition, phases and kinetics of growth.
2. Physiological effects of Plant Growth Regulators (PGRs) - auxins, gibberellins, cytokinins, ABA, ethylene and brassinosteroids.
3. Physiology of flowering:Photoperiodism, role of phytochrome in flowering.
4. Seed germination and senescence; physiological changes.

Text books:

- Botany – IV (Vrukshasastram-II) : Telugu Akademi, Hyderabad
- Pandey, B.P. (2013) *College Botany, Volume-III,* S. Chand Publishing, New Delhi
- Ghosh, A. K., K. Bhattacharya &G. Hait (2011) *A Text Book of Botany, Volume-III,* New Central Book Agency Pvt. Ltd., Kolkata

Books for Reference:

- Aravind Kumar & S.S. Purohit (1998) *Plant Physiology – Fundamentals and Applications,*AgroBotanica, Bikaner
- Datta, S.C. (2007) *Plant Physiology,*New Age International (P) Ltd., Publishers, New Delhi
- Hans Mohr & P. Schopfer (2006)*Plant Physiology*, Springer (India) Pvt. Ltd., New Delhi
- Hans-Walter heldt (2005) *Plant Biochemistry,*Academic Press, U.S.A.
- Hopkins, W.G. & N.P.A. Huner (2014)*Introduction to Plant Physiology,* Wiley India Pvt. Ltd., New Delhi
- Noggle Ray & J. Fritz (2013)*Introductory Plant Physiology*, Prentice Hall (India), New Delhi
- Pandey, S.M. &B.K.Sinha (2006)*Plant Physiology*, Vikas Publishing House, New Delhi
- Salisbury, Frank B. & Cleon W. Ross (2007)*Plant Physiology*, Thomsen & Wadsworth, Austalia&U.S.A
- Sinha, R.K. (2014) *Modern Plant Physiology,* Narosa Publishing House,New Delhi
- Taiz, L.&E. Zeiger (2003)*Plant Physiology*, Panima Publishers, New Delhi
- Verma, V.(2007)*Text Book of Plant Physiology,*Ane Books India, New Delhi

Practical Syllabus of Botany Core Course – 4 / Semester –

IVPlant Physiology and Metabolism

(Total hours of laboratory exercises 30 Hrs. @ 02 Hrs. /Week)

Course outcomes: On successful completion of this practical course, students shall be able to:

1. Conduct lab and field experiments pertaining to Plant Physiology, that is, biophysical and biochemical processes using related glassware, equipment, chemicals and plant material.
2. Estimate the quantities and qualitative expressions using experimental results and calculations
3. Demonstrate the factors responsible for growth and development in plants.

Practical Syllabus

1. Determination of osmotic potential of plant cell sap by plasmolytic method using *Rhoeo*/ *Tradescantia* leaves.
2. Calculation of stomatal index and stomatal frequency of a mesophyte and a xerophyte.
3. Determination of rate of transpiration using Cobalt chloride method / Ganong's potometer (at least for a dicot and a monocot).
4. Effect of Temperature on membrane permeability by colorimetric method.
5. Study of mineral deficiency symptoms using plant material/photographs.
6. Demonstration of amylase enzyme activity and study the effect of substrate and Enzymeconcentration.
7. Separation of chloroplast pigments using paper chromatography technique.
8. Demonstration of Polyphenol oxidase enzyme activity (Potato tuber or Apple fruit)
9. Anatomy of C3, C4 and CAM leaves
10. Estimation of protein by biuret method/Lowry method
11. Minor experiments – Osmosis, Arc-auxonometer, ascent of sap through xylem, cytoplasmic streaming.

Model Question Paper for Practical Examination

Semester – IV/ Botany Core Course – 4

Plant Physiology and Metabolism

Max. Time: 3 Hrs. Max. Marks: 50

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1. Conduct the experiment 'A' (Major experiment), write aim, principle, material and apparatus/equipment, procedure, tabulate results and make conclusion. 20 M
2. Demonstrate the experiment 'B' (Minor experiment), write the principle, procedure and give inference. 10 M
3. Identify the following with apt reasons. 3 x 4 = 12 M

   C. Plant water relations / Mineral nutrition

   D. Plant metabolism

   E. Plant growth and development
4. Record + Viva-voce 5 + 3 = 8 M

Suggested co-curricular activities for Botany Core Course-4 in Semester-IV:

A. Measurable :

a. Student seminars :

1. Antitranspirants and their significance in crop physiology and horticulture.
2. Natural chelating agents in plants.
3. Criteria of essentiality of elements and beneficial elements.
4. Hydroponics, aquaponics and aeroponics.
5. Mycorrhizal association and mineral nutrition in plants.
6. Non-proteinaceous enzymes.
7. Respiratory inhibitors.
8. Structure of ATPase and Chemiosmotic hypothesis.
9. Transpiration and photosynthesis – a compromise.
10. Amphibolic pathways and bypass pathways in plants.
11. Non-biological nitrogen fixation.
12. Role of Hydrogenase in nitrogen fixation.
13. Plant lectins – their role in plants and use in medicine and medical research.

b. Student Study Projects :

1. Stomatal densities among different groups of plants.
2. Various treatments (salt, cold, high temperature, heavy metals) and their effects on seed germination.
3. Effects of plant hormones (IAA, Gibberellin and Kinetin) on Seed Germination.
4. Diurnal variation of stomatal behavior in CAM and C3 plants found in local area.
5. Effects of nitrogen fertilizer on plant growth.
6. Enumeration of C3, C4 and CAM plants in the local area.
7. Effect of different light wavelengths (red light, green light, blue light) on apparent photosynthesis in terms of growth.
8. Light effects on leaf growth and leaf orientation.
9. Artificial Fruit Ripening Process by various treatments (carbide and ethylene).
10. Study of relative water content and water retention by leaves under different environments.
11. Study of soil nutrients in local agricultural fields.
12. Study of mineral deficiency symptoms of various crops of local area.
13. Study of local weeds in crop fields.
14. Studies on seed storage proteins, oils and starch in local millets and pulse crops.
15. Making a report on LDPs, SDPs and DNPs in their locality.

c. Assignments: Written assignment at home / during '0' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General :

1. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.
2. Visit to a Plant Physiology laboratory in a University or Physiology division in a Agriculture/Horticulture University/Research station.

IV Semester / Botany Core Course –5

Cell Biology, Genetics and Plant Breeding

(Total hours of teaching – 60 @ 04 Hrs./Week)

Theory:

Learning outcomes:

On successful completion of this course, the students will be able to:

- Distinguish prokaryotic and eukaryotic cells and design the model of a cell.
- Explain the organization of a eukaryotic chromosome and the structure of geneticmaterial.
- Demonstrate techniques to observe the cell and its components under amicroscope.
- Discuss the basics of Mendelian genetics, its variations and interpret inheritance of traits in living beings.
- Elucidate the role of extra-chromosomal genetic material for inheritance of characters.
- Evaluate the structure, function and regulation of genetic material.
- Understand the application of principles and modern techniques inplant breeding.
- Explain the procedures of selection and hybridization for improvement of crops.

Unit – 1: The Cell **12 Hrs.**

1. Cell theory; prokaryotic vs eukaryotic cell; animal vs plant cell; a brief account onultra-structure of a plant cell.
2. Ultra-structure of cell wall.
3. Ultra-structure of plasma membrane and various theories on its organization.
4. Polymorphic cell organelles (Plastids); ultra structure of chloroplast. Plastid DNA.

Unit – 2: Chromosomes **12 Hrs.**

1. Prokaryotic vs eukaryotic chromosome. Morphology of a eukayotic chromosome.
2. Euchromatin and Heterochromatin; Karyotype and ideogram.
3. Brief account of chromosomal aberrations - structural and numerical changes
4. Organization of DNA in a chromosome (solenoid and nucleosome models).

Unit – 3: Mendelian and Non-Mendelian genetics **14Hrs.**

1. Mendel's laws of inheritance. Incomplete dominance and co-dominance; Multiple allelism.
2. Complementary, supplementary and duplicate gene interactions (plant based examples are to be dealt).
3. A brief account of linkage and crossing over; Chromosomal mapping - 2 point and 3 point test cross.
4. Concept of maternal inheritance (Corren's experiment on *Mirabilis jalapa*); Mitochondrial DNA.

Unit – 4:Structure and functions of DNA **12 Hrs.**

1. Watson and Crick model of DNA. Brief account on DNA Replication (Semi-conservative method).
2. Brief account on Transcription, types and functions of RNA. Gene concept and genetic code and Translation.
3. Regulation of gene expression in prokaryotes - Lac Operon.

Unit – 5:Plant Breeding **12 Hrs.**

1. Plant Breeding and its scope; Genetic basis for plant breeding. Plant Introduction and acclimatization.
2. Definition, procedure; applications and uses; advantages and limitations of :(a) Mass selection, (b) Pure line selection and (c) Clonal selection.
3. Hybridization – schemes, and technique; Heterosis(hybrid vigour).
4. A brief account on Molecular breeding – DNA markers in plant breeding. RAPD, RFLP.

Text books :

- Botany – III (Vrukshasastram-I) : Telugu Akademi, Hyderabad
- Pandey, B.P. (2013) *College Botany, Volume-III,* S. Chand Publishing, New Delhi
- Ghosh, A.K., K.Bhattacharya&G. Hait (2011) *A Text Book of Botany, Volume-III,* New Central Book Agency Pvt. Ltd., Kolkata
- Chaudhary, R. C. (1996) *Introduction to Plant Breeding,* Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi

Books for Reference:

- S. C. Rastogi (2008)*Cell Biology*,New Age International (P) Ltd. Publishers, New Delhi
- P. K. Gupta (2002)*Cell and Molecular biology*,Rastogi Publications, New Delhi
- B. D. Singh (2008) *Genetics*,Kalyani Publishers, Ludhiana
- A.V.S.S. Sambamurty (2007) *Molecular Genetics*,Narosa Publishing House,New Delhi
- Cooper, G.M. & R.E. Hausman (2009)*The Cell – A Molecular Approach,* A.S.M. Press, Washington
- Becker, W.M., L.J. Kleinsmith& J. Hardin (2007)*The World of Cell,* Pearson Education, Inc., New York
- De Robertis, E.D.P. & E.M.F. De Robertis Jr. (2002)*Cell and Molecular Biology,* Lippincott Williams & Wilkins Publ., Philadelphia
- Robert H. Tamarin (2002)*Principles of Genetics*,Tata McGraw –Hill Publishing Company Limited, New Delhi.
- Gardner, E.J., M. J. Simmons & D.P. Snustad (2004)*Principles of Genetics*, John Wiley & Sons Inc., New York
- Micklos, D.A., G.A. Freyer& D.A. Cotty (2005) *DNA Science: A First Course*, I.K. International Pvt. Ltd., New Delhi
- Chaudhari, H.K.(1983)*Elementary Principles of Plant Breeding*, TMHpublishers Co., New Delhi
- Sharma, J.R. (1994)*Principles and Practice of Plant Breeding*, Tata McGraw- Hill Publishers, New Delhi
- Singh,B.D. (2001)*Plant Breeding : Principles and Methods* ,Kalyani Publishers, Ludhiana

- Pundhan Singh (2015) *Plant Breeding for Undergraduate Students*, Kalyani Publishers, Ludhiana
- Gupta, S.K. (2010)*Plant Breeding : Theory and Techniques*,Agrobios (India), Jodhpur
- Hayes, H.K., F.R. Immer& D.C. Smith (2009) *Methods of Plant Breeding*,Biotech Books, Delhi

Practical Syllabus of Botany Core Course – 5/IVSemester

Cell Biology, Genetics and Plant Breeding

(Total hours of laboratory exercises 30 Hrs. @ 02 Hrs. /Week)

Course Outcomes: After successful completion of this practical course the student shall be able to:

1. Show the understanding of techniques of demonstrating Mitosis and Meiosis in the laboratory and identify different stages of cell division.
2. Identify and explain with diagram the cellular parts of a cell from a model or picture and prepare models
3. Solve the problems related to crosses and gene interactions.
4. Demonstrate plant breeding techniques such as emasculation and bagging

Practical Syllabus:

1. Study of ultra structureof plant cell and its organelles using Electron microscopic Photographs/models.

2. Demonstration of Mitosis in *Allium cepa*/*Aloe vera* roots using squashtechnique; observation of various stages of mitosis in permanent slides.

4. Demonstration of Meiosis in P.M.C.s of *Allium cepa*flower buds using squash technique; observation of various stages of meiosis in permanent slides.

4. Study of structure of DNA and RNA molecules using models.

5. Solving problems monohybrid, dihybrid, back and test crosses.

6.Solving problems on gene interactions (atleast one problem for each of the gene interactions in the syllabus).

7. Chromosome mapping using 3- point test cross data.

8. Demonstration of emasculation, bagging, artificial pollination techniques for hybridization.

Model paper for Practical Examination

Semester-IV / Botany Core Course – 5

Cell Biology, Genetics and Plant Breeding

Max. Time: 3 Hrs. Max. Marks: 50

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1. Make a cytological preparation of given material 'A' (mitosis or meiosis in Onion) by squash technique, report any two stages, draw labeled diagrams and write the reasons. 15 M

2. Solve the given Genetic problem (Dihybrid cross/ Interaction of genes/ 3-point test cross) 'B' and write the conclusions. 15 M

3. Identify the following and justify with apt reasons. 3 x 4 = 12 M

   C. Cell Biology (Cell organelle)

   D. Genetics (DNA/RNA)

   E. Plant Breeding

4. Record + Viva-voce 5 + 3 = 8 M

Suggested co-curricular activities for Botany Core Course- 5 in Semester-IV:

A. Measurable :

a. Student seminars :

1. Light microscopy : bright field and dark field microscopy.
2. Scanning Electron Microscopy (SEM).
3. Transmission Electron Microscopy (TEM).
4. Mitosis and Meiosis
5. Cell cycle and its regulation.
6. Cell organelles bounded by single membrane.
7. Prokaryotic chromosomes
8. Special types of chromosomes :Polytene, Lampbrush and B-chromosomes.
9. Different forms of DNA.
10. Gene mutations.
11. DNA damage and repair mechanisms.
12. Reverse transcription.
13. Protein structure.

14. Modes of reproduction in plants.

15. Modes of pollination in plants

b. Student Study Projects :

1. Study of mitoticcell cycle in roots of*Aliumcepa*

2. Study of mitoticcell cycle in roots of*Aloe vera*

3. Observation of chromosomal aberrations in *Allium cepa* root cells exposed toindustrial effluent(s).

4. Observation of chromosomal aberrations in *Allium cepa* root cells exposed toheavy metal(s).

5. Observation of polyembryony in *Citrus* spp.and *Mangiferaindica.*

c. Assignments: Written assignment at home / during '0' hour at college; preparation of charts with drawings, making models etc., on topics included in syllabus.

B. General :

1. Field visit to Agriculture/Horticulture University/ Research station to observe Plant breeding methods.

2. Group Discussion (GD)/ Quiz/ Just A Minute (JAM) on different modules in syllabus of the course.

RECOMMENDED ASSESSMENT OF STUDENTS:

Recommended continuous assessment methods for all courses:

Some of the following suggested assessment methodologies could be adopted. Formal assessment for awarding marks for Internal Assessment in theory.

(a) Formal:

1. The oral and written examinations (Scheduled and surprise tests),
2. Simple, medium and Critical Assignments and Problem-solving exercises,
3. Practical assignments and laboratory reports,
4. Assessment of practical skills,
5. Individual and group project reports,
6. Seminar presentations,
7. Viva voce interviews.

(b) Informal:

1. Computerized adaptive testing, literature surveys and evaluations,
2. Peers and self-assessment, outputs form individual and collaborative work
3. Closed-book and open-book tests,

Common pattern for Question Paper for Theory Examination(s) at Semester end

Max. Time: 3 Hrs. Max. Marks: 75 M

Section – A

Answer all the following questions. 5 x 2 = 10 M

- ✓ One question should be given from each Unit in the syllabus.

Section – B

Answer any <u>three</u> of the following questions. Draw a labeled diagram wherever necessary 3 x 5 = 15 M

- ✓ One question should be given from each Unit in the syllabus.

Section – C

Answer any <u>five</u> of the following questions. Draw a labeled diagram wherever necessary 5 x 10 = 50 M

- ✓ Two questions (a & b) are to be given from each Unit in the syllabus (internal choice in each unit). Student has to answer 5 questions by choosing one from a set of questions given from a Unit.

Note: Questions should be framed in such a way to test the understanding, analytical and creative skills of the students. All the questions should be given within the frame work of the syllabus prescribed.

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Annexure

Objectives and General Outcomes of Programme and Domain Subject

Programme (B.Sc.) Objectives: The objectives of bachelor's degree programme with Botany are:

1. To provide a comprehensive knowledge on various aspects related to microbes and plants.
2. To deliver knowledge on latest developments in the field of Plant sciences with a practical approach.
3. To produce a student who thinks independently, critically and discuss various aspects of plant life.
4. To enable the graduate to prepare and pass through national and international examinations related to Botany.
5. To empower the student to become an employee or an entrepreneur in the field of Botany /Biology and to serve the nation.

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Programme Outcomes:

1. Understand the basic concepts of Botany in relation to its allied core courses.
2. Perceive the significance of microbes and plants for human welfare, and structural and functional aspects of plants.
3. Demonstrate simple experiments related to plant sciences, analyze data, and interpret them with the theoretical knowledge.
4. Work in teams with enhanced inter-personal skills.
5. Develop the critical thinking with scientific temper.
6. Effectively communicate scientific ideas both orally and in writing.

Domain Subject(Botany) Objectives :

1. To impart knowledge on origin, evolution, structure, reproduction and interrelationships of microbes and early plant groups.
2. To provide knowledge on biology and taxonomy of true land plants within a phylogenetic framework.
3. To teach aspects related to anatomy, embryology and ecology of plants, and importance of Biodiversity.
4. To explain the structural and functional aspects of plants with respect to the cell organelles, chromosomes and genes, and methods of plant breeding.

5. To develop a critical understanding on SPAC, metabolism and growth and development in plants.
6. To enable the students proficient in experimental techniques and methods of analysis appropriate for various sub-courses in Botany.

Domain Subject (Botany) Outcomes:

1. Students will be able to identify, compare and distinguish various groups of microbes and primitive plants based on their characteristics.
2. Students will be able to explain the evolution of trachaeophytes and also distribution of plants on globe.
3. Students will be able to discuss on internal structure, embryology and ecological adaptations of plants, and want of conserving Biodiversity.
4. Students will be able to interpret life processes in plants in relation to physiology and metabolism.
5. Students will be able to describe ultra structure of plant cells, inheritance and cropimprovement methods.
6. Students will independently design and conduct simple experiments based on the knowledge acquired in theory and practicals of the different sub-courses in Botany.

SUBJECT EXPERTS

Prof. C.Sudhakar
Dept of Botany,
Sri Krishnadevaraya University,
Anantapur

Dr.A.Srinivasa Rao
Lecturer in Botany,
Govt Degree College,
Mandapeta

SYLLABUS VETTED BY

Prof.M.Vijaya Lakshmi,
Dept of Botany and Microbiology,
Acharya Nagarjuna University,
Nagarjuna Nagar

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

3rd, 4th and 5th floors, Neeladri Towers, Sri Ram Nagar, 6th Battalion Road,
Atmakur(V), Mangalagiri(M), Guntur-522 503, Andhra Pradesh
Web: www.apsche.org **Email**: acapsche@gmail.com

REVISED SYLLABUS OF B.Sc. (ZOOLOGY)
UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

ZOOLOGY

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P.)

For Fifteen Courses of 1, 2, 3 & 4 Semesters)

(To be Implemented from 2020-21 Academic Year)

Structure of ZOOLOGY Syllabus

(Under CBCS for 4-year B.Sc. Hons. Programme)

(With domain subject covered during the first 4 Semesters with 5 Courses)

YEAR	SEM	PAPER	TITLE	MARKS (100)		CREDITS
				MID SEMESTER	END SEMESTER	
I	I	I	Animal Diversity – I Biology of Non-Chordates	25	75	04
			Practical - I	25	75	01
	II	II	Animal Diversity – II Biology of Chordates	25	75	04
			Practical - II	25	75	01
II	III	III	Cell biology, Genetics, Molecular Biology & Evolution	25	75	04
			Practical - III	25	75	01
	IV	IV	Physiology, Cellular Metabolism & Embryology	25	75	04
			Practical - IV	25	75	01
		V	Immunology &Animal Biotechnology	25	75	04
			Practical - V	25	75	01

PROGRAMME: FOUR-YEAR B.Sc. Hons.

(**With Chemistry, Botany and Zoology Disciplines**)

As per the **National Education Policy, 2019 the outcomes of Higher Education** includeincreased critical thinking abilities, higher order thinking and deeper learning, mastery of content, problem solving, team work and communication skills besides general engagement and enjoyment of learning including systematic research in India.

The overall objectives of the learning outcomes-based curriculum framework are to:

- Help formulate graduate attributes, qualification descriptors, programme learning outcomes and course learning outcomes that are expected to be demonstrated by the holder of a qualification;
- Enable prospective students, parents, employers and others to understand the nature and level of learning outcomes (knowledge, skills, attitudes and values) or attributes a graduate of a programme should be capable of demonstrating on successful completion of the programme of study.

Programme Educational Objectives (PEOs):

PEO1Higher Education: Empower students to pursue higher studies in various fields ofBiology and Chemistry.

PEO2Career: Enable students to pursue careers in Chemical, Biological and related fields as demonstrated by professional success at positions within industry, government, or academia.

PEO3Social responsibility: Enable students to exhibit professionalism, ethical attitude, communication skills and team work in their profession.

Program Outcomes (POs):

The Learning Outcomes of the programme could be in consonance with the Bloom's Taxonomy, which includes –

1. Remember (Lower order)
2. Understand (Lower Order)
3. Apply (Lower Order)
4. Analyze (Higher Order)

5. Evaluate& Problem Solving (Higher Order)
6. Create (Higher Order)

PO1Critical thinking: Able to understand and utilize the principles of scientific enquiry, think analytically, clearly and evaluate critically while solving problems and making decisions during biological study.

PO2Effective communication: Able to formally communicate Scientific ideas and investigations of the biology discipline to othersusing both oral and written communication skills.

PO3Social interaction:Able to develop individual behaviourandinfluence society and social structure.

PO4Effective citizenship: Able to work with a sense of responsibility towards social awareness and follow the ethical standards in the society.

PO5Ethics: Ability to demonstrate and discuss ethical conduct in scientific activities.

PO6Environment and Sustainability :Able to understand the impact of biological science insocietal and environmental contexts and demonstrate the knowledge for sustainable development.

PO7Self-directed and life-long learning: Able to recognize the need of life-long learning and engage in research and self-education.

Domain Subject: ZOOLOGY

(Syllabus with Outcomes, Co-curricular Activities, References & Model Q.P for Five Courses of 1, 2, 3, 4 & 5 Semesters)

"The domain subject "Zoology", embracing the fields of Animal diversity, Cell biology, Genetics, evolution, Animal physiology, Biochemistry, Embryology, Immunology, Molecular biology and Ecology gives the student a broad understanding of faunal diversity, various life processes involved in the development of an animal, its functioning, its response to environmental stimuli, molecular basis of life, new technological approach towards life, an insight for the lecturer into research and responsibility of the student towards environment".

GENERAL CURRICULAR ACTIVITIES

- **Lecturer-based**:

1) **Class-room activities**: Organization of Group discussions, question-answer sessions, scientific observations, use of audio-visual aids, guidance programmes, examination and evaluation work (scheduled and surprise tests), quizzes, preparation of question banks, student study material, material for PG entrance examinations etc.
2) **Library activities**: Reading books and magazines taking notes from prescribed and reference books and preparation of notes on lessons as per the syllabus; Reading journals and periodicals pertaining to different subjects of study; Making files of news-paper cuttings etc.
3) **Lab activities**: Organization of practicals, maintenance of lab attendance registers/log registers, maintenance of glassware and chemicals
4) **Activities in the Seminars, workshops and conferences**: Organization of at least one seminar/workshop/conference per academic year either on academic/research aspects and inculcate research spirit among students
5) **Research activities**: Student study projects (General / RBPT model), Minor or Major research projects, Research guidance to research scholars, Publication of research articles/papers (at least one in 2 years) in UGC-recognized journals, Registration in Vidwan/Orcid/Scopus/Web of Science
6) **Smart Classroom Activities**: Organization of Departmental WhatsApp groups, Ed Modo groups/Google Class Rooms/Adobe Spark groups for quick delivery of the subject; Preparation of Moocs content & presentation tube lessons by trained lecturers; Using smart/digital/e- class rooms (mandarory) wherever present; Utilization of youtube videos (subject to copy rights) etc.

- **Student-based**:

1) **Class-room activities**: Power point presentations, seminars, assignments
2) **Library activities**: Visit to library during library hour and preparation of notes
3) **Lab activities**: Maintenance of observation note book and record, keeping lab clean and tidy
4) **Activities in the Seminars, workshops and conferences**: Participation/presentationin seminar/workshop/conference

CO-CURRICULAR ACTIVITES

OBJECTIVES:

The co-curricular activities are aimed at strengthening the theoretical knowledge with an activity related to the content taught in the class room. The aesthetic development, character building, spiritual growth, physical growth, moral values, creativity of the student.

The different types of co-curricular activities relevant to Zoology domain are listed below:

- **Academic - based**
    - Preparation of Charts/Clay or Thermocol Models
    - Debates, Essay Writing Competitions
    - Group Discussions
    - Departmental (Zoology) magazine
    - Formation of Book clubs
    - Animal album-making
    - Viva-Voce
- **Lab/Research –based**
    - Digital dissections
    - Field Visit/Excursions/Zoological Tours and submission of report
    - Training at research centres (aquaculture/apiculture/sericulture etc.)
    - Exposure to scientific instruments and hands-on experience
- **Value - based**
    - Organization of first-aid camp, swachhbharat, cleanliness week, girl-child importance, Nutrition and health awareness etc.

- **Observation of Days of National/International Importance**

World Cancer Day (February 4th)	International Biological Diversity Day (May 22nd)
Darwin Day (February 12th)	World Turtle Day (May 23rd)
National Science Day (Feb 28th)	World blood Donor Day (June 14th)
World Wildlife day (March 3rd)	World Zoonoses Day (July 6th)
National Vaccination Day (March 16th)	World Mosquito Day (August 20th)
World Health Day (April 7th)	World Turtle Day (May 23rd)
Earth Day (April 22nd)	World Mosquito Day (August 20th)
Malaria Day (April 25th)	World Animal day (October 4th)
World Hepatitis Day (May 19th)	World Immunization Day (November 10th)

AP STATE COUNCIL OF HIGHER EDUCATION

w.e.f. 2020-21 (Revised in April, 2020)

ZOOLOGY – SEMESTER I

PAPER – I: ANIMAL DIVERSITY – BIOLOGY OF NONCHORDATES

HOURS: 60 (5X12) **Max. Marks: 100**

Course Outcomes: By the completion of the course the graduate should able to –

CO1 Describe general taxonomic rules on animal classification

CO2 Classify Protozoa to Coelenterata with taxonomic keys

CO3 Classify Phylum Platy hemninthes to Annelida phylum using examples from parasitic adaptation and vermin composting

CO4 Describe Phylum Arthropoda to Mollusca using examples and importance of insects and Molluscans

CO5 Describe Echinodermata to Hemi chordata with suitable examples and larval stages in relation to the phylogeny

Learning objectives

1. To understand the taxonomic position of protozoa to helminthes.
2. To understand the general characteristics of animals belonging to protozoa to hemichordata.
3. To understand the structural organization of animals phylum from protozoa to hemichordata.
4. To understand the origin and evolutionary relationship of different phyla from protozoa to hemichordata.
5. To understand the origin and evolutionary relationship of different phylum from annelids to hemichordates.

ZOOLOGY SYLLABUS FOR I SEMESTER

PAPER – I: ANIMAL DIVERSITY – BIOLOGY OF NONCHORDATES

HOURS:60 (5X12) **Max. Marks: 100**

UNIT I

1.1 Principles of Taxonomy – Binomial nomenclature – Rules of nomenclature

1.2 Whittaker's five kingdom concept and classification of Animal Kingdom.

Phylum Protozoa

1.3 General Characters and classification of protozoa up to classes with suitable examples

1.4 Locomotion, nutrition and reproduction in Protozoans

1.5 Elphidium (type study)

UNIT –II

PhylumPorifera

2.1 General characters and classification up to classes with suitable examples

2.2 Skelton in Sponges

2.3 Canal system in sponges

PhylumCoelenterata

2.4 General characters and classification up to classes with suitable examples

2.5 Metagenesisin *Obelia*

2.6 Polymorphism in coelenterates

2.7 Corals and coral reefs

PhylumCtenophora :

2.8 General Characters and Evolutionary significance(affinities)

Unit – III

PhylumPlatyhelminthes

3.1 General characters and classification up to classes with suitable examples

3.2 Life cycle and pathogenecity of *Fasciola hepatica*

3.3 Parasitic Adaptations in helminthes

Phylum Nemathelminthes

3.4 General characters and classification up to classes with suitable examples

3.5. Life cycle and pathogenecity of *Ascarislumbricoides*

Unit – IV

Phylum Annelida

4.1 General characters and classification up to classes with suitable examples

4.2 Evolution of Coelom and Coelomoducts

4.3 Vermiculture - Scope, significance, earthworm species, processing, Vermicompost, economic importance of vermicompost

Phylum Arthropoda

4.4 General characters and classification up to classes with suitable examples

4.5 Vision and respiration in Arthropoda

4.6 Metamorphosis in Insects

4.7 *Peripatus* - Structure and affinities

4.8 Social Life in Bees and Termites

Unit – V

Phylum Mollusca

5.1 General characters and classification up to classes with suitable examples

5.2 Pearl formation in Pelecypoda

5.3 Sense organs in Mollusca

PhylumEchinodermata

5.4 General characters and classification up to classes with suitable examples

5.5 Water vascular system in star fish

5.6 Larval forms of Echinodermata

PhylumHemichordata

5.7 General characters and classification up to classes with suitable examples

5.8 *Balanoglossus* - Structure and affinities

Co-curricular activities (suggested)

- Preparation of chart/model of phylogenic tree of life, 5-kingdom classification, *Elphidium* life cycle etc.
- Visit to Zoology museum or Coral island as part of Zoological tour
- Charts on life cycle of *Obelia*, polymorphism, sponge spicules
- Clay models of canal system in sponges
- Preparation of charts on life cycles of *Fasciola*and *Ascaris*
- Visit to adopted village and conducting awareness campaign on diseases, to people as part of Social Responsibility.
- Plaster-of-paris or Thermocol model of *Peripatus*
- Construction of a vermicompost in each college, manufacture of manure by students and donating to local farmers
- Models of compound eye, bee hive and terminarium (termitaria) by students
- Visit to apiculture centre and short-term training as part of apprenticeship programme of the govt. Of Andhra Pradesh
- Chart on pearl forming layers using clay or Thermocol
- Visit to a pearl culture rearing industry/institute
- Live model of water vascular system
- Phylogeny chart on echinoderm larvae and their evolutionary significance
- Preparation of charts depicting the feeding mechanism, 3 coeloms, tornaria larva etc., of *Balanoglossus*

REFERENCE BOOKS

1. L.H. Hyman '*The Invertebrates' Vol I, II and V.* – M.C. Graw Hill Company Ltd.

2. Kotpal, R.L. 1988 - 1992 Protozoa, Porifera, Coelenterata, Helminthes, Arthropoda, Mollusca, Echinodermata. Rastogi Publications, Meerut.

3. E.L. Jordan and P.S. Verma '*Invertebrate Zoology'* S. Chand and Company.

4. R.D. Barnes '*Invertebrate Zoology'* by: W.B. Saunders CO., 1986.

5. Barrington. E.J.W., '*Invertebrate structure and Function'* by ELBS.

6 P.S. Dhami and J.K. Dhami. Invertebrate Zoology. S. Chand and Co. New Delhi.

7. Parker, T.J. and Haswell'*A text book of Zoology'* by, W.A., Mac Millan Co. London.

8. Barnes, R.D. (1982). *Invertebrate Zoology*, V Edition"

ZOOLOGY MODEL PAPER FOR I SEMESTER

ZOOLOGY - PAPER - I

ANIMAL DIVERSITY – BIOLOGY OF NONCHORDATES

Time : 3 hrs **Max. Marks : 75**

I. Answer any FIVE of the following : **5x5=25**

Draw labeled diagrams wherever necessary

1.
2.
3.
4.
5.
6.
7.
8.

II. Answer any FIVE of the following: **5x10=50**

Draw labeled diagrams wherever necessary

9.

OR

10.

OR

11.

OR

12.

OR

13.

OR

□□□□□

ZOOLOGY PRACTICAL SYLLABUS FOR I SEMESTER

ZOOLOGY - PAPER - I

ANIMAL DIVERSITY - BIOLOGY OF NONCHORDATES

Periods: 24 **Max. Marks: 50**

Learning Outcomes:

- To understand the importance of preservation of museum specimens
- To identify animals based on special identifying characters
- To understand different organ systems through demo or virtual dissections
- To maintain a neat, labeled record of identified museum specimens

Syllabus :

1. Study of museum slides / specimens / models (Classification of animals up to orders)

Protozoa: Amoeba, *Paramoecium, Paramoecium Binary fission and Conjugation, Vorticella, Entamoebahistolytica, Plasmodium vivax*

Porifera: *Sycon, Spongilla, Euspongia, Sycon*- T.S & L.S, Spicules, Gemmule

Coelenterata: *Obelia – Colony & Medusa, Aurelia, Physalia, Velella, Corallium, Gorgonia, Pennatula*v.

Platyhelminthes: *Planaria, Fasciola hepatica, Fasciola*larval forms – Miracidium, Redia, Cercaria, *Echinococcusgranulosus, Taeniasolium, Schistosomahaematobium*vii.

Nemathelminthes: *Ascaris(Male & Female), Drancunculus, Ancylostoma, Wuchereria*

Annelida: *Nereis, Aphrodite, Chaetopteurs, Hirudinaria,* Trochophore larva

Arthropoda: Cancer, Palaemon**,** Scorpion, *Scolopendra, Sacculina, Limulus, Peripatus,* Larvae - Nauplius, Mysis, Zoea, Mouth parts of male &female *Anopheles* and *Culex*, Mouthparts of Housefly and Butterfly. xiii.

Mollusca: *Chiton, Pila, Unio, Pteredo, Murex, Sepia, Loligo, Octopus, Nautilus,* Glochidium larva

Echinodermata: *Asterias, Ophiothrix, Echinus, Clypeaster, Cucumaria, Antedon,* Bipinnaria larva

Hemichordata: *Balanoglossus,* Tornaria larva

2. Dissections:

1. Prawn: Appendages, Digestive system, Nervous system, Mounting of Statocyst

2. Insect Mouth Parts

3. Laboratory Record work shall be submitted at the time of practical e amination

4. An **"Animal album**" containing photographs, cut outs, with appropriate write up about the above mentioned taxa. Different taxa/ topics may be given to different sets of students for this purpose

5. Computer - aided techniques should be adopted or show virtual dissections

RFERENCEMANUALS:

1. Practical Zoology- Invertebrates S.S. Lal

2. Practical Zoology - Invertebrates P.S. Verma

3. Practical Zoology - Invertebrates K.P. Kurl

4. Ruppert and Barnes (2006) Invertebrate Zoology,8th Edition, Holt Saunders International Edition

AP STATE COUNCIL OF HIGHER EDUCATION

w.e.f. 2020-21 (Revised in April, 2020)

ZOOLOGY –SEMESTER II

PAPER – II: ANIMAL DIVERSITY – BIOLOGY OF CHORDATES

HOURS :60 (5X12) **Max. Marks:100**

Course Outcomes:

By the completion of the course the graduate should able to -

CO1 Describe general taxonomic rules on animal classification of chordates

CO2 Classify Protochordata to Mammalia with taxonomic keys

CO3 Understand Mammals with specific structural adaptaions

CO4 Understand the significance of dentition and evolutionary significance

CO5 Understand the origin and evolutionary relationship of different phyla from Prochordata to mammalia.

Learning objectives

1. To understand the animal kingdom .
2. To understand the taxonomic position of Protochordata to Mammalia.
3. To understand the general characteristics of animals belonging to Fishes to Reptilians.
4. To understand the body organization of Chordata.
5. To understand the taxonomic position of Protherian mammals.

ZOOLOGY SYLLABUS FOR II SEMESTER

PAPER – II: ANIMAL DIVERSITY – BIOLOGY OF CHORDATES

HOURS: 60 (5X12) **Max. Marks: 100**

Unit - I

1.1 General characters and classification of Chordata upto classes

1.2 Protochordata- Salient features of Cephalochordata , Affinities of Cephalochordata.

1.3 Salient features of Urochordata

1.4 Structure and life history of *Herdmania*

1.5 Retrogressive metamorphosis –Process and Significance

Unit - II

2.1 Cyclostomata, General characters, Comparison of*Petromyzon* and *Myxine*

2.2 Pisces : General characters of Fishes

2.3 *Scoliodon*: External features, Digestive system, Respiratory system, Structure and function of Heart, Structure and functions of the Brain.

2.4 Migration in Fishes

2.5 Types of Scales

2.6 Dipnoi

Unit - III

3.1 General characters of Amphibia

3.2 Classification of Amphibiaup to orders with examples.

3. 3 *Ranahexadactyla*: External features, Digestive system, Respiratory system, Structure and function of Heart, structure and functions of the Brain

3.4 Reptilia: General characters of Reptilia, Classification of Reptilia upto orders withexamples

3.5 *Calotes*:External features, Digestive system, Respiratory system, Structure and function of Heart, structure and function of Brain

3.6. Identification of Poisonous snakes and Skull in reptiles

Unit - IV

4.1 Aves General characters of Aves

4.2 *Columba livia*: External features, Digestive system, Respiratory system, Structure and function of Heart, structure and function of Brain

4.3 Migration in Birds

4.4 Flight adaptation in birds

Unit - V

5.1 General characters of Mammalia

5.2 Classification of Mammalia upto sub - classes with examples

5.3 Comparision of Prototherians, Metatherians and Eutherians

5.4 Dentition in mammals

Co-curricular activities (suggested)

- Preparation of charts on Chordate classification (with representative animal photos) and retrogressive metamorphosis
- Thermocol or Clay models of Herdmania and Amphioxus
- Visit to local fish market and identification of local cartilaginous and bony fishes
- Maintaining of aquarium by students
- Thermocol model of fish heart and brain
- Preparation of slides of scales of fishes
- Visit to local/nearby river to identify migratory fishes and prepare study notes
- Preparation of Charts on above topics by students (Eg: comparative account of vertebrate heart/brain/lungs, identification of snakes etc.)
- Collecting and preparation of Museum specimens with dead frogs/snakes/lizards etc., and/or their skeletons
- Additional input on types of snake poisons and their antidotes (student activity).
- Collection of bird feathers and submission of report on Plumology
- Taxidermic preparation of dead birds for Zoology museum
- Map pointing of prototherian and metatherian mammals
- Chart preparation for dentition in mammals

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- Arumugam, N. Chordate Zoology, Vol. 2. SarasPlublication. 278 pages. 200 figs.
- A.J. Marshall, 1995. Textbook of zoology, Vertebrates. (The McMillan Press Ltd., UK). 852 pages. (Revised edition of Parker &Haswell, 1961).
- M. EkambaranathaAyyar, 1973. A manual of zoology. Part II. (S. ViswanathanPvt. Ltd., Madras).
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- R.L.Kotpal, 2000. Modern textbook of zoology, Vertebrates. (Rastogi Publ., Meerut). 632 pages.
- E.L. Jordan & P.S. Verma, 1998. Chordate zoology. (S. Chand & Co.). 1092 pages.
- G.S. Sandhu, 2005. Objective Chordate Zoology. Campus Books, vii, 169 pp.
- Sandhu, G.S. & H. Bhaskar, H. 2004. Textbook of Chordate Zoology. Campus Books, 2 vols., xx, 964 p., figs.
- Veena, 2008. Lower Chordata. (Sonali Publ.), 374 p., tables, 117 figs.

ZOOLOGY MODEL PAPER FOR II SEMESTER

ZOOLOGY - PAPER - II

ANIMAL DIVERSITY – BIOLOGY OF CHORDATES

Time: 3 hrs **Max. Marks: 75**

I. Answer any FIVE of the following: **5x5=25**

Draw labeled diagrams wherever necessary

1. Amphioxus

2. Placoid scale

3. Quill feather

4. Prototheria

5. Anadromous migration

6. Draco

7. Emu

8. Apoda

II. Answer any FIVE of the following: **5x10=50**

Draw labeled diagrams wherever necessary

9. Explain the life history of Herdmania

OR

Explain the origin and general characters of chordates

10. Compare the characters of *Petromyzon* and *Myxine*

OR

Describe the structure of heart of *Scoliodon*

11. Describe the brain of *Ranahexadactyla*

OR

Explain the external features of *Calotes*

12. Write an essay on flight adaptations in birds

OR

Explain the respiratory system of *Columba livia*

13. Compare the characters of Metatheria and Eutheria

OR

Write an essay on dentition in mammals

□□□□□

ZOOLOGY PRACTICAL SYLLABUS FOR II SEMESTER

ZOOLOGY - PAPER - II

ANIMAL DIVERSITY - BIOLOGY OF CHORDATES

Periods: 24 **Max. Marks: 50**

Learning Outcomes:

- To understand the taxidermic and other methods of preservation of chordates
- To identify chordates based on special identifying characters
- To understand internal anatomy of animals through demo or virtual dissections, thus directing the student for "empathy towards the fellow living beings"
- To maintain a neat, labeled record of identified museum specimens

OBSERVATION OF THE FOLLOWING SLIDES / SPOTTERS / MODELS

1. Protochordata :*Herdmania, Amphioxus, Amphioxus* T.S through pharynx.
2. Cyclostomata :*Petromyzon and Myxine.*
3. Pisces : *Pristis, Torpedo, Hippocoampus ,Exocoetus, Echeneis, Labeo, Catla, Clarius,Channa, Anguilla*.
4. Amphibia :*Ichthyophis, Amblystoma, Axolotl larva, Hyla,*
5. Reptilia: *Draco, Chamaeleon, Uromastix,,Testudo, Trionyx, Russels viper, Naja,* Krait, *Hydrophis, Crocodile.*
6. Aves : *Psittacula, Eudynamis, Bubo, Alcedo.*
7. Mammalia: *Ornithorhynchus,Pteropus,Funambulus.*

Dissections-

1. *Scoliodon*IX and X, Cranial nerves
2. *Scoliodon*Brain
3. Mounting of fish scales

Note: 1. Dissections are to be demonstrated only by the faculty or virtual.

2.Laboratory Record work shall be submitted at the time of practical examination.

REFERENCE BOOKS:

1. S.S.Lal, Practical Zoology – Vertebrata
2. P.S.Verma, A manual of Practical Zoology – Chordata

AP STATE COUNCIL OF HIGHER EDUCATION

w.e.f. 2020-21 (Revised in April, 2020)

ZOOLOGY – SEMESTER III

PAPER – III: CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION

HOURS:60 (5X12) **Max. Marks:100**

Course Outcomes:

The overall course outcome is that the student shall develop deeper understanding of what life is and how it functions at cellular level. This course will provide students with a deep knowledge in Cell Biology, Animal Biotechnology and Evolution and by the completion of the course the graduate shall able to –

CO1 To understand the basic unit of the living organisms and to differentiate the organisms by their cell structure.

CO2 Describe fine structure and function of plasma membrane and different cell organelles of eukaryotic cell.

CO3 To understandthe history of origin of branch of genetics, gain knowledge on heredity, interaction of genes, various types of inheritance patterns existing in animals

CO4 Acquiring in-depth knowledge on various of aspects of genetics involved in sex determination, human karyotyping and mutations of chromosomes resulting in various disorders

CO5 Understand the central dogma of molecular biology and flow of genetic information from DNA to proteins.

CO6 Understand the principles and forces of evolution of life on earth, the process of evolution of new species and apply the same to develop new and advanced varieties of animals for the benefit of the society

Learning Objectives

- To understand the origin of cell and distinguish between prokaryotic and eukaryotic cell
- To understand the role of different cell organelles in maintenance of life activities
- To provide the history and basic concepts of heredity, variations and gene interaction
- To enable the students distinguish between polygenic, sex-linked, and multiple allelic modes of inheritance.
- To acquaint student with basic concepts of molecular biology as to how characters are expressed with a coordinated functioning of replication, transcription and translation in all living beings
- To provide knowledge on origin of life, theories and forces of evolution
- To understand the role of variations and mutations in evolution of organisms

ZOOLOGY SYLLABUS FOR III SEMESTER

PAPER – III: CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION

HOURS: 60 (5X12) **Max. Marks: 100**

Unit – I Cell Biology

1.1 Definition, history, prokaryotic and eukaryotic cells, virus, viroids, mycoplasma

1.2 Electron microscopic structure of animal cell.

1.3 Plasma membrane –Models and transport functions of plasma membrane.

.4Structure and functions of Golgi complex, Endoplasmic Reticulum and Lysosomes

1.5 Structure and functions of Ribosomes, Mitochondria, Nucleus, Chromosomes

(Note: 1. General pattern of study of each cell organelle – Discovery, Occurrence, Number, Origin, Structure and Functions with suitable diagrams**)**

2. Need not study cellular respiration under mitochondrial functions)

Unit – II Genetics - I

2. 1 Mendel's work on transmission of traits

2. 2 Gene Interaction – Incomplete Dominance, Codominance, Lethal Genes

2. 3 Polygenes (General Characteristics & examples); Multiple Alleles (General Characteristics and Blood group inheritance

2. 4 Sex determination (Chromosomal, Genic Balance, Hormonal, Environmental and Haplo-diploidy types of sex determination)

2. 5 Sex linked inheritance (X-linked, Y-linked & XY-linked inheritance)

Unit – III Genetics - II

3.1 Mutations & Mutagenesis

3.2 Chromosomal Disorders (Autosomal and Allosomal)

3.3 Human Genetics – Karyotyping, Pedigree Analysis (basics)

3.4 Basics on Genomics and Proteomics

UNIT IV: Molecular Biology

4.1 Central Dogma of Molecular Biology

4.2 Basic concepts of -

a. DNA replication – Overview (Semi-conservative mechanism, Semi-discontinuous mode, Origin & Propagation of replication fork)

b. Transcription in prokaryotes – Initiation, Elongation and Termination, Post-transcriptional modifications (basics)

c. Translation – Initiation, Elongation and Termination

4.3 Gene Expression in prokaryotes (Lac Operon); Gene Expression in eukaryotes

Unit - V

5.1 Origin of life

5.2 Theories of Evolution: Lamarckism, Darwinism, Germ PlasmTheroy, Mutation Theory

5.3Neo-Darwinism: Modern Synthetic Theory of Evolution, Hardy-Weinberg Equilibrium

5.4Forces of Evolution: Isolating mechanisms, Genetic Drift, Natural Selection, Speciation

Co-curricular activities (Suggested)

- Model of animal cell
- Working model of mitochondria to encourage creativity among students
- Photo album of scientists of cell biology
- Charts on plasma membrane models/cell organelles
- Observation of Mendelian / Non-Mendelian inheritance in the plants of college botanical garden or local village as a student study project activity
- Observation of blood group inheritance in students, from their parents and grand parents
- Karyotyping and preparation of pedigree charts for identifying diseases in family history
- Charts on chromosomal disorders
- Charts on central dogma/lac operon/genetic code
- Model of semi-conservative model of DNA replication
- Model of tRNA and translation mechanism
- Power point presentation of transcription or any other topic by students
- Draw geological time scale and highlight important events along the time line

- Chart on industrial melanism to teach directed selection, Darwin's finches to teach genetic drift, collection of data on weight of children born in primary health centres to teach stabilizing selection etc.

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2. Cell Biology by De Robertis
3. Bruce Alberts, Molecular Biology of the Cell
4. Rastogi, Cytology
5. Varma & Aggarwal, Cell Biology
6. C.B. Pawar, Cell Biology
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10. Russell, P. J. (2009). Genetics- A Molecular Approach. III Edition. Benjamin Cummings.
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14. Instant Notes in Molecular Biology by Bios scientific publishers and Viva Books Private Limited
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21. Gupta P.K., 'Genetics

ZOOLOGY MODEL PAPER FOR III SEMESTER

ZOOLOGY - PAPER - III

CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION

Time : 3 hrs **Max. Marks : 75**

I. Answer any FIVE of the following : **5x5=25**

Draw labeled diagrams wherever necessary

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II. Answer any FIVE of the following: **5x10=50**

Draw labeled diagrams wherever necessary

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ZOOLOGY PRACTICAL SYLLABUS FOR III SEMESTER

ZOOLOGY - PAPER - III

CELL BIOLOGY, GENETICS, MOLECULAR BIOLOGY AND EVOLUTION

Periods: 24 **Max. Marks: 50**

Learning Objectives:

- Acquainting and skill enhancement in the usage of laboratory microscope
- Hands-on experience of different phases of cell division by experimentation
- Develop skills on human karyotyping and identification of chromosomal disorders
- To apply the basic concept of inheritance for applied research
- To get familiar with phylogeny ad geological history of origin & evolution of animals

I. Cell Biology

1. Preparation of temporary slides of Mitotic divisions with onion root tips
2. Observation of various stages of Mitosis and Meiosis with prepared slides
3. Mounting of salivary gland chromosomes of *Chiranomous*

II. Genetics

1. Study of Mendelian inheritance using suitable examples and problems
2. Problems on blood group inheritance and sex linked inheritance
3. Study of human karyotypes (Down's syndrome, Edwards, syndrome, Patau syndrome, Turner's syndrome and Klinefelter syndrome)

III. Evolution

1. Study of fossil evidences
2. Study of homology and analogy from suitable specimens and pictures
3. Phylogeny of horse with pictures
4. Study of Genetic Drift by using examples of Darwin's finches (pictures)
5. Visit to Natural History Museum and submission of report

REFERENCE BOOKS

1. Burns GW. 1972. *The Science of Genetics. An Introduction to Heredity.* Mac Millan Publ. Co.Inc.
2. Gardner EF. 1975. *Principles of Genetics.* John Wiley & Sons, Inc. New York.
3. Harth and Jones EW. 1998. *Genetics – Principles and Analysis.* Jones and BarHett Publ. Boston.
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7. Rastogi VB. 1991. *Organic Evolution.*KedarNath Ram Nath Publications, Meerut,Uttar Pradesh, India.
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AP STATE COUNCIL OF HIGHER EDUCATION

w.e.f. 2020-21 (Revised in April, 2020)

ZOOLOGY – SEMESTER IV

PAPER – IV: ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY

HOURS : 60 (5X12) **Max. Marks: 100**

Course Outcomes:

This course will provide students with a deep knowledge in Physiology, Cellular metabolism and Molecular Biology and by the completion of the course the graduate shall able to –

CO1 Understand the functions of important animal physiological systems including digestion, cardio-respiratory and renal systems.

CO2 Understand the muscular system and the neuro-endocrine regulation of animal growth, development and metabolism with a special knowledge of hormonal control of human reproduction.

CO3 Describe the structure, classification and chemistry of biomolecules and enzymes responsible for sustenance of life in living organisms

CO4 Develop broadunderstanding the basic metabolic activities pertaining to the catabolism and anabolism of various biomolecules

CO5 Describe the key events in early embryonic development starting from the formation of gametes upto gastrulation and formation of primary germ layers.

Learning Objectives

- To achieve a thorough understanding of various aspects of physiological systems and their functioning in animals.
- To instil the concept of hormonal regulation of physiology, metabolism and reproduction in animals.
- To understand the disorders associated with the deficiency of hormones
- To demonstrate a thorough knowledge of the intersection between the disciplines of Biology and Chemistry.
- To provide insightful knowledge on the structure and classification of carbohydrates, proteins, lipids and enzymes
- To demonstrate an understanding of fundamental biochemical principles such as the function of biomolecules, metabolic pathways and the regulation of biochemical processes
- To make students gain proficiency in laboratory techniques in biochemistry and orient them to apply the scientific method to the processes of experimentation and hypothesis testing.

ZOOLOGY SYLLABUS FOR IV SEMESTER

PAPER – IV: ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY

HOURS: 60 (5X12) **Max. Marks: 100**

UNIT I Animal Physiology - I

1.1 Process of digestion and assimilation

1.2 Respiration - Pulmonary ventilation, transport of oxygen and CO_2

(Note: Need not study cellular respiration here)

1.3 Circulation - Structure and functioning of heart, Cardiac cycle

1.4 Excretion - Structure and functions of kidney urine formation, counter current Mechanism

UN IT II Animal Physiology - II

2.1 Nerve impulse transmission - Resting membrane potential, origin and propagation of action potentials along myelinated and non-myelinated nerve fibers

2.2 Muscle contraction - Ultra structure of muscle, molecular and chemical basis of muscle contraction

2.3 Endocrine glands - Structure, functions of hormones of pituitary, thyroid, parathyroid, adrenal glands and pancreas

2.4 Hormonal control of reproduction in a mammal

UNIT III Cellular Metabolism – I (Biomolecules)

3.1 Carbohydrates - Classification of carbohydrates. Structure of glucose

3.2 Proteins - Classification of proteins. General properties of amino acids

3.3 Lipids - Classification of lipids

3.4 Enzymes: Classification and Mechanism of Action

UNITIV Cellular Metabolism – II

4.1 Carbohydrate Metabolism - Glycolysis, Krebs cycle, Electron Transport Chain, Glycogen metabolism, Gluconeogenesis

4.2 Lipid Metabolism – β-oxidation of palmitic acid

4.3 Protein metabolism - Transamination, Deamination and Urea Cycle

Unit – V Embryology

5.1 Gametogenesis

5.2 Fertilization

5.3 Types of eggs

5.4 Types of cleavages

5. 5 Development of Frog upto formation of primary germ layers

Co-curricular activities (Suggested)

- Chart on cardiac cycle, human lung, kidney/nephron structure etc.
- Working model of human / any mammalian heart.
- Chart of sarcomere/location of endocrine glands in human body
- Chart affixing of photos of people suffering from hormonal disorders
- Student study projects such as identification of incidence of hormonal disorders in the local primary health centre, studying the reasons thereof and measures to curb or any other as the lecturer feels good in nurturing health awareness among students
- Chart on structures of biomolecules/types of amino acids (essential and non-essential)Chart preparation by students on Glycolysis / kreb's cycle/urea cycle etc.
- Model of electron transport chain
- Preparation of models of different types of eggs in animals
- Chart on frog embryonic development, fate map of frog blastula, cleavage etc.

REFERENCE BOOKS

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2. Floray E. *An Introduction to General and Comparative Animal Physiology.* W.B. Saunders
   Co., Philadelphia.
3. Goel KA and Satish KV. 1989. *A Text Book of Animal Physiology*, Rastogi Publications, Meerut, U.P.
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7. Developmental Biology by Balinksy
8. Developmental Biology by Gerard Karp
9. Chordate embryology by Varma and Agarwal
10. Embryology by V.B. Rastogi
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ZOOLOGY MODEL PAPER FOR IV SEMESTER

ZOOLOGY - PAPER - IV

ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY

Time : 3 hrs **Max. Marks : 75**

I. Answer any FIVE of the following : **5x5=25**

Draw labeled diagrams wherever necessary

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II. Answer any FIVE of the following: **5x10=50**

Draw labeled diagrams wherever necessary

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ZOOLOGY PRACTICAL SYLLABUS FOR IV SEMESTER

ZOOLOGY - PAPER - IV

ANIMAL PHYSIOLOGY, CELLULAR METABOLISM AND EMBRYOLOGY

Periods: 24 **Max. Marks: 50**

Learning Objectives:

- Identification of an organ system with histological structure
- Deducing human health based on the information of composition of blood cells
- Demonstration of enzyme activity *in vitro*
- Identification of various biomolecules of tissues by simple colorimetric methods and also quantitative methods
- Identification of different stages of earl embryonic development in animals

I. ANIMAL PHYSIOLOGY

1. Qualitative tests for identification of carbohydrates, proteins and fats
2. Study of activity of salivary amylase under optimum conditions
3. T.S. of duodenum, liver, lung, kidney, spinal cord, bone and cartilage
4. Differential count of human blood

II. CELLULAR METABOLISM

1. Estimation of total proteins in given solutions by Lowry's method.
2. Estimation of total carbohydrate by Anthrone method.
3. Qualitative tests for identification of ammonia, urea and uric acid
4. Protocol for Isolation of DNA in animal cells

III. EMBRYOLOGY

1. Study of T.S. of testis, ovary of a mammal
2. Study of different stages of cleavages (2, 4, 8 cell stages)
3. Construction of fate map of frog blastula

REFERENCE BOOKS:

- Harper’s Illustrated Biochemistry
- Cell and molecular biology: Concepts & experiments. VI Ed. John Wiley &sons. Inc.
- Lab Manual on Blood Analysis and Medical Diagnostics, S. Chand and Co. Ltd.
- Laboratory techniques by Plummer

AP STATE COUNCIL OF HIGHER EDUCATION

w.e.f. 2020-21 (Revised in April, 2020)

ZOOLOGY – SEMESTER IV

COURSE – 5: IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY

HOURS : 60 (5X12) **Max. Marks: 100**

Course Outcomes:

This course will provide students with a deep knowledge in immunology, genetics, embryology and ecology and by the completion of the course the graduate shall able to –

CO1 To get knowledge of the organs of Immune system, types of immunity, cells and organs of immunity.

CO2 To describe immunological response as to how it is triggered (antigens) and regulated (antibodies)

CO3 Understand the applications of Biotechnology in the fields of industry and agriculture including animal cell/tissue culture, stem cell technology and genetic engineering.

CO4 Get familiar with the tools and techniques of animal biotechnology.

Learning Objectives

- To trace the history and development of immunology
- To provide students with a foundation in immunological processes
- To be able to compare and contrast the innate versus adaptive immune systems and humoral versus cell-mediated immune responses
- Understand the significance of the Major Histo compatibility Complex in terms ofimmune response and transplantation
- To provide knowledge on animal cell and tissue culture and their preservation
- To empower students with latest biotechnology techniques like stem cell technology, genetic engineering, hyridoma technology, transgenic technology and their application in medicine and industry for the benefit of living organisms
    - To explain *in vitro* fertilization, embryo transfer technology and other reproduction manipulation methodologies.
    - To get insight in applications or recombinant DNA technology in agriculture, production of therapeutic proteins.

- To understand principles of animal culture, media preparation.

ZOOLOGY SYLLABUS FOR SEMESTER - IV

COURSE – 5: IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY

HOURS : 60 (5X12) **Max. Marks: 100**

Unit – I Immunology – I (Overview of Immune system)

1.1 Introduction to basic concepts in Immunology

1.2 Innate and adaptive immunity, Vaccines and Immunization programme

1.3 Cells of immune system

1.4 Organs of immune system

Unit – II Immunology – II (Antigens, Antibodies, MHC and Hypersensitivity)

2.1 Antigens: Basic properties of antigens, B and T cell epitopes, haptens and adjuvants; Factors influencing immunogenicity

2.2 Antibodies: Structure of antibody, Classes and functions of antibodies

2.3 Structure and functions of major histo compatibility complexes

2.4 Exogenous and Endogenous pathways of antigen presentation and processing

2.5 Hypersensitivity – Classification and Types

Unit – III Techniques

2.1 Animal Cell, Tissue and Organ culture media: Natural and Synthetic media,

2.2 Cell cultures: Establishment of cell culture (primary culture, secondary culture, types of cell lines; Protocols for Primary Cell Culture); Established Cell lines (common examples such as MRC, HeLa, CHO, BHK, Vero); Organ culture; Cryopreservation of cultures

2.3 Stem cells: Types of stem cells and applications

2.4 Hybridoma Technology: Production & applications of Monoclonal antibodies (mAb)

Unit – IV Applications of Animal Biotechnology

3.1 Genetic Engineering: Basic concept, Vectors, Restriction Endonucleases andRecombinant DNA technology

3.2 Gene delivery: Microinjection, electroporation, biolistic method (gene gun),liposome and viral-mediated gene delivery

3.3 Transgenic Animals: Strategies of Gene transfer; Transgenic - sheep, - fish; applications

3.4 Manipulation of reproduction in animals: Artificial Insemination, *In vitro* fertilization, super ovulation, Embryo transfer, Embryo cloning

Unit - V

1.1. PCR: Basics of PCR.

4.2 DNA Sequencing: Sanger's method of DNA sequencing- traditional and automated sequencing (2 hrs)

4.3 Hybridization techniques: Southern, Northern and Western blotting

4.4 DNA fingerprinting: Procedure and applications

4.5 Applications in Industry and Agriculture: Fermentation: Different types of Fermentation and Downstream processing; Agriculture: Monoculture in fishes, polyploidy in fishes

Co-curricular activities (suggested)

- Organizing awareness on immunization importance in local village in association with NCC and NSS teams
- Charts on types of cells and organs of immune system
- Student study projects on aspects such as – identification of allergies among students (hypersensitivity), blood groups in the class (antigens and antibodies duly reported) etc., as per the creativity and vision of the lecturer and students
- Visit to research laboratory in any University as part of Zoological tour and exposure and/ or hands-on training on animal cell culture.
- Visit to biotechnological laboratory in University or any central/state institutes and create awareness on PCR, DNA finger printing and blot techniques or Visit to a fermentation industry or Visit to a local culture pond and submit report on culture of fishes etc.

REFERENCE BOOKS

1. Immunology by Ivan M. Riott
2. Immunology by Kubey
3. Sreekrishna V. 2005. *Biotechnology –I, Cell Biology and Genetics.* New Age International Publ.New Delhi, India.

ZOOLOGY MODEL PAPER FOR V SEMESTER

COURSE – 5: IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY

Time: 3 hrs **Max. Marks: 75**

I. Answer any FIVE of the following: **5x5=25**

Draw labeled diagrams wherever necessary

1.
2.
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6.
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8.

II. Answer any FIVE of the following: **5x10=50**

Draw labeled diagrams wherever necessary

9.

OR

10.

OR

11.

OR

12.

OR

13.

OR

□□□□□

ZOOLOGY PRACTICAL SYLLABUS FOR V SEMESTER

COURSE – 5: IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY

Periods: 24 **Max. Marks: 50**

Learning Objectives:

- Acquainting student with immunological techniques vis-à-vis theory taught in the class room
- Interconnect the theoretical and practical knowledge of immunity with the outer world for the development of a healthier life.
- Demonstrate basic laboratory skills necessary for Biotechnology research
- Promoting application of the lab techniques for taking up research in higher studies

I. IMMUNOLOGY

1. Demonstration of lymphoid organs (as per UGC guidelines)

2. Histological study of spleen, thymus and lymph nodes (through prepared slides)

3. Blood group determination

4. Demonstration of

    a. ELISA

    b. Immunoelectrophoresis

II. Animal biotechnology

1. DNA quantification using DPA Method.
2. Techniques: Western Blot, Southern Hybridization, DNA Fingerprinting
3. Separation, Purification of biological compounds by paper, Thin-layer and Column chromatography
4. Cleaning and sterilization of glass and plastic wares for cell culture.
5. Preparation of culture media.

REFERENCE BOOKS

1. Immunology Lab Biology 477 Lab Manual; Spring 2016 Dr. Julie Jameson

2. Practical Immunology A Laboratory Manual; **LAP LAMBERT Academic Publishing**

3. Manual of laboratory experiments in cell biology by Edward, G

4. Laboratory Techniques by Plummer

SUBJECT EXPERTS

Dr. K.Veeraiah
Dept of Zoology
Acharya Nagarjuna University
Nagarjuna Nagar

Dr.G.Srinivas
Lecturer in Zoology
& Co ordinator JKC,
O/o CCE, Vijayawada

SYLLABUS VETTED BY

Dr.P.Padmavathi,
Dept of Zoology
Acharya Nagarjuna University
Nagarjuna Nagar

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

3rd, 4th and 5thfloors, NeeladriTowers, Sri Ram Nagar, 6th Battalion Road,
Atmakur(V), Mangalagiri(M), Guntur-522 503, Andhra Pradesh
Web: www.apsche.org **Email**: acapsche@gmail.com

REVISED SYLLABUS OF HISTORY UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-2021

PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

(History, Economics and Pol Sc., Disciplines)

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P.)

For Fifteen Courses of 1, 2, 3 & 4 Semesters)

(To be Implemented from 2020-21 Academic Year)

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

CBCS – UG SYLLABUS SUBJECT REVIEW COMMITTEE

(To Be Implemented from 2020-21 Academic Year)

PROGRAMME: FOUR -YEAR B.A (With History, Economics and PolSc., Disciplines)

Domain Subject: History

(Syllabus with Outcomes, Co-curricular Activities, References& Model Q.P for Five Courses of 1, 2, 3 & 4 Semesters)

Structure of HISTORY Syllabus under CBCS for 4-year B.A. Programme (with domain subject covered during the first 4 Semesters with 5 Courses)

Sl. No	Code	Sem	Courses 1, II, III, IV &V	Name of Course (Each Course consists 5 Units with each Unit having 12 hours of class-work)	Hours/ Week	Credits	Marks	
							Mid Sem	Sem End
1		I	I	Ancient Indian History & Culture (From Indus Valley Civil. to 13 Century A.D)	**5**	**4**	**25**	**75**
2		II	II	Medieval Indian History & Culture (1206 A.D To 1764 A.D)	**5**	**4**	**25**	**75**
3		III	III	Modern Indian History & Culture (1764-1947 A. D)	**5**	**4**	**25**	**75**
4		IV	IV	History & Culture of Andhra (from 1512 to 1956 AD)	**5**	**4**	**25**	**75**
5		IV	V	History Of Modern World (From 15th Cent. AD to 1945 AD)	**5**	**4**	**25**	**75**
					Total	**20**	**125**	**375**

PROGRAMME: FOUR-YEAR B.A.

(With History, Economics and Political Science Disciplines)

Course Code:

Domain Subject: History

Semester-wise Syllabus under CBCS

I Year B. A. –Semester – I

Course1: ANCIENT INDIAN HISTORY & CULTURE (from Indus Valley Civilization to 13th Cen A.D)

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Identify and define various kinds of sources and understand how history books are shaped
- Compare and contrast various stages of progress from IVC to Vedic age and analyze the Jain, Buddhist and Vedic faiths
- Increase the awareness and appreciation of Transition from Territorial States to Emergence of Empires
- Analyze the emergence of the Mauryan and Gupta empires during the "classical age" in India
- Evaluate the key facets of ancient society, polity and culture in South India—the feudalism, and the rise of technology and commerce.
- Critically examine the nature of monarchic rule and develop an comprehensive understanding of cultural evolution during ancient period
- Visualize where places are in relation to one another through map pointing

Syllabus:

Unit - 1 Ancient Indian Civilization (from Circa 3000 BC to 6th BC): Indus Valley Civilization - Salient Features; Vedic Age - Society, Polity, Economy, Cultureduring early and later Vedic period

Unit - II Ancient Indian History & Culture (6th Century BC to 2rd Century AD): Doctrines and Impact of Jainism and Buddhism; Mauryan Administration, Society,

	Economy & Culture - Ashoka's Dhamma; Kanishka's Contribution to Indian Culture
Unit - III	History & Culture of South India (2^{nd} Century BC to 8^{th} Century AD): Sangam Literature; Administration, Society, Economy and Culture under Satavahanas; Cultural contribution of Pallavas
Unit - IV	India from 3^{rd} century AD to 8^{th} century AD: Administration, Society, Economy, Religion, Art, Literature and Science & Technology under Guptas – Samudragupta; Cultural contribution of Harsha: Arab Conquest of Sind and its Impact
Unit - V	History and Culture of South India (9^{th} century AD to 13^{th} century AD): Local Self Government of Cholas; Administration, Society, Economy and Culture under Kakatiyas – Rudram Devi

References:

1 A.L. Basham, The Wonder That Was India

2 D.N.Jha, Ancient India

3 D.D.Kosambi, An Introduction to the Study of Indian History

4 D.P.Chattopadhyay, Science and Society in Ancient India

5 B.N.Mukherjee, The Rise and Fall of the Kushana Empire

6 K.A. NilakanthaShastri, A History of South India

7 R.C.Majumdar, K.K.Dutta&H.C.RoyChowdhuri (ed.), Advanced History of India

8 Kumkum Roy, The Emergence of Monarchy in North India: eighth to fourth centuries BC

9 RomilaThapar (et. al). India: Historical Beginnings and the Concept of the Aryan

10 M.L.K. Murthy, *Pre-and Protohistoric Andhra Pradesh upto 500 B.C.,* New Delhi, 2003

11 K. Sathyanarayana, A Study of the History and Culture of Andhras

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Mandatory Co-Curricular Activity:

Map pointing should be a compulsory activity as it helps student to understand vividly and clearly than the text and **should be made part of Internal Examination by allotting 10 marks out of 25 marks for this skill-based activity.**

Suggested Co-Curricular Activities

- # Cultural Clubs
- # Assignments
- # Student seminars
- # Literature surveys and book reviews
- # Map pointing
- # Individual / Group Field Studies
- # Co-operative learning
- # Students can be asked to create a calendar charting the dates of key events
- # Students should be asked to prepare an inventory of items preserved in the museum and their usage
- # Encourage the habit of Numismatics

Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
Group Discussions on problems relating to topics covered by syllabus
Examinations (Scheduled and surprise tests)
Any similar activities with imaginative thinking beyond the prescribed syllabus

PROGRAMME: FOUR-YEAR B.A.

(With History, Economics and Political Science Disciplines)

Course Code:

Domain Subject: History

Semester-wise Syllabus under CBCS

I Year B. A. – Semester – II

Course 2:MEDIEVAL INDIAN HISTORY & CULTURE (1206 A.D to 1764 A.D)

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Understand the socio, economic and cultural conditions of medieval India
- Describe the advent of Islam in India and study the traces of political and cultural expansion of Turks & Afghans
- Explain the Administration and art and architecture of Vijayanagar Rulers, Mughals and also analyse the rise of the Marathas and the contribution of Shivaji
- Evaluate the establishment of the British rule in India and understand the dangerous consequences disunity at all levels
- Analyze the emergence of composite culture in Indian
- Visualize where places are in relation to one another through map pointing

Syllabus:

Unit - 1	Impact of Turkish Invasions – Balban, AllauddhinKhilji, Md. Bin Tughlaq - Administration, Society, Economy, Religion and Cultural developments under Delhi Sultanate (from 1206 to 1526 AD)
Unit - II	Impact of Islam on Indian Society and Culture – Bhakti Movement; Administration, Society, Economy, Religion and Cultural developments under Vijayanagara Rulers
Unit - III	Emergence of Mughal Empire – Babur – Sur Interregnum - Expansion & Consolidation of Mughal Empire – Akbar, Jahangir,Shah Jahan, Aurangazeb

Unit - IV	Administration, Economy, Society and Cultural Developments under the Mughals – Disintegration of Mughal Empire - Rise of Marathas under Shivaji
Unit - V	India under Colonial Hegemony : Beginning of European Settlements - Anglo-French Struggle – Conquest of Bengal by EIC

References:

1 Chandra, S History of Medieval India (800 – 1700)

2 Chattopadyay, B.D The Making of Early Medieval India. (Delhi, 1994)

3 Habib, Irfan, Medieval India: The Study of a Civilization

4 Habibullah, A.B.M, The Foundation of Muslim Rule in India

5 Kumar Sunil, The Emergence of the Sultanate of Delhi

6 Nizami, K.A. Some Aspects of Religion and Politics in India in the 13th c

7 K.A. NilakantaSastri, A History of South India from Prehistoric Times to the Fall of Vijayanagara

8 K.A.NilkantaSastri, The Cholas

9 ShireenMoosvi, The Economy of the Mughal Empire

10 Stein, B Peasant, State & Society in Medieval South India

11 Yazdani, G. (ed) The Early History of the Deccan

12 R.C.Majumdar, The Age of Imperial Kanauj

15 R. Soma Reddy, *Late Medieval Andhra Pradesh, A.D. 1324-1724 A.D.*, New Delhi, 2014

16 HarbansMukhia, The Mughals of India

17 C.A.Bayly, Indian Society and the Making of the British Empire

Mandatory Co-Curricular Activity:

Map pointing should be a compulsory activity as it helps student to understand vividly and clearly than the text and should be made part of Internal Examination by allotting marks for this skill-based activity.

Suggested Co-Curricular Activities

- @ Book Reading
- @ Student seminars
- @ Viva voce interviews
- @ Quiz Programs
- @ Individual / Group Field Studies

- @ Co-operative learning
- @ Students should be encouraged to prepare a chart on sequence of events
- @ Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
- @ Group Discussions on problems relating to topics covered by syllabus
- @ Examinations (Scheduled and surprise tests)
- @ Students may be asked to prepare a project on influence of Islam and Hinduism in their respective localities

PROGRAMME: FOUR-YEAR B.A.

(With History, Economics and Political Science Disciplines)

Course Code:

Domain Subject: History

Semester-wise Syllabus under CBCS

I Year B. A. – Semester – III

Course 3:MODERN INDIAN HISTORY & CULTURE (1764-1947 A. D)

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Unearth the true nature of the British rule and its disastrous impact on Indian economy and society
- Gauge the disillusionment of people against the Company's rule even during the early 19th century
- Assess the causes and effects of Reformation movements and also inspire the public to overthrow inequalities of the present day society
- Rise above petty parochial issues after understanding the sacrificial saga of freedom Struggle
- Evaluate the undercurrent of communal politics that led to India's partition and identify the enemies of India's integrity and sovereignty
- Visualize where places are in relation to one another through map pointing

Syllabus:

Unit - 1 Policies of Expansion –Warren Hastings, Cornwallis - Subsidiary Alliance & Doctrine of Lapse – Causes & Results of 1857 Revolt – Lytton, Rippon, Curzon

Unit - II Social, Religious & Self-Respect Movements – Raja Rammohan Roy, Dayananda Saraswathi, Swami Vivekananda, JyotibaPhule, Narayana Guru, Periyar, Dr. B. R. Ambedkar

Unit - .Causes for the growth of Nationalism - Freedom Struggle from 1885 to 1920:

III	Moderate Phase — Militant Phase: Vandemataram Movement - Home Rule Movement
Unit - IV	Freedom Struggle from 1920 to 1947: Gandhiji's Role in the National Movement – Revolutionary Movement – Subhas Chandra Bose
Unit - V	Muslim League & the Growth of Communalism – Partition of India – Advent of Freedom - Integration of Princely States into Indian Union – SardarVallabhai Patel

References:

1 Anil Seal, Emergence of Indian Nationalism

2 Banerjee, Sekhar, From Plassey to Partition

3 Bipan Chandra, Rise and Growth of Economic Nationalism in India

4 Chandra, Bipan, et. al., India's Struggle for Independence

5 Bipan Chandra, Modern India

6 Joshi, P.C., Rammohun and the Forces of Modernisation in India

7 R.P.Dutt, India Today

Mandatory Co-Curricular Activity:

Map pointing should be a compulsory activity as it helps student to understand vividly and clearly than the text and should be made part of Internal Examination by allotting marks for this skill-based activity.

Suggested Co-Curricular Activities

@ Debates

@ Student seminars

@ Viva voce interviews

@ Quiz Programmes

@ Photo Album

@ Recording local history

@ Role Play of freedom struggle events

@ Organizing photo exhibition on freedom fighters

@ Celebrations of important events / personalities

@ Conducting Philately

@ Examinations (Scheduled and surprise tests)

@ Students may be asked to prepare a project on the differences between Mughal and British administration

@ Encourage students to write their autobiography or biography of their inspiring Personalities

PROGRAMME: FOUR-YEAR B.A.

(With History, Economics and Political Science Disciplines)

Course Code:

Domain Subject: History

Semester-wise Syllabus under CBCS

II Year B. A. – Semester – IV

Course 4: HISTORY & CULTURE OF ANDHRA (FROM 1512 TO 1956 AD)

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Interpret social and political and cultural transformation from medieval to modern Andhra
- Relate key historical developments during medieval period occurring in coastal Andhra and Telangana regions and analyze socio - political and economic changes under QutbShahi rulers
- Understand gradual change, or change in certain aspects of society in Andhra, rather than rapid or fundamental changes
- Explain how the English East India Company became the most dominant power and outline the impact of colonial policies on different aspects in Andhra
- Outline the issues related to caste, women, widow remarriage, child marriage, social reforms and the laws and policies of colonial administration towards these issues
- Take pride in the non-violence struggle for Indian Independence and relate the importance of peace in everyday life
- Apply the knowledge of the regional history to understand the regional, linguistic and other cultural aspirations of the present day society
- Visualize where places are in relation to one another through map pointing

Syllabus:

Unit - 1 Andhra through 16^{th}& 19^{th} Centuries AD: Evolution of Composite Culture - The QutbShahis of Golkonda –Administration, Society

	&Economy – Literature & Architecture; Advent of European and settlements in Andhra - Occupation of Northern Circars and Ceeded Districts – Early revolts against the British
Unit - II	Andhra under British rule: Administration – Land Revenue Settlements – Society – Education - Religion – Impact of Industrial Revolution on Economy – Peasantry & Famines – Contribution of Sir Thomas Munroe & C. P. Brown – Impact of 1857 Revolt in Andhra
Unit - III	Social Reform & New Literary Movements: KandukuriVeeresalingam, RaghupathiVenkataRathnam Naidu, GuruzadaApparao, KomarrajuVenkataLaxmana Rao; New Literary Movements: RayaproluSubbarao, ViswanathaSathyanarayana, GurramJashua, BoyiBheemanna, Sri Sri
Unit - IV	Freedom Movement in Andhra (1885-1947): Vandemataram Movement– Home Rule Movement in Andhra - Non-Cooperation Movement - AlluriSeetarama Raju &Rampa Revolt (1922-24) - Civil Disobedience Movement – Quit India Movement
Unit - V	Movement for separate Andhra State (1953) and AP (1956): Causes – Andhra Maha Sabha –Conflict between Coastal Andhra &Rayalaseema – Sri Bagh Pact – work of various Committees – Martyrdom of PottiSriramulu – Formation of separate Andhra State (1953); Movement for formation of Andhra Pradesh (1956): VisalandhraMahasabha – Role of Communists – States Reorganization Committee – Gentlemen's Agreement – Formation of Andhra Pradesh

References:

1 H.K.Sherwani, History of the KutubShahi Dynasty

2 K. Sathyanarayana, A Study of the History and Culture of Andhras

3 B. Kesava Narayana, Political and Social Factors in Modern Andhra

4 K.V.Narayana Rao, The Emergence of Andhra Pradesh

5 M. VenkataRangaiah, The Freedom Struggle in Andhra Pradesh

6 P.R.Rao, History of Modern Andhra

7 SarojiniRegani, Highlights of Freedom Movement

8 SarojiniRegani, ఆంధ్రలో సాతంత్ర్యోద్యమచరిధ్ర

9 V. Ramakrishna, Social Reform Movement in Andhra

10 B. Kesava Narayana, Modern Andhra & Hyderabad – 1858 – 1956 A.D., 2016

11 K. Koti Reddy, History of Modern Andhra, Telugu Academy, Hyderabad

Mandatory Co-Curricular Activity:

Map pointing should be a compulsory activity as it helps student to understand vividly and clearly than the text and should be made part of Internal Examination by allotting marks for this skill-based activity.

Suggested Co-Curricular Activities

@ Students may be asked to identify families/ institutions/ personalities related to freedom struggle and prepare articles

@ Assign students to write a note on the historical sites or buildings in their respective areas – thus taking teaching out of the classroom and in to the field, and creating opportunities for students to socialize with their own surroundings

@ Student seminars

@ Debates

@ Viva voce interviews

@ Quiz Programmes

@ Photo Album

@ Recording local history

@ Role Play of freedom struggle events

@ Organizing photo exhibition on freedom fighters

@ Celebrations of important events / personalities

@ Conducting Philately

@ Examinations (Scheduled and surprise tests)

@ Encourage students to write their autobiography or biography of their inspiring Personalities

PROGRAMME: FOUR-YEAR B.A.

(With History, Economics and Political Science Disciplines)

Course Code:

Domain Subject: History

Semester-wise Syllabus under CBCS

I/II Year B. A. – Semester 4

Course 5: HISTORY OF MODERN WORLD (From 15th Cent. AD to 1945 AD)

Learning Outcomes:

After successful completion of this course, the student will be able to:

- Demonstrate advanced factual knowledge of world histories, politics, and cultures
- Assess and appraise the developments in art, literature, and society during the Renaissance and utilize content knowledge of the Reformation and Counter Reformation to make predictions about the evolution of Christianity in Europe and Abroad
- Evaluate the causes for the Glorious Revolution and American Revolution and identify the background for the evolution of human rights movement
- Understand the main events of the French Revolution and its significance in the shift in European culture from Enlightenment to Romanticism
- Think how Russia's traditional monarchy was replaced with the world's first Communist state.
- Know how the world wars affected people all over the world and the destruction they caused
- Develop the intellectual curiosity and habits of thought that will lead to life-long learning and continued engagement with European history, literature, culture, languages, and current affairs and acquire advanced international and intercultural competency through coursework in international studies
- Visualize where places are in relation to one another through map pointing

Syllabus:

Unit - 1	Transformation from Medieval to Modern Era – Chief Characteristics; Glorious Revolution (1688) – Origin of Parliament Bill of Rights – Results
Unit - II	American Revolution (1776); French Revolution (1789) – Causes, Course and Results
Unit - III	Unification of Italy; Unification of Germany
Unit - IV	Communist Revolution in Russia; World War I: Causes – Results of the War – Paris Peace Conference; League of Nations
Unit - V	World War II: Causes, Fascism & Nazism – Results; The United Nations Organization: Structure, Functions and Challenges

References:

1 Burke, Peter, The Renaissance
2 C.J.H. Hayes, Modern Europe up to 1870
3 C.D. Hazen, Modern Europe up to 1945
4 Christopher Hill, From Reformation to Industrial Revolution
5 Elton, G.R., Reformation Europe, 1517-1559
6 Ferguson, The Renaissance
7 Gilmore, M.P., The World of Humanism, 1453-1517
8 Hilton, Rodney, Transition from Feudalism to Capitalism
9 J.H.Parry, The Age of Renaissance
10 J.N.L. Baker, History of Geographical Discoveries and Explorations
11 The New Cambridge Economic History of Europe, Vol. I, VII

Mandatory Co-Curricular Activity:

Map pointing should be a compulsory activity as it helps student to understand vividly and clearly than the text and should be made part of Internal Examination by allotting marks for this skill-based activity.

Suggested Co-Curricular Activities

- @ Watch movies related to the topics in the e-class room
- @ Organize guest lectures
- @ Publication of college-level magazine by encouraging students to write articles on contemporary history of Europe
- @ Viva voce interviews
- @ Quiz Programmes
- @ Examinations (Scheduled and surprise tests)

##########

PROGRAM: B. A. HISTORY (CBCS) MODEL QUESTION PAPER & PATTERN

Max. Marks: 75 **Time: 3 hrs**

SECTION A (Total: 15 Marks)

Matching (5 Marks: 5 x 1)

A		**B**
1	( )	A
2	( )	B
3	( )	C
4	( )	D
5	( )	E

Multiple Choice (5 Marks: 5 x 1)

1.
2
3
4
5.

Map Pointing (5 Marks)

SECTION B (Total: 3x5=15 Marks)

(Answer any **three questions**. Each answer carries **5 marks**

(At least 1 question should be given from each Unit)

1.	
2.	
3.	
4.	
5.	
6.	

SECTION C (Total: 3x15 = 45 Marks)

(Answer any **three questions**. Each answer carries **15 marks**

(At least 1 question should be given from each Unit)

1.	
2.	
3.	
4.	
5.	
6.	

@@@@@

SUBJECT EXPERTS

Prof.Murali Mohan
Dept of History,
Acharya Nagarjuna University
Nagarjuna Nagar

Dr.Krishna Prasad
Jawahar Bharati Degree College,
Kavali

SYLLABUS VETTED BY

Prof.G.Sambasiva Reddy,
Dept of History,
Yogi Vemana University,
Kadapa

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

3rd,4th and 5th floors, Neeladri Towers, Sri Ram Nagar, 6th Battalion Road,
Atmakur (V), Mangalagiri(M), Guntur-522 503, Andhra Pradesh
Web: www.apsche.org **Email**: acapsche@gmail.com

REVISED SYLLABUS OF ECONOMICS UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

ECONOMICS

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P.)

For Fifteen Courses of 1, 2, 3 & 4 Semesters)

(To be implemented from 2020-21 academic year)

A.P. STATE COUNCIL OF HIGHER EDUCATION

REVISED UG CBCS SYLLABUS w.e.f. 2020-21

ECONOMICS (UG) SYLLABUS

For Semesters I to IV

Revised Course Structure

Sem	Course	Title of the Course	Hrs/wk	Credits	Marks
I	1	Microeconomic Analysis	5	4	100
II	2	Macroeconomic Analysis	5	4	100
III	3	Development Economics	5	4	100
IV	4	Economic Development in India and Andhra Pradesh	5	4	100
IV	5	Statistical Methods for Economics	5	4	100

SEMESTER – I :: COURSE - I

MICROECONOMIC ANALYSIS

NO. OF CREDITS: 4

LEARNING OUTCOMES FOR THE COURSE

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way (Knowledge)
    a. the differences between microeconomic analysis and macroeconomic analysis
    b. various laws and principles of microeconomic theory under consumption,
2. Explains (understanding)
    a. various terms and concepts relating to microeconomic analysis with the help of examples of real life

b. consumer's equilibrium and consumer's surplus using indifference curve analysis.

    c. various laws and principles of consumption, production, and income distribution
    d. determination of price and output discriminating different market conditions in short term and long term
3. Critically examines using data and figures (analysis and evaluation)
    a. various laws and principles of microeconomic analysis and market conditions
    b. application of the concept of demand elasticity and its relation with Average and Marginal Revenue
    c. the relationship between average and marginal cost/revenue both in long term and

4. Draws critical diagrams and graphs to explain and examine the application of various laws and principles of microeconomic analysis

Module–1: Economic Analysis and Methodology

Scarcity and Choice as fundamental problems of economics - Opportunity Cost - Production Possibilities Curve - Micro and Macro Analysis - Micro economic analysis – Scope and Importance -Principles of Microeconomics : Allocation of Resources - Optimization, Equilibrium and Marginal analysis -Rationality Principle the concept of Welfare

Module -2: Theory of Consumption

Concept of Demand -Factors determining demand - Law of Demand - reasons and exceptions - Elasticity of Demand -Cardinal and Ordinal utility - Indifference Curve analysis : Properties of Indifference curves, Indifference Curve Map -Marginal Rate of Substitution - Budget Line - Changes -Consumer Equilibrium under Indifference Curve Analysis – Consumers' Surplus and Indifference Curve Analysis

Module -3: Theory of Production

Concept and Objectives of Firm - Production Function : Cobb- Douglas Production Function -Law of Variable Proportions -Laws of Returns to Scale - Economies of large scale - Concepts of Cost - Total, Average and Marginal Costs - Law of Supply - Concept of Revenue : Total, Average and Marginal Revenues - Relation between Average and Marginal Revenues and elasticity of Supply

Module-4: Theory of Exchange

Concepts of Market : Criteria for Classification of Markets - Perfect Competition– Conditions, Price and Output determination ; Monopoly : Conditions, Price and Output Determination - Price Discrimination; Monopolistic Competition - Assumptions - Price and output determination - Selling Costs ; Oligopoly -Types- Kinky demand curve and Price rigidity

Module - 5: Theory of Distribution

The concepts of Functional and Personal Distribution of Income - Marginal Productivity Theory of Distribution - Modern Theory of Distribution -Concept of Rent - Ricardian Theory of Rent – Marshall's concepts of Economic Rent and Quasi Rent; Theories of Wage Determination: Subsistence Theory and Standard of Living Theory - Modern Theory of Wages; Classical Theory of Interest -Loanable Funds Theory of Interest -Liquidity Preference Theory of Interest; Theories of Profit: Risk and Uncertainty, Dynamic and Innovations Theories.

Reference Books:

1. A. Koutsoyiannis, ***Modern Microeconomics*** – Macmillan, London.
2 A. W. Stonierand D.C. Hague, ***A Text book of Economic Theory*** - ELBS & Long man Group, London.
3. H. L. Ahuja, ***Advanced Economic Theory***, S. Chand, 2004.
4. P. N. Chopra, ***Principles of Economics***, Kalyani Publishers, Ludhiana, 2018.
5. H.S. Agarwal: ***Principles of pEconomics***.
6. P.A Samuelson & W.D. Nordhaus - ***Macroeconomics***, Tata McGraw Hill, 18/e, 2005
7. M. L. Seth, ***Microeconomics,*** Lakshmi Narayan Agarwal, 2006.
8. D.M. Mithani&G.K. Murthy, ***Fundamentals of Business Economics***, Himalaya Publishing, 2007.
9. Telugu Academi Publications on Microeconomics.
10. ***Microeconomics***, Spectrum Publishing House, Hyderabad, 2017.

Recommended Co-curricular Activities:

1. Assignments and Student Seminars on themes of critical appreciation of microeconomic theory and relevant issues of current importance in Indian and AP economies
2. Quiz testing the understanding and application of various microeconomic concepts and theories
3. Group Study projects on the trends in the demand, supply and prices of goods and services in the local markets
4. Survey and analysis of data published in the Economic Survey of GOI and the Socio-economic survey of the State Government relevant to microeconomic aspects.
(Assignments preferably for all students in each semester. In respect of others, as far as possible, all students shall participate in each of the co-curricular activity by the end of fourth semester, @ roughly a fourth of total students in each semester)

SEMESTER – 2:: COURSE –2

MACROECONOMIC ANALYSIS

NO. OF CREDITS: 4

LEARNING OUTCOMES FOR THE COURSE

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way (knowledge)

Various concepts, definitions,laws and principles of macroeconomic theory with referenceto income, employment, money, banking and finance

2. Explains (understanding)

a. the difference between various concepts and components of national income with illustrations and methods of measuring national income

b. various terms, concepts, laws and principles, theories relating to income, employment, consumption, investment, money, price-level and phases of trade cycles

c. functions of commercial banks and central bank, creation and control of credit

3. Critically examines using data and figures (analysis and evaluation)

a. in order to understand the interrelationship between various components of national income

b. the theories of macroeconomics with reference to their assumptions, implications and applicability

c. Empirical evidences of Consumption and Investment Functions and factors influencing them

4. Draws critical formulae, diagrams and graphs.

a. consumption and investment functions; concepts of multiplier and accelerator

b. price indices, inflation and trade cycles

Module - 1: National Income

Macroeconomics - Definition, Scope and Importance - Difference between Micro economic and Macro economic Analyses – Circular Flow of Income -National Income: Definitions, Concepts, Measurement of National Income - Difficulties - Importance - Concept of Green Accounting

Module -2: Theory of Employment

Classical Theory of Employment - Say's Law of Markets - Criticism -Keynesian Theory of Employment - Consumption Function - Keynes' Psychological Law of Consumption - Average and Marginal Propensity to Consume - Factors determining Consumption Function –Brief Review of Relative, Life Cycle and Permanent Income Hypotheses - Investment Function: Marginal Efficiency of Capital -Multiplier and Accelerator - Keynesian Theory of Employment - Applicability to Developing countries

Module – 3: Money and Banking

Definitions of Money - Concepts of Money, Liquidity and Finance - Money Illusion - Gresham's Law - RBI classification of Money - Theories of Money: Fisher and Cambridge (Marshall, Pigou, Robertson and Keynes equations) - Banking - Definition and types of Banking - Commercial Banks - Functions -Recent Trends in Banking - Mergers and Acquisitions - Central Bank - Functions - Control of Credit by Central Bank - NBFCs- Factors contributing to their Growth and their Role

Module – 4: Inflation and Trade Cycles

Inflation: Concepts of Inflation, deflation, reflation and stagflation - Phillip's Curve - Measurement of Inflation - CPI and WPI -Types of Inflation - Causes and Consequences of Inflation -Measures to Control Inflation. Trade Cycles: Phases of a Trade Cycle -Causes and Measures to control Trade Cycles

Module -5: Finance and Insurance

Financial Assets and Financial Instruments - Financial Markets - Functions of Money Market - Functions of Capital Market - Stock Market - Exchanges – Indices:Sensex and Nifty - Concept of Insurance -Types and Importance of Insurance

Reference Books:

1. Dillard. D., ***The Economics of John Maynard Keynes***, Cross by Lockwood and sons, London
2. M. C. Vaish - ***Macroeconomic Theory,*** Vikas Publishing House, New Delhi.
3. S. B Guptha - ***Monetary Economics,*** S. Chand & Co, Delhi
4. P. N. Chopra, ***Macroeconomics***, Kalyani Publishers, Ludhiana, 2014
5. D. M. Mithani, ***Macro Economic Analysis and Policy***, Oxford and IBH, New Delhi
6. M N Mishra & S B Mishra, ***Insurance Principles &Practice,*** S Chand.
7. Lewis, M.K and P.DMizan - ***Monetary Economics***, Oxford University Press, New Delhi
8. Central Statistical Organization, ***National Accounts Statistics***.
9. M.L.Seth, Macroeconomics, Lakshmi Narayan Agarwal, 2006.
10. K. P. M. Sundaram, ***Money, Banking & International Trade***, Sultan Chand, 2006.
11. R. R. Paul, Monetary Economics, Kalyani Publishers, Ludhiana, 2018
12. ***Macroeconomics***, Spectrum Publishing House, Hyderabad, 2016

Recommended Co-curricular Activities:

1. Assignments on trends in national income, money supply and inflation
2. Student Seminars/webinars on macroeconomic themes of contemporary importance for Indian economy(Eg., Covid-19 impact on aggregate demand, supply chain disruption, policy response etc.,)
3. Quiz to test critical understanding of the concepts and theories of macroeconomics and their application in practice
4. Group discussions on monetary policy and its effectiveness with reference to recent developments.
5. Group project work to study the trends in national income, inflation, money supply etc.,
6. Chart/poster presentation on National Income Trends, inflation, aggregate demand etc.,
7. Web-based assignment on Banking/money

SEMESTER – 3:: COURSE – 3

DEVELOPMENT ECONOMICS

NO. OF CREDITS: 4

LEARNING OUTCOMES FOR THE COURSE

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way (Knowledge)

    Various concepts and definitions and indicators relating to economic growth and Development including recent developments

2. Explains (understanding)

    a. Distinction between growth and development with examples

    c. Characteristics of developing and developing economies and distinction between the two

    d. factors contributing to development, Choice of Techniques and a few important models and strategies of growth

3. Critically examines using data and figures (analysis and evaluation)

    a. the theoretical aspects of a few models and strategies of economic growth

b. role and importance of various financial and other institutions in the context of India's economic development

4. Draws critical diagrams and graphs.

    a. to explain the models and strategies

b. to highlight empirical evidences to support the strategies

Module - 1: Economic Growth and Development

Economic Development as a Branch of Study of Economics – Scope and Importance - Distinction between Economic Growth and Economic Development -Measures of Economic Development and their limitations - Relevance of Herd (Group) Immunity in the context of COVID 19 - three core values of economic development : Sustainability, Self-esteem and Freedom – Economy and Environment : Concepts of sustainable development and inclusive growth

Module -2: Modern Economic Growth

Characteristics of Underdeveloped Countries - World Bank and IMF Classification of countries - Modern economic growth – Kuznets' Six Characteristics -Obstacles to economic development - Vicious Circle of Poverty and cumulative causation -Factors of economic growth: Economic and Non-economic - Capital Formation – Foreign and Domestic capital, Debt and Disinvestment.

Module-3: Theories of Development and Underdevelopment

Classical Theory: Adam Smith, Ricardo and Malthus -Marxian Theory - Schumpeter Theory -Rostow's Stages of Economic Growth -Harrod-Domar two sector model -Solow's Model and Robinson's Golden Age

Module – 4: Strategies of Economic Development

Strategies of Economic Development – Big Push -Balanced Growth -Unbalanced Growth - Mahalanobis Model - Agriculture vs Industry -Capital Intensive Technology vs Labour Intensive Technology -Role of Infrastructure in Economic Development

Module - 5: Institutions and Economic Development

Role of State in Economic Development -Role of Markets - Market Failure and Regulation by State -Public sector vs Private sector -Economic Planning – concept, objectives and types -NITIAyog - Economic Federalism -Financial Institutions and Economic Development -Role of International Institutions-IDBI, ADB, IMF -Foreign Trade - FIIs and FDIs

Reference Books:

1. Dhingra, I.C., ***Indian Economy***, Sultan Chand, New Delhi, 2014.
2. Gaurav Datt and Ashwani Mahajan, ***Datt and Sundharam's Indian Economy***, S.Chand& Co., 2016.
3. G. M. Meier, ***Leading Issues in Economic Development***, Oxford University Press, New York, 3/e.
4. M. P. Todaro and Stephen C. Smith, ***Economic Development***, 10/e, Indian Edition Published by Dorling Kindersley India Pvt. Ltd. 2012.
5. M. L. Koncham, Economic development and planning, Himalaya publications
6. S.K.Misra&V,K,Puri, ***Indian Economy***, Himalaya Publishing House, 2015.
7. R.S.Rao, V.Hanumantha Rao &N.Venu Gopal (Ed.), ***Fifty Years of Andhra Pradesh (1956-2006),*** Centre for Documentation, Research and Communications, Hyderabad, 2007.
8. G. Omkarnath, ***Economics - A Primer for India*** - Orient Blackswan, 2012.
9. Economic development and growth, Spectrum Publishing House, Hyderabad, 2016

Recommended Co-curricular Activities:

1. Assignments on the models and the strategies of economic development adopted in Indian economy
2. Student Seminar on development oriented themes relating to Indian economy
3. Quiz to test critical understanding of the fundamental concepts pf growth and development and the growth models and strategies
4. Group discussion on the effectiveness of the roles played by various institutions in India's economic development
5. Group project work to examine specific aspects of growth like poverty, unemployment, human development, gender development as Indian experience in the context of economic development preferably at the state and local level
6. Poster presentation

SEMESTER – 4 :: COURSE – 4

ECONOMIC DEVELOPMENT- INDIA AND ANDHRA PRADESH

NO. OF CREDITS: 4

LEARNING OUTCOMES FOR THE COURSE

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way (Knowledge)

a. leading issues of Indian economic development with reference to potential for growth, obstacles and policy responses

b. Objectives, outlays and achievements of economic plans and growth strategies

2. Explains (understanding)

a. Available Resources, demographic issues, general problems of poverty and unemployment and relevant policies

b.Sector specific problems, remedial policies and their effectiveness relating to Agriculture and Industrial Sectors of Indian and AP economy and infrastructure issues of AP economy

c. Indian Tax system, recent changes, issues of public expenditure and public debt, recent finance commissions and devolution of funds

d. Major issues of economic development of Andhra Pradesh after bifurcation and Central assistance

3. Critically examines using data and figures (analysis and evaluation)

a. Leading issues of current importance relating to India and AP economy, major policies and programmes

b. Covid– 19 and its impact on Indian economy

4. Uses official statistical data and reports including tables and graphs

a. To explain the achievements of Indian economy with reference to the objectives of planning and policy and make critical evaluation

Module – 1 Basic Features

Basic characteristics of Indian Economy as a developing economy – Economic development since independence - Objectives and achievements of planning – Planning Commission/NITIAyog and their approaches to economic development - India's Rank in Global Human Development Index .

Module 2 National Income and Demography

Trends in National income - Demographic trends - Poverty and Inequalities – Occupational Structure and Unemployment - Various Schemes of employment generation and eradication of poverty – Issues in Rural Development and Urban Development –Intra-state and Inter-state Labour Migration and unorganized sector Problems of Migrant Labour

M**odule – 3 Agricultural and Industrial Developments**

Indian Agriculture – Agricultural Strategy and Agricultural Policy – Agrarian Crisis and land reforms – Agricultural credit – Minimum Support Prices -Malnutrition and Food Security - Indian Industry - Recent Industrial Policy – Make-in India – Start-up and Stand-up programmes – SEZs and Industrial Corridors - Economic Reforms and their impact - Economic initiatives by government of India during COVID - Atmanirbhar Bharat package.

Module –4Indian Public Finance

Indian Tax System and Recent changes – GST and its impact on Commerce and Industry – Centre, States financial relations- Recommendations of Recent Finance Commission – Public Expenditure and Public Debt - Fiscal Policy and Budgetary Trends

Module- 5Andhra Pradesh Economy

The basic characteristics of Andhra Pradesh economy after bifurcation in 2014 – Impact of bifurcation on the endowment of natural resources and state revenue – new challenges to industry and commerce - the new initiatives to develop infrastructure – Power and Transport - Information Technology and e-governance – Urbanization and smart cities – Skill development and employment –Social welfare programmes.

Reference Books:

1. Dhingra, I.C., ***Indian Economy***, Sultan Chand, New Delhi, 2014.
2. Gaurav Datt and Ashwani Mahajan, ***Datt and Sundharam's Indian Economy***, S.Chand& Co., 2016.
3. G. M. Meier, ***Leading Issues in Economic Development***, Oxford University Press, New York, 3/e.
4. M. P. Todaro and Stephen C. Smith, ***Economic Development***, 10/e, Indian Edition Published by Dorling Kindersley India Pvt. Ltd. 2012.
5. P. K. Dhar, ***Indian Economy: Its Growing Dimensions, Kalyani Publishers, Ludhiana, 2018.***
6. Reserve Bank of India, ***Handbook of Statistics on Indian Economy*** (Latest).
7. S.K.Misra&V,K,Puri, ***Indian Economy***, Himalaya Publishing House, 2015.
8. R.S.Rao, V.Hanumantha Rao &N.Venu Gopal (Ed.), ***Fifty Years of Andhra Pradesh (1956-2006),*** Centre for Documentation, Research and Communications, Hyderabad, 2007.
9. G. Omkarnath, ***Economics - A Primer for India*** - Orient Blackswan, 2012.
10. A.P Economy- Telugu Academy, 2018

Recommended Co-curricular Activities:

1. Assignments on specific issues of contemporary importance with reference to problems and remedial policies
2. Student Seminars on leading economic challenges, the effectiveness of relevant policies and programmes
3. Quiz to examine the knowledge and critical understanding of major policies, programmes achievements, failures relating to all sectors
4. Group discussions to promote critical understanding and evaluation capabilities of the students on major areas of Indian and AP economy
5. Group project work to study the implementation and effectiveness of major government schemes of development, poverty eradication and employment promotion etc.,
6. PPT presentation and participation in webinars to help the students acquire and adapt ITC skills in the process of learning
7. Field Visits to Agricultural farm/market/SSIs to understand the ground realities of economic situation of the country and the state

COURSE– 5(Semester - IV)

STATISTICAL METHODS FOR ECONOMICS

NO. OF CREDITS: 4

LEARNING OUTCOMES FOR THE COURSE

At the end of the course, the student is expected to demonstrate the following cognitive abilities and psychomotor skills.

1. Remembers and states in a systematic way (Knowledge)
   a. the definitions, terms and their meaning relating to statistical methods
   b. various formulae used to measure central tendency, correlation regression and Indices

2. Explains (understanding)
   a. Importance of statistics and its applications
   b. The method of classification of primary data
   c. Uses of Correlation and Regression analysis, time series and index numbers in economic analysis

3. Analyses and solves usinggiven data and information (analysis and evaluation)
   a. different kinds of statistical problems using various principles and formulae relating to central tendency, correlation, regression, time series and indices
   b. to interpret data and suggest solutions to economic problems

4. Draws critical diagrams and graphs.
   a. Histogram, Frequency Polygon and Frequency Curve
b. More than cumulative and less than cumulative frequency curves (Ogive)
   c. Different types of Bar diagrams
   d. Pie Diagram and its uses in economic analysis

Module – 1: Nature and Definition of Statistics

Introduction to Statistics – Definition, scope, importance and limitations of Statistics – Primary and Secondary data- Census and Sampling techniques and their merits and demerits

Module – 2:Diagrammatic Analysis

Collection of data - Schedule and questionnaire – Frequency distribution – Tabulation – diagram and graphic presentation of data – Histogram, Frequency Polygon, Cumulative Frequency Curves - Bar Diagrams and Pie Diagram

Module – 3:Measures of Central Tendency and Dispersion

Measures of Central Tendency and Dispersion - Types of averages- Arithmetic Mean, Geometric Mean, Harmonic Mean – Median – Mode – Dispersion - Range, Quartile Deviation, Mean Deviation, Standard Deviation- Coefficient of Variation.

Module – 4:Correlation and Regression

Correlation and Regression - Meaning, Definition and uses of Correlation- Types of Correlation- Karl Pearson's Correlation coefficient - Spearman's Rank Correlation- Regression Equations - utility of regression analysis – Demand forecasting.

Module – 5: Time Series and Index Numbers

Time Series and Index Numbers: Definition and components of Time Series – Measurement of Time Series – Moving Average and the Least Squares Method – Index Numbers - Concepts of Price and Quantity Relatives – Laspeyer's, Paasche's and Fisher's Ideal Index Numbers – Uses and Limitations of Index Numbers.

Reference Books:

1. B. R. Bhat, T. Srivenkataramana and K.S. MadhavaRao (1996): ***Statistics: A Beginner's Text***, Vol. I, New Age International (P) Ltd.
2. Goon A.M, Gupta M.K., Das Gupta B. (1991), ***Fundamentals of Statistics,*** Vol. I, World Press, Calcutta.
3. M. R. Spiegel (1989): ***Schaum's Outline of Theory and Problems in Statistics,***Schaum's Outline Series.
4. F. E. Croxton, D. J. Cowden and S. Kelin S (1973), ***Applied General Statistics,*** Prentice Hall of India. 2.
5. S.P. Gupta, ***Statistical Methods*** , S. Chand & Co, 1985
6. S. C. Guptha, ***Fundamentals of Statistics***, Himalaya Publishing House, Hyderabad.
7. Digambar Patri and D. N. Patri, ***Statistical Methods for Economics,*** Kalyani Publishers, Ludhiana, 2017.
8. Telugu Akademy Book, ParimanathmakaPaddathulu (For B.A.).

Recommended Co-curricular Activities:

1. Assignments of the application of various statistical methods
2. Student Seminar on themes requiring usage of tables, diagrams, statistical analysis and interpretation
3. Group project work for collection of data on locally relevant economic problems
4. Market survey on demand, supply, sales, prices of different kinds of projects like food items, FMCG, other consumable durables etc., etc., and Statistical Analysis- Mini Project and also income elasticity of demand for such products

Model Format for Question Paper

Recommendations to the paper setters

1. The paper setter may him/herself prepare a blue print assigning appropriate weightage to all learning outcomes as per Blooms Taxonomy and specified in the syllabus (if no design is prescribed)
2. All units may be fairly covered and even the learning outcomes may be fairly distributed.
3. Action verbs specific to the learning outcome to be tested may be used.
4. There may be no ambiguity in the question. The wording may be carefully framed.
5. Weightage to the difficulty level may also be determined in such a way that neither the paper is

too difficult nor too easy. Even an average learner shall be able to pass the examination with minimum marks.

SECTION - A

Write Short Answer for any FIVE of the following

Each question carries 5 marks (5 x 5 = 25 Marks)

1	
2	
3	
4	
5	
6	
7	
8	

(Total 8 Questions in Section A)

SECTION – B

Answer the following questions

Each question carries 10 marks (5 x 10 = 50 Marks)

9	(a) Or (b)
10	(a) Or (b)
11	(a) Or (b)
12	(a) Or (b)
13	(a) Or (b)

(Total 10 Questions in Section–B. Internal choice for all questions from 9 to 13

(Two questions given under choice shall be from the same unit)

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Annexure

Programme Outcomes and Programme Specific Outcomes

Programme Outcomes (POs)

After the completion of the B. A. (H.E.P.)Programme, the students will be able to achieve the following outcomes:

PO1. **Critical Thinking**:

Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational and personal) from different perspectives.

PO2. **Effective Communication**:

Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and by connecting people, ideas, books, media and technology across the World.

PO3. **Social Interaction**:

Elicit views of others, mediate disagreements and help reach conclusions in group settings.

PO4. **Effective Citizenship**:

Demonstrate empathetic social concern and equity-centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO5. **Ethics:**

Recognize different value systems including that of own, understand the moral dimensions of our decisions, and accept responsibility for them.

PO6. **Environment and Sustainability**:

Understand the issues in the contexts of environmental and sustainable development.

PO7. **Self-directed and Life-long Learning**:

Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

Programme (Economics) Specific Outcomes (PSO)

After completion of Economics programme, the students will be in a position to take informed decisions with regard to the following:

PSO1 - How the consumers and producers will take rational decisions in the context of unlimited needs and availability of scarce resources;

PSO2 – How the economy at the aggregate level works, what are the determinants of national income, prices, demand for and supply of money, poverty, and unemployment in an economy;

PS03 - He/she Gets understanding of the process of economic growth, economic development, sustainable growth in the context of existence of trade-off between rapid economic growth and environmental sustainability in the long-run;

PS04 - He/she will be able to apply the determinants of economic growth and development to the economies of India and Andhra Pradesh and appraise the fiscal, monetary and other socio-economic policies being pursued in India and Andhra Pradesh

PSO5 – He/she will get a basic understanding of Statistical Methods with a view to applying them to economics and real life situations

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SUBJECT EXPERTS

Prof.D.Krishna Murthy,
Dept of Economics,
SV University,
Tirupati

Dr.P.Venugopal,
Lecturer in Economics,
Hindu College,
Guntur

SYLLABUS VETTED BY

Prof.M.Prasada Rao,
Dept of Economics,
Andhra University,
Visakhapatnam

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

3rd, 4th and 5th floors, Neeladri Towers, Sri Ram Nagar, 6th Battalion Road,
Atmakur (V), Mangalagiri (M), Guntur-522 503, Andhra Pradesh
Web: www.apsche.org **Email**: acapsche@gmail.com

REVISED SYLLABUS OF POLITICAL SCIENCE UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-2021

PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

POLITICAL SCIENCE

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P.)

For Fifteen Courses of 1, 2, 3 & 4 Semesters)

(To be Implemented from 2020-21 Academic Year)

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

CBCS – UG SYLLABUS SUBJECT REVIEW COMMITTEE

(To be implemented from 2020-21 Academic Year)

PROGRAMME: FOUR-YEAR B.A

(With History, Economics and Political Science Disciplines)

Domain Subject: POLITICAL SCIENCE

(Syllabus with Outcomes, References, Co-curricular Activities &Question Paper pattern

For Five Courses of 1, 2, 3 & 4 Semesters)

Structure of POLITICAL SCIENCE Syllabus under CBCS for 4-year B.A. Programme

(with domain subject covered during the first 4 Semesters with 5 Courses)

Sl. No	Code	Courses 1, II, III, IV & V	Name of Course (Each Course consists 5 Units with each Unit having 12 hours of class-work)	Sem	Hours/ Week	Credits	Marks	
							Mid Sem	Sem End
1		1	Introduction to Political Science	I	**5**	**4**	**25**	**75**
2		2	Basic Organs of the Government	II	**5**	**4**	**25**	**75**
3		3	Indian Government and Politics	III	**5**	**4**	**25**	**75**
4		4	Indian Political Process	IV	**5**	**4**	**25**	**75**
5		5	Western Political Thought	IV	**5**	**4**	**25**	**75**
					Total	**20**	**125**	**375**

SYLLABUS

B.A. POLITICAL SCIENCE

FIRST YEAR

FIRST SEMESTER

(Under CBCS w.e.f. 2020-21)

Course-1: INTRODUCTION TO POLITICAL SCIENCE

Learning Outcomes:

On successful completion of the course the students will be able to;

- Recall the previous knowledge about Political Science and understand the nature and scope, traditional and modern approaches of Political Science.
- Understand concepts intrinsic to the study of Political Science.
- Have solid theoretical understanding of Rights and its theories along with the basic aspects of certain political ideologies.
- Apply the knowledge to observe the field level phenomena

UNIT-I :	INTRODUCTION
	1. Definition, Nature, Scope and Importance of Political Science – Relations with allied disciplines (History, Economics, Philosophy and Sociology)
	2. Approaches to the study of Political Science: Traditional Approaches-Philosophical, Historical. Modern Approaches-Behavioral and System Approach.

UNIT-II :	STATE
	1. Definition of the State, Elements of the State, Theories of Origin of the State-(Divine Origin, Force, Evolutionary and Social Contract).
	2. Concepts of Modern State and Welfare State.

UNIT-III :	CONCEPTS OF POLITICAL SCIENCE
	1. Law, Liberty, Equality.
	2. Power, Authority and Legitimacy.

UNIT-IV :	THEORIES OF RIGHTS
	1. Meaning, Nature and Classification of Rights
	2. Theories of Rights.

UNIT-V :	POLITICAL IDEOLOGIES
	1. Liberalism, Individualism, Anarchism.
	2. Socialism, Marxism and Multiculturalism.

REFERENCE BOOKS:

➢ A.C. Kapur	:	*Principles of Political Science*
➢ R.C.Agarwal	:	*Political Theory*
➢ J.C.Johari	:	*Contemporary Political Theory*
➢ Amaj Ray & Bhattacharya	:	*Political Theory and Institutions*
➢ O.P.Gauba	:	*An Introduction to Political Theory*
➢ Abbas, Hoveyda&Ranjay Kumar	:	*Political Theory*
➢ Andrew Hakes	:	*Political Theory: Philosophy, Ideology, Science*
➢ J.C.Johari	:	*Principles of Modern Political Science*
➢ RajeevBhargava& Ashok Acharya(ed)	:	*Political Theory-An Introduction*
➢ Andrew Heywood	:	*Political Ideologies-An Introduction*
➢ Norman Barry	:	*An Introduction to Modern Political Theory*
➢ JadiMusalaiah, V.Vasundhara Devi &V.Bhogendracharyulu, Prof.V.RavindraSastry (ed)	:	*Political Science Concepts, Theories & Institutions*
➢ Laski, H.J.	:	*Grammar of Politics*
➢ A.Appadorai	:	*Substance of Politics*
➢ Eddy Ashirvadam&K.K.Misra	:	*Political Theory*
➢ SushilaRamaswamy	:	*Political Theory: Ideas & Concepts, Political Theory & Thought, Key Concepts in Political Theory*
➢ VidyaDhar Mahajan	:	*Political Theory (Principles of Political Science)*
➢ S.P.Varma	:	*Modern Political Theory*

ANNEXURE

CO-CURRICULAR ACTIVITIES RECOMMENDED

Measurable Co-curricular Activities (A uniform format may be designed and marks allotted)
• Simple, medium and critical Assignments on current topics
• Class Seminars
• Quiz Programme
• Study Projects on field related problems, individual and Group
• Preparation of Alternate Theoretical Models to the existing systems/functions
• Debates on current issues.
General Co-Curricular Activities
• Preparation of Photo Album. Students' Open Forums
• Collection of news reports from dailies and magazines and maintaining a record of paper clippings.
• Group Discussions on problems relating to the syllabus and outside
• Watching TV discussions, recording individual observations and preparing summary points
• Celebration of important events.
• Encouragement to students to use various digital online tools (Google forms, Google Class room, edmodo, testmoz, kahoot, edpuzzle, moodle etc.,), Open source software, Open educational resources
• Cooperative Learning and Peer Teaching
• Comparative study of the Rights that citizens are enjoying around the globe
• Creative and imaginative activities beyond the prescribed syllabus

B.A. POLITICAL SCIENCE

FIRST YEAR

SECOND SEMESTER

(Under CBCS w.e.f 2020-21)

Course-2: BASIC ORGANS OF THE GOVERNMENT

Learning Outcomes:

On successful completion of the course the students will be able to:

- Understand the Origin and Evolution of the concept of Constitutionalism and classification of Constitutions.
- Acquaint themselves with different theories of origin of State.
- Understand and analyses organs and forms of Governments along with a deep insight into the various agents involved in the political process.
- Apply the knowledge to analyse and evaluate the existing systems

UNIT-I :	CONSTITUTION
	1. Meaning, Definition, Origin and Evolution of Constitution.
	2. Classification of the Constitutions-Written and Unwritten; Rigid and Flexible.

UNIT-II :	ORGANS OF THE GOVERNMENT
	1. Theory of Separation of Powers-B.D.Montesquieu.
	2. Legislature-Unicameral and Bicameral-Power and Functions, Executive-Types,Powers and Functions. Judiciary-Powers and Functions.

UNIT-III :	FORMS OF GOVERNMENT
	1. Unitary and Federal forms of Governments-Merits and Demerits.
	2. Parliamentary and Presidential forms of Governments- Merits and Demerits.

UNIT-IV :	DEMOCRACY
	1. Meaning, Definition, Significance, Theories and Principles of Democracy.
	2. Types of Democracy: Direct and Indirect Democracy-Methods, Merits and Demerits-Essential Conditions for Success of Democracy.

UNIT-V :	POLITICAL PARTIES, PRESSURE GROUPS AND PUBLIC OPINION
	1. Meaning, Definition and Classification of Political Parties: National and Regional-Functions of Political Parties.
	2. Pressure Groups (Interest Groups)- Meaning, Definition, Types, Functions and Significance of Public Opinion.

REFERENCE BOOKS:

➢ SukhbirBhatnagar	:	*Constitutional Law and the Governance*
➢ A.C.Kapur	:	*Select Constitutions*
➢ R.C.Agarwal	:	*Political Theory*
➢ VidyaDhar Mahajan	:	*Political Theory (Principles of Political Science)*
➢ M.R.Biju	:	*Democratic Political Process*
➢ PeterRonald de Souja&E.Sreedharan (ed)	:	*Indian Political Parties*
➢ JadiMusalaiah, V.Vasundhara Devi &V.Bhogendracharyulu, Prof.V.RavindraSastry (ed)	:	*Political Science Concepts, Theories & Institutions*
➢ Laski. H.J.	:	*Grammar of Politics*
➢ A.Appadorai	:	*Substance of Politics*
➢ Eddy Ashirvadam&K.K.Misra	:	*Political Theory*
➢ SushilaRamaswamy	:	*Political Theory: Ideas & Concepts*
➢ S.P.Varma	:	*Modern Political Theory*

ANNEXURE

CO-CURRICULAR ACTIVITIES

• All Co-curricular activities recommended at Course – I
• Study of the outline features of Constitutions of U.S.A, U.K., Australia, Canada, South Africa, China and Japan in comparison to the Constitution of India.
• Study projects on selected local real time problems.
• Field visits to government establishments.

B.A. POLITICAL SCIENCE

SECOND YEAR

THIRD SEMESTER

(Under CBCS w.e.f 2020-21)

Course-3: INDIAN GOVERNMENT AND POLITICS

Learning Outcomes:

On successful completion of the course the students will be able to:

- Acquire knowledge about the historical background of Constitutional development in India, appreciate philosophical foundations and salient features of the Indian Constitution.
- Analyze the relationship between State and individual interms of Fundamental Rights and Directive Principles of State Policy.
- Understand the composition of and functioning of Union Government as well as State Government and finally
- Acquaint themselves with the judicial system of the country and its emerging trends such as judicial reforms.

UNIT-I :	**SOCIAL AND IDEOLOGICAL BASE OF THE INDIAN CONSTITUTION**
	1. Constitutional Development in India during British Rule-A Historical Perspective with reference to Government of India Acts, 1909,1919 and 1935.
	2. Constituent Assembly-Nature, Composition, Socio-Economic, Philosophical Dimensions and Salient Features of the Indian Constitution.

UNIT-II :	**INDIVIDUAL AND STATE**
	1. Fundamental Rights, Directive Principles of State Policy and Fundamental Duties-Differences between Fundamental Rights and

	Directive Principles of State Policy.
	2. The 'Doctrine of Basic Structure of the Constitution' with reference to Judicial Interpretations and Socio-Political Realities.

UNIT-III :	**UNION EXECUTIVE**
	1. President of India-Mode of Election, Powers and Functions.
	2. Parliament-Composition, Powers and Functions, Legislative Committees, Prime Minister and Council of Ministers-Powers and Functions, Role in Coalition Politics

UNIT-IV :	**STATE EXECUTIVE**
	1. Governor-Mode of Appointment, Powers and Functions.
	2. Legislature-Composition, Powers and Functions, Chief Minister and Council of Ministers-Powers and Functions

UNIT-V :	**THE INDIAN JUDICIARY**
	1. Supreme Court-Composition and Appointments, Powers and Functions or Jurisdiction of the Supreme Court, Judicial Review, Judicial Activism.
	2. High Court-Composition, Powers and Functions, Debates on the mode of appointment of Judges-National Judicial Appointments Commission and Judicial Reforms.

REFERENCE BOOKS:

➢ M.V.Pylee	:	*Indian Constitution,* *Constitutional Government in India* *Constitutional History of India*
➢ Durga Das Basu	:	*An Introduction to the Constitution of India*
➢ Rajni Kothari	:	*Politics in India*
➢ SanghMittra	:	*Indian Constitution Acts (East India Company to Independence)*
➢ Hoshiar Singh, P.C.Mathur&Pankaj Singh (ed)	:	*Coalition Governments & Good Governance*
➢ B.C.Fadia	:	*Indian Government and Politics*
➢ SubhashC.Kashyap	:	*Concise Encyclopedia of Indian Constitution*
➢ P.B.Rathod&VimlaRathod	:	*Indian Constitution, Government and Political System*
➢ Verinder Grover (ed)	:	*Federal System, State Autonomy and Centre-State Relations in India.*
➢ Prof.Lalaiah,P.Venkataramana, K.SaiBaba&K.Mallesam, Prof.V.RaveendraSastry (ed)	:	*Indian Government-Politics*
➢ M.Lakshmikant	:	*Indian Polity*
➢ R.C.Agarwal& Mahesh Bhatnagar	:	*Constitutional Development and National Movement of India*
➢ Singh &Saxena	:	*Indian Politics : Contemporary Issues and Concerns*
➢ Austin Granville	:	*The Indian Constitution : Cornerstone of a Nation, Working of a Democratic Constitution : The Indian Experience*
➢ W.H.Morris Jones	:	*Government and Politics of India*
➢ M.P.Jain	:	*Indian Constitutional Law*
➢ Subhash C. Kashyap.	:	*Our Constitution, Our Parliament, Our Political*

		System
➢ A.S.Narang	:	*Indian Political System, Process and Development*
➢ Rajeev Bhargav	:	*Politics and Ethics of the Indian Constitution*
➢ Bipin Chandra	:	*Nationalism & Colonialism in Modern India*
➢ Paul R.Brass	:	*The Politics in India since Independence*
➢ K.SubrataMitra	:	*Politics in India : Structure, Process and Policy*
➢ S.H.Patil	:	*The Constitution, Government and Politics in India*
➢ VishnooBhagwan&VidyaBhusan	:	*Indian Administration*

ANNEXURE

CO-CURRICULAR ACTIVITIES

• All Co-curricular activities recommended at Course – I
• Peers and self-assessment outputs from individual and collaborative work.
• Individual observations in field studies and recordings in the areas related to syllabus
• Conduct of a Mock Parliament on important current issues for awareness about the proceedings of the Parliament, intensity of debates and understanding the outcomes.
• A Field Visit to a Court to observe the structure and its exercise of powers.
• Discussion of Previous Question Papers relating to Services (Service Commissions and other Recruitment Agencies) for an understanding of different approaches
• Study projects on selected local real time problems.

B.A. POLITICAL SCIENCE

SECOND YEAR

FOURTH SEMESTER

(Under CBCS w.e.f 2020-21)

Course-4 : INDIAN POLITICAL PROCESS

Learning Outcomes:

On successful completion of the course the students will be able to :

- Know and understand the federal system of the country and some of the vital contemporary emerging issues.
- Evaluate the electoral system of the country and to identify the areas of electoral reforms.
- Know the constitutional base and functioning of local governments with special emphasis on 73rd& 74th Constitutional Amendment Acts.
- Understand the dynamics of Indian politics, challenges faced and gain a sensitive comprehension to the contributing factors.
- Apply the knowledge and critically comprehend the functioning of some of the regulatory and governance institutions.
- Propose theoretical outline alternate models

UNIT-I :	FEDERAL PROCESSES
	1. Features of Indian Federal System- Centre-State Relations-Legislative, Administrative and Financial
	2. Emerging Trends in Centre-State Relations-Restructuring Centre-State Relations-Recommendations of Sarkaria Commission, M.M.Punchi Commission

UNIT-II :	ELECTORAL PROCESSES
	1. The Election Commission of India, Powers and Functions.
	2. Issues of Electoral Reforms, Voting Behaviour-Determinants and

	Problems of Defections.

UNIT-III :	GROSSROOT DEMOCRACY-DECENTRALISATION
	1. Panchayat Raj system-Local and Urban Governments-Structure, Powers and Functions.
	2. Democratic Decentralization-Rural Development and Poverty alleviation with reference to 73rd and 74th Constitutional Amendment Acts, Challenges and Prospects.

UNIT-IV :	SOCIAL DYNAMICS AND EMERGING CHALLENGES TO INDIAN POLITICAL SYSTEM
	1. Role of Caste, Religion, Language and Regionalism in India.
	2. Politics of Reservation, Criminalization of Politics and Internal threats to Security.

UNIT-V :	REGULATORY AND GOVERNANCE INSTITUTIONS
	1. NITI Ayog, Finance Commission, Comptroller and Auditor General of India.
	2. Central Vigilance Commission, Central Information Commission, Lokpal and Lokayukta.

REFERENCE BOOKS:

➢ M.V.Pylee	:	*Indian Constitution* *Constitutional Government in India*
➢ D.D.Basu	:	*An Introduction to the Constitution of India*
➢ Rajni Kothari	:	*Politics in India, Caste in Indian Politics*
➢ PeuGhosh	:	*Indian Government and Politics*
➢ Prof.Lalaiah, P.Venkataramana, K.SaiBaba&K.Mallesam, Prof.V.RaveendraSastry (ed)	:	*Indian Government-Politics*
➢ M.R.Biju	:	*Democratic Political Process*
➢ J.K.Chopra (ed)	:	*Local Self-Government and Municipal Administration*
➢ Susan Bayly	:	*Caste, Society and Politics in India (From the Eighteenth Century to the Modern Age)*
➢ SubharataDutta	:	*Democratic Decentralisation and Grossroot Leadership in India*
➢ H.V.Hande	:	*Dr.B.R.Ambedkar& The Making of the Indian Constitution*
➢ S.K.Sharma&UshaSarma	:	*Politics and Administration in India- A Retrospective Survey*
➢ Hari Prasad Chhetri	:	*Panchayatraj System and Development Planning*
➢ B.C.Fadia	:	*Indian Government and Politics*
➢ UpendraBaxi&Biku Parekh	:	*Crisis and Change in Contemporary India*
➢ M.Lakshmikant	:	*Indian Polity,Governance in India*
➢ N.G.Jayal (ed)	:	*Democracy in India*
➢ Peter Ronald deSouza&E. Sridharan	:	*India's Political Parties*
➢ O.P.Tiwari	:	*Federalism and Centre-State Relations in India*
➢ AthulKohli (ed)	:	*The Success of India's Democracy*
➢ C.B.Raju	:	*Social Justice and the Constitution of India*
➢ V.K.Garg	:	*Caste and Reservation in India*

➢ U.Baxi	:	*The Indian Supreme Court and Politics Parliamentary Procedure, Law Privilege, Practice &Precedents*
➢ VishnooBhagwan&VidyaBhushan	:	*Indian Administration*
➢ S.H.Patil	:	*The Constitution, Government and Politics in India*

ANNEXURE

CO-CURRICULAR ACTIVITIES

• All Co-curricular activities recommended at Course – I & III
• A Field Visit to a Court / District Jail / Local Government Office to observe the structure and functioning
• Viva voce interviews.
• Computerised adaptive testing, literature surveys and evaluations.
• Encouragement to students to contribute articles to the magazines and seminars

B.A. POLITICAL SCIENCE

SECOND YEAR

FOURTH SEMESTER

(Under CBCS w.e.f 2020-21)

Course 5:WESTERN POLITICAL THOUGHT

Learning Outcomes:

On successful completion of the course the students will be able to:

- Understand the fundamental contours classical, western political philosophy, basic features of medieval political thought and shift from medieval to modern era.
- Understand the Social Contract Theory and appreciate its implications on the perception of State in terms of its purposes and role.
- Acquaint with the Liberal and Marxist philosophy and analyze some trends in Western Political Thought.
- Critically analyse the evolution of western political thought

UNIT-I :	**ANCIENT GREEK POLITICAL THOUGHT**
	1. Plato-Rule of Philosopher Kings-Theory of Justice-Ideal State and Education
	2. Aristotle-Theory of State-Classification of Governments-Citizenship, Slavery and Theory of Revolutions.

UNIT-II :	**MEDIEVAL AND MODERN POLITICAL THOUGHT**
	1. St.Augustine-Theory of Two Cities.
	2. NiccoloMachiavelli-State and Statecraft.

UNIT-III :	**CONTRACTUAL POLITICAL THOUGHT**
	1. Thomas Hobbes- Social Contract and Absolute Sovereignty.
	2. John Locke- Human Nature, State of Nature, Social Contract, Natural Rights and Limited Government

	3. Jean Jacques Rousseau- Human Nature, State of Nature, Social Contract, General Will and Popular Sovereignty

UNIT-IV :	**UTILITARIAN POLITICAL THOUGHT**
	1. Jermy Bentham-Theory of Utility, Law and Reforms.
	2. J.S.Mill-Theory of Liberty and Representative Government.

UNIT-V :	**MARXIST POLITICAL THOUGHT**
	1. Karl Marx-Dialectical Materialism, Theory of Surplus Value and Class Struggle.
	2. Antonio Gramsci-Hegemony and Civil Society.

REFERENCE BOOKS:

➢ O.P.Gauba	:	*Western Political Thought*
➢ G.H.Sabine	:	*A History of Political Theory*
➢ E.Baker	:	*Greek Political Theory : Plato and His Predecessors*
➢ Subrata Mukherjee & Sushila Ramaswamy	:	*A History of Political Thought-Plato to Marx*
➢ ShefaliJha	:	*Western Political Thought -From Plato to Marx*
➢ B.N.Ray	:	*Western Political Thought*
➢ RadheyShamChaurasia	:	*History of Western Political Thought*
➢ P.B.Rathod	:	*Ancient and Medieval Political Thinkers-From Plato to Padua*
➢ Andrew Hakes	:	*Political Theory :Philosophy, Ideology and Science*
➢ HaratiDwarakanath, Prof.G.Lalaiah, K.Saibaba, K.Ramachandra Murthy &V.Bhogendracharyulu, Prof.V.RavindraSastry (ed)	:	*Political Thought*
➢ Anil Kumar Mukopadhyay	:	*An Introduction to Political Theory, Western Political Thought*
➢ William Ebenstien	:	*Great Political Thinkers-Plato to the Present Modern Political Thought, The Great Issues*
➢ J.P.Sudha	:	*History of Political Thought*
➢ H.J.Laski	:	*Political Thought from Bentham to Locke*
➢ C.L.Wayper	:	*Political Thought*

ANNEXURE

CO-CURRICULAR ACTIVITIES

➢ All Co-curricular activities recommended at Course – I & III
➢ Peers and self-assessment, out puts from individuals and collaborative work.
➢ Assignments that encourage the study of standard Reference Books available at library
➢ Assignments of the emerging trends after Marxian Philosophy in the era of globalisation

PROGRAM: B. A. POLITICAL SCIENCE (CBCS)

MODEL QUESTION PAPER & PATTERN

Max. Marks: 75 **Time: 3 hrs**

SECTION A (Total: 5x5=25 Marks)

(Answer any **five questions**. Each question carries **5 marks**

(2 questions should be given from each Unit)

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

SECTION B (Total: 5x10 = 50 Marks)

(Answer all **questions**. Each question carries **10 marks**

(Two questions should be given with internal choice from each Unit)

11. A	
	(Or)
B	
12 A.	
	(Or)
B.	
13A	
	(Or)
B	
14A	
	(Or)
B	
15A	
	(Or)
B	

****

SUBJECT EXPERTS

1. Prof. B.V.Raghavulu, M.A., M.Phil., Ph.D.,
Chairman, Board of Studies
Dept. of Political Science & Public Administration, Sri Krishnadevaraya University, Anantapur

2. Dr.T.S.ShyamPrasad,M.A., M.Phil., Ph.D.,

Lecturer in Political Science, Government College (Autonomous), Anantapur

SYLLABUS VETTED BY

SRI KRISHNADEVARAYA UNIVERSITY: ANANTAPURAMU

Department of Telugu – B.A., etc., Programmes

Revised Syllabus under CBCS Pattern
w.e.f. 2020-21

Core Subjects - SPECIAL TELUGU

Submitted to
Andhra Pradesh State Council of Higher Education

తెలుగు శాఖ – బి.ఎ., తదితర ప్రోగ్రాములు
సి.బి.సి.ఎస్.పద్ధతిలో సవరించబడిన పాఠ్యప్రణాళిక
2020–21 విద్యా సంవత్సరం నుంచి

స్పెషల్ తెలుగు – పాఠ్య ప్రణాళిక
ఆంధ్రప్రదేశ్ రాష్ట్ర ఉన్నత విద్యామండలి వారికి, గుంటూరు.

Subject Curricular Framework

Sem	Course	Title	Hrs/Wk	Credits	Max. Marks		
					IA	SE	Total
I	I	Pracheena Kavithaa Parichayam	05	05	25	75	100
II	II	Aadhunika Kavithaa Parichayam	05	05	25	75	100
III	III	Pracheena Telugu Sahithya Charithra	05	05	25	75	100
IV	IV	Aadhunika Telugu Sahithya Charithra	05	05	25	75	100
V	V	Telugu Sahithya Vimarsa	05	05	25	75	100

పాఠ్యప్రణాళిక (5 కోర్సులు)

సెమి.	కోర్సు	శీర్షిక	పీరియడ్లు / వారానికి	క్రెడిట్లు	మొత్తం మార్కులు		
					IA	SE	Total
I	I	ప్రాచీన కవితా పరిచయం	05	05	25	75	100
II	II	ఆధునిక కవితా పరిచయం	05	05	25	75	100
III	III	ప్రాచీన తెలుగు సాహిత్య చరిత్ర	05	05	25	75	100
IV	IV	ఆధునిక తెలుగు సాహిత్య చరిత్ర	05	05	25	75	100
V	V	తెలుగు సాహిత్య విమర్శ	05	05	25	75	100

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-1

కోర్సు-1 : ప్రాచీన కవితా పరిచయం

యూనిట్ల సంఖ్య: 5 పీరియడ్ల సంఖ్య: 75

❖ **అభ్యసన ఫలితాలు:-**

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. ప్రాచీన తెలుగు కవితా సౌందర్యాన్ని, విశిష్టతను గుర్తిస్తారు. తెలుగుజాతి సంప్రదాయాలను గ్రహిస్తూ, తెలుగువారి సంస్కృతిలో ఒక భాగమైన తెలుగు పద్యకవిత్వం వికాసం చెందిన విధానాన్ని విశ్లేషణాత్మకంగా అవగాహన చేసుకోగలరు.
2. మార్గకవితకు వ్యతిరేకంగా తలెత్తిన దేశికవిత్వోద్యమాన్ని అవగాహన చేసుకుంటారు. శివకవుల కాలంనాటి మత,ధార్మిక పరిస్థితులను, భాషావిశేషాలను గ్రహించగలరు.
3. తిక్కన మహాభారత రచనా విశిష్టతను గ్రహిస్తూ, అందులోని కావ్యశిల్పం ద్వారా రసానుభూతిని పొందగలరు. ఉపాఖ్యానాలలోని సందేశాన్ని గ్రహిస్తూ, గ్రాంథికభాష రూపుదిద్దుకున్న క్రమాన్ని గుర్తించగలరు.
4. మార్గకవిత ప్రబంధప్రక్రియలోకి పరిణమించిన వైనాన్ని తెలుసుకుంటారు. ప్రబంధయుగ విశిష్టతను, అల్లసాని కవితలోని జిగిబిగిని ఆస్వాదించగలరు. కావ్యవస్తువులో కాలానుగుణంగా వచ్చిన మార్పులు గ్రహించగలరు.
5. పోతన భాగవత విశిష్టతను, భక్తితత్వాన్ని అర్థం చేసుకోగలరు. మొల్ల రామాయణంలోని కవితా చమత్కారాన్ని, కావ్యేతిహాస ప్రక్రియా విశిష్టతను, శబ్దసౌందర్యాన్ని గ్రహించగలరు.

పాఠ్య ప్రణాళిక

యూనిట్–I :

బెజ్జమహాదేవి కథ – పాల్కురికి సోమన

(బసవపురాణం – తృతీయాశ్వాసం – 151 వ పుట నుండి – 160 వ పుట వరకు)

('మఱియును విను బెజ్జమహాదేవియనంగ.... యమ్మవ్వయను నామమయ్యె వెండియును')

యూనిట్–II :

నాడీజంఘోపాఖ్యానం– తిక్కన

(ఆంధ్రమహాభారతం – శాంతి పర్వం– తృతీయశ్వాసం)

"మఱునాడు నదీనందనుం గొలిచియుండి ధర్మనందనుడు....(472వ పద్యం) నుండి ....

....భీష్ముడు భీమాగ్రజునకుం జెప్పె.(528 వచనం) వరకు

యూనిట్–III :

ప్రహ్లాద చరిత్రము – బమ్మెర పోతన (ఆంధ్రమహాభాగవతం – సప్తమస్కంధం)

(115వ పద్యం "తన యందు..... నుండి

185వ పద్యం...జనకద్రోహిన్ మహింగంటిరే" వరకు)

యూనిట్–IV:

వరూధినీ ప్రవరులు – అల్లసాని పెద్దన

(స్వారోచిష మనుసంభవము – ద్వితీయాశ్వాసం)

(3వ పద్యం "అటఁజని కాంచె..... నుండి....77వ వచనం....

నిత్యకృత్య సత్కర్మకలాపంబు నిర్వర్తించె" వరకు)

యూనిట్–V:

ఆశోకవనంలో జానకి – మొల్ల (రామాయణము – సుందరకాండము)

"హనుమంతుడు రాముని కుశలవార్తను సీతకు విన్నవించుట"

(90 వ పద్యం–తనకు దిక్కులేమిఁ దలపోసి దుఃఖింప, పవనసుతుడు మనుజ భాష పలికె.... నుండి 123వ పద్యం... నిజంబు నమ్ముమా!" వరకు)

ఆధార గ్రంథాలు:

1. శ్రీమదాంధ్ర మహాభారతము:శాంతిపర్వము .... తిరుమల తిరుపతి దేవస్థానం ప్రచురణ
2. స్వారోచిష మనుసంభవము – అల్లసాని పెద్దన (వావిళ్ళవారి ప్రచురణ)
3. బసవపురాణము – పాల్కురికి సోమన (వావిళ్ళవారి ప్రచురణ)
4. ఆంధ్రమహాభాగవతము – తిరుమల తిరుపతి దేవస్థానం ప్రచురణ
5. మొల్ల రామాయణము – ఎమెస్కో ప్రచురణ

❖ ఆయా పాఠ్యాంశాల 'అభ్యాసం'లో ప్రతిపదార్థ పద్యాలు, కంఠస్థ పద్యాలు, సందర్భవాక్యాలు, సంగ్రహ సమాధాన ప్రశ్నలు, వ్యాసరూప సమాధాన ప్రశ్నలు, ఛందో విశేషాలు, అలంకారాల ప్రస్తావన తప్పనిసరిగా ఇవ్వాలి.

❖ **సూచించబడిన సహపాఠ్య కార్యకలాపాలు**

1. ప్రాచీన పాఠ్యాంశాల్లోని విషయాలను నేటి సామాజికదృష్టితో పునర్మూల్యాంకనం చేయించడం
2. పాఠ్యప్రణాళికలోని అంశాలపై విద్యార్థులచేత సమీక్షలు/వ్యాసాలు/సెమినార్లు నిర్వహింపచేయడం.
3. ప్రాచీన తెలుగు కవుల నిర్ణీత పద్యకావ్యంపై విద్యార్థులచేత విశ్లేషణ చేయించడం–కేస్ స్టడీ.
4. తరగతి గదిలో శీర్షికలనిచ్చి విద్యార్థులచేత పద్యరచనకు ప్రయత్నింపజేయడం.
5. క్రింది కవుల రచనల్లోని అంశాలను ప్రత్యేకంగా పరిశీలింపజేయడం.

   అ. నలోపాఖ్యానం – నన్నయ ఆ. కీచకవధ – తిక్కన

   ఇ. జడివాన (వర్ణన) – ఎఱ్ఱన ఈ. గజేంద్రమోక్షం – పోతన

   ఉ. పారిజాతాపహరణ ఘట్టం – తిమ్మన

6. చారిత్రిక, సాంస్కృతికాంశాలకు సంబంధించిన పర్యాటక ప్రదేశాలను సందర్శించడం.

ప్రశ్నాపత్ర నమూనా

అ. ప్రతిపదార్థ పద్యాలు–(అంతర్గత ఛాయిస్)		(2–1)	1×8=8 మా
ఆ. కంఠస్థ పద్యం–(అంతర్గత ఛాయిస్)		(2–1)	1×3=3 మా
ఇ. సందర్భ వాక్యాలు–		(6–4)	4×3=12 మా
ఈ. సంగ్రహ సమాధాన ప్రశ్నలు		(6–4)	4×3=12 మా
ఉ. వ్యాస ప్రశ్నలు		(6–3)	3×8=24 మా
ఊ. వ్యాకరణం–	సంధులు	(6–4)	4×1=4 మా
	సమాసాలు	(6–4)	4×1=4 మా
	అలంకారాలు	(2–1)	1×4=4 మా
	ఛందస్సు	(2–1)	1×4=4 మా

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-2

కోర్సు-2 : ఆధునిక కవితా పరిచయం

యూనిట్ల సంఖ్య: 5 పీరియడ్ల సంఖ్య: 75

❖ **అభ్యసన ఫలితాలు:-**

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. వర్తమాన తెలుగు జీవనంలో ఒక భాగమైన ఆధునిక తెలుగుకవిత్వం తీరు తెన్నులను, సౌందర్యాన్ని విశ్లేషణాత్మకంగా అవగాహన చేసుకోగలరు.

2. దేశభక్తి, సామాజిక అసమానతల నివారణ,మానవతావాదం మొదలైన భావాలను పెంపొందించుకోగలరు.

3. సున్నితమైన భాషను ఉపయోగిస్తూ, ఉత్తమభావాలను ప్రకటించే సామర్థ్యాన్ని అందుకోగలరు.

4. వ్యవహారికభాషలో సామాజిక చైతన్యాన్ని ప్రోత్సహించే కవిత్వం రాయడానికి ప్రేరణ పొందగలరు.

5. ఆధునికకాలంలో కవితల్లోను, వస్తువులోను, భావంలోను వచ్చిన మార్పులను గ్రహించగలరు. శిల్పంలో స్వేచ్ఛను, భావప్రకటనలో వచ్చిన మార్పులను, సమాజానికి భాష దగ్గర కావడాన్ని అవగాహన చేసుకోగలరు.

పాఠ్య ప్రణాళిక

యూనిట్–I :

జన్మభూమి (గేయం) – రాయప్రోలు సుబ్బారావు

యూనిట్–II :

వేమన నీతి – వేమన పద్యాలు
(1వ పద్యం నుండి 30వ పద్యం వరకు) – 30 పద్యాలు

యూనిట్–III :

గబ్బిలం – గుర్రం జాషువా
గబ్బిలం–మొదటిభాగం–మొదటిపద్యం–"చిక్కిన కాసుచే....
..... 40వ పద్యం 'నీయౌదార్యగుణంబు...పుణ్యాంగనా!" వరకు

యూనిట్–IV:

భిక్షువర్షీయసీ (కవితా ఖండిక) – శ్రీరంగం శ్రీనివాసరావు (మహాప్రస్థానం నుండి)

యూనిట్–V:

అమృతం కురిసిన రాత్రి (కవితా ఖండిక) – దేవరకొండ బాలగంగాధర తిలక్
('అమృతం కురిసిన రాత్రి' లోని 82వ పుట నుండి 83వ పుట వరకు)
ప్రచురణ. విశాలాంధ్ర పబ్లికేషన్స్, హైదరాబాద్

ఆధార గ్రంథాలు:

1. జన్మభూమి (గేయం) – రాయప్రోలు సుబ్బారావు
2. వేమన నీతి – వేమన పద్యాలు – రెడ్డి సేవాసమితి వారి ప్రచురణ
3. గబ్బిలం (మొదటి భాగం) – గుర్రం జాషువా
4. మహాప్రస్థానం – శ్రీరంగం శ్రీనివాసరావు
5. అమృతం కురిసిన రాత్రి – దేవరకొండ బాలగంగాధర తిలక్

❖ ఆయా పాఠ్యాంశాల అభ్యాసంలో ముఖ్యమైన ప్రతిపదార్థ పద్యాలను, కవితలను, కంఠస్థపద్యాలను సూచిస్తూ; సందర్భవాక్యాలు, సంగ్రహ సమాధానప్రశ్నలు, వ్యాసరూప సమాధానప్రశ్నలు ఇవ్వాలి.

సూచించబడిన సహపాఠ్య కార్యక్రమాలు:

1. ఒక కవి/రచయిత/ విమర్శకుడితో ఉపన్యాసం ఇప్పించడం
2. పాఠ్యప్రణాళిక లోని కవితల మీద విద్యార్థులచేత సమీక్షలు/ సెమినార్/వ్యాసాలు రాయించడం
3. ఆధునిక కవియొక్క కవిత్వాన్ని విశ్లేషించడం –కేస్‌స్టడీ నిర్వహణ
4. తరగతిగదిలోనే ఒక శీర్షిక ఇచ్చి, విద్యార్థులతో సొంతంగా కవితలు రాయించడం
5. కింది కవితలను విద్యార్థులచేత పరిశీలింపజేయడం
   - అ. ముత్యాల సరాలు – గురజాడ అప్పారావు
   - ఆ. నవకవిత – శ్రీశ్రీ (మహాప్రస్థానం నుండి)
   - ఇ. సుషుప్తి – అజంతా
   - ఈ. రహస్తంత్రి – వేగుంట మోహన్‌ప్రసాద్ (మో)
   - ఉ. గోసంగి – ఎండ్లూరి సుధాకర్
   - ఊ. గురిచూసి పాడేపాట – ఓల్గా
6. చారిత్రిక, సాంస్కృతికాంశాలకు సంబంధించిన పర్యాటక ప్రదేశాలను సందర్శించడం.

ప్రశ్నాపత్ర నమూనా

1. ప్రతిపదార్థ పద్యాలు	(2-1)	1 × 8 = 8 మా
2. కంఠస్థపద్యాలు	(2-1)	1 × 3 = 3 మా
3. కవితలకు భావం రాయడం	(2-1)	1 × 3 = 3 మా
4. సందర్భవాక్యాలు	(5-3)	3 × 3 = 9 మా
5. సంగ్రహ సమాధాన ప్రశ్నలు	(6-4)	4 × 3 = 12 మా
6. వ్యాసరూప సమాధాన ప్రశ్నలు		5 × 8 = 40 మా

వ్యాసప్రశ్నలు ప్రతియూనిట్ నుండి రెండు ప్రశ్నలను ఇస్తూ, అంతర్గత ఛాయిస్‌తో ఒకదానికి సమాధానం రాయమనాలి. మొత్తం ఐదు యూనిట్ల నుండి ఐదు ప్రశ్నలకు సమాధానాలు రాయాలి.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-3

కోర్సు-3 : ప్రాచీన తెలుగు సాహిత్య చరిత్ర

యూనిట్ల సంఖ్య:5 పీరియడ్ల సంఖ్య:75

❖ **అభ్యసన ఫలితాలు:-**

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. తెలుగువారి చరిత్రలో భాగమైన తెలుగు సాహిత్యచరిత్ర, చిరకాలంగా తెలుగువారు ఆచరిస్తున్న సంస్కృతిలో ఎలా అంతర్భాగమైందో తెలుసుకోగలరు.
2. తెలుగుసాహిత్య క్రమపరిణామాన్ని గురించిన స్థూలమైన అవగాహనను పొందుతారు.
3. తెలుగులో ఉన్న రెండు సాహిత్య సంప్రదాయాలైన మౌఖిక, లిఖిత రూపాలను గుర్తిస్తారు. వివిధ సాహిత్య ప్రక్రియల వికాసాన్ని అవగాహన చేసుకుంటారు.
4. కవులు తమ సృజనాత్మకత ద్వారా సృష్టించిన సాహిత్యాన్ని బోధించడం ద్వారా విద్యార్థులు సాహిత్యం పట్ల సంవేదనను, అభిరుచిని, విమర్శనాత్మక విశ్లేషణాశక్తిని పొందగలరు.
5. ఆయా శాస్త్రాలో కృషిచేసే వారికి ఆ రంగంలో విషయజ్ఞానం ఎలా అవసరమో తెలుసుకోగలరు. తెలుగుసాహిత్యంలో కృషిచేసే వారికి తెలుగులో పాండిత్యం అవసరమని గ్రహిస్తారు.
6. కవులు, రచయితలు వాడిన సృజనాత్మక భాషను పరిచయం చేయడం ద్వారా విద్యార్థులు తమ కళావసరాలు తీర్చుకోగలరు.

పాఠ్య ప్రణాళిక

యూనిట్–I : ప్రాఙ్నన్నయ యుగం

1. వాఙ్మయం–సారస్వతం–సాహిత్యం, సాహిత్య అధ్యయన పద్ధతులు
2. సాహిత్య చరిత్ర–యుగ విభజన, 'చరిత్ర–సంస్కృతి–సమాజం–సాహిత్యం'–సంబంధాలు
3. ప్రాఙ్నన్నయ యుగం – భాషా సాహిత్యాలు

యూనిట్–II : అనువాదయుగం

4. నన్నయ మహాభారత రచన; నన్నయ కవితారీతులు; నన్నయ భారతాంధ్రీకరణ పద్ధతి
5. శివకవియుగంలోని దేశికవిత్వోద్యమం–నన్నెచోడుడు, పండితారాధ్యుడు, పాల్కురికి సోమనాథుడు
6. మార్గ–దేశి భేదాలు; దేశి కవిత్వోద్యమం; పండితత్రయం

యూనిట్–III: కావ్య–పురాణయుగం

7. తిక్కన మహాభారత రచన; తిక్కన కవితాశిల్పం
8. ఎఱ్ఱన భారతారణ్యపర్వ శేష రచన; ఎఱ్ఱన సూక్తివైచిత్రి
9. నాచన సోమన–ఉత్తర హరివంశం; శ్రీనాథుని కృతులు–సమీక్ష;
   పోతన–భాగవత పురాణ రచన

యూనిట్–IV: ప్రబంధయుగం

10. ప్రబంధ లక్షణాలు; శ్రీకృష్ణదేవరాయలు, అష్టదిగ్గజ కవులు–కృతులు–సమీక్ష
11. ఆముక్తమాల్యద–ప్రబంధలక్షణాలు–సమన్వయం
12. మనుచరిత్ర, వసుచరిత్ర – ప్రబంధ లక్షణాలు–సమన్వయం

యూనిట్–V: దక్షిణాంధ్రయుగం

13. పదసాహిత్యం, శతకసాహిత్యం, వచనసాహిత్యం, యక్షగానాలు
14. దక్షిణాంధ్రయుగ వైశిష్ట్యం; రఘునాథనాయకుడు–కృతులు–సమీక్ష
15. దక్షిణాంధ్రయుగ ప్రసిద్ధ కవులు–కృతులు–సమీక్ష

ఆధార గ్రంథాలు:

1. ఆంధ్రవాఙ్మయ చరిత్రము – ఆచార్య దివాకర్ల వేంకటావధాని
2. సమగ్రాంధ్ర సాహిత్యం – ఆరుద్ర
3. తెలుగు సాహిత్య సమీక్ష(మొదటి సంపుటం) – ఆచార్య జి. నాగయ్య
4. ఆంధ్రసాహిత్య చరిత్ర – ఆచార్య పింగళి లక్ష్మీకాంతం
5. చారిత్రక సామాజిక నేపథ్యంలో తెలుగు సాహిత్య చరిత్ర – ఆచార్య ముదిగంటి సుజాతారెడ్డి

సూచించబడిన సహపాఠ్య కార్యక్రమాలు

1. వివిధ సాహిత్యచరిత్ర గ్రంథాల ఆధారంగా విద్యార్థులచేత పాఠ్యప్రాణాళికపై సమీక్షా వ్యాసాలు రాయించడం.
2. తరగతిగదిలో ఒక్కొక్క విద్యార్థికి ప్రత్యేకాంశంగా ఒక ప్రత్యేక కవిని/రచయితను అంశంగా ఇచ్చి, అందులో ప్రాజెక్టు తయారు చేయించడం.
3. వివిధ కవుల / కావ్యాల కావ్యగుణాలను; రచనల్లోని సామాన్యాంశాలను తులనాత్మకపద్ధతిలో చర్చించడం. ఉదా॥ ఎఱ్ఱన–నాచన సోమనల కవితా తారతమ్య పరిశీలన.
4. సాహిత్య యుగ విభజనను చారిత్రక దృష్టితో పరిశీలింపజేయడం.
5. ఆయా కాలాల్లోని సామాజిక పరిస్థితుల ఆధారంగా కావ్యవస్తువుల్లో చోటుచేసుకొన్న మార్పులను నమోదు చేయించడం.
6. చారిత్రిక, సాంస్కృతికాంశాలకు సంబంధించిన పర్యాటక ప్రదేశాలను సందర్శించడం.

❖ ప్రశ్నాపత్ర నమూనా ❖

అ–విభాగము

సంక్షిప్త సమాధాన ప్రశ్నలు – ప్రతి యూనిట్ నుంచి తప్పనిసరిగా ఒక ప్రశ్న ఇస్తూ, మొత్తం ఎనిమిది ప్రశ్నలు ఇచ్చి, ఐదింటికి సమాధానం రాయమనాలి. 5×5=25 మా.

ఆ–విభాగము

వ్యాసరూప సమాధాన ప్రశ్నలు–ప్రతి యూనిట్ నుంచి తప్పనిసరిగా రెండు ప్రశ్నలు ఇచ్చి, ఒక ప్రశ్నకు సమాధానం రాయమనాలి. మొత్తం ప్రశ్నలు 5. 5×10=50 మా.

❖ మాదిరి ప్రశ్నాపత్రం ❖

అ-విభాగము

క్రింది వానిలో ఐదింటికి సంక్షిప్త సమాధానాలు రాయండి.
ప్రతి సమాధానానికి 5 మార్కులు. 5×5=25 మా.

1. సాహిత్యచరిత్ర-యుగ విభజన
2. ఆదికవి నన్నయ
3. నాచన సోమన
4. బమ్మెరపోతన
5. ప్రబంధం
6. వసుచరిత్ర
7. శతకం
8. విజయరాఘవ నాయకుడు.

ఆ-విభాగము

క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి.
ప్రతి సమాధానానికి 10 మార్కులు. 5×10=50 మా.

9. 'చరిత్ర-సంస్కృతి-సమాజం సాహిత్యం'- వీటి మధ్య సన్నిహిత సంబంధాన్ని వివరించండి.

(లేదా)

ప్రాఙ్నన్నయ యుగ భాషా సాహిత్యాలను విశ్లేషించండి.

10. నన్నయ భారతాంధ్రీకరణ పద్ధతిని వివరించండి.

(లేదా)

శివకవి యుగ విశిష్ట లక్షణాలను గూర్చి రాయండి.

11. తిక్కన కవితాశిల్పాన్ని విమర్శనాత్మకంగా రాయండి.

(లేదా)

శ్రీనాథుని కృతులను గూర్చి సమీక్షించండి.

12. ప్రబంధ లక్షణాలను వివరించి, 'ఆముక్తమాల్యద' ప్రబంధంలో అన్వయించండి.

(లేదా)

అష్టదిగ్గజకవులను గూర్చి తెలిపి, వారి కృతులను సమీక్షించండి.

13. దక్షిణాంధ్రయుగ విశిష్టతను తెలియజేయండి

(లేదా)

పదసాహిత్యాన్ని నిర్వచించి, వివరిస్తూ, సంకీర్తన లక్షణాలను రాయండి.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-4

కోర్సు-4 : ఆధునిక తెలుగు సాహిత్య చరిత్ర

యూనిట్ల సంఖ్య: 5 పీరియడ్ల సంఖ్య: 75

❖ **అభ్యసన ఫలితాలు:-**

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. ఆంగ్లభాష ప్రభావం వల్ల వచ్చిన పరిణామాల ఫలితంగా ఏర్పడిన ఆధునిక తెలుగుసాహిత్య స్వరూప స్వభావాలను తెలుసుకోగలరు.
2. సామాజిక మార్పులు సాహిత్యంలో ఎలా ప్రతిబింబించిందీ గ్రహిస్తారు.
3. ఆధునిక సాహితీ ప్రక్రియలను అవగాహన చేసుకోవడంద్వారా, సమాజంపై సాహిత్య ప్రభావాన్ని తెలుసుకోగలరు.
4. మార్క్సిజం కారణంగా ప్రపంచవ్యాప్తంగా వచ్చిన భావవిప్లవాన్ని అవగాహన చేసుకోగలరు.
5. సమకాలీన ఆధునిక కవితాధోరణులను అవగాహన చేసుకోవడం ద్వారా, అస్తిత్వవాదాలపట్ల తమదైన వైఖరిని ఏర్పరచుకోగలరు.

పాఠ్య ప్రణాళిక

యూనిట్–I: ఆధునిక కవిత్వం–ఆవిర్భావ వికాసాలు

1. ఆధునిక కవిత్వలక్షణాలు; ఆధునిక కవిత్వంలో ఉద్యమాలు, వాదాలు, ధోరణులు
2. ఆధునిక కవిత్వ ప్రక్రియలు
3. ఆధునిక తెలుగు సాహిత్య దీపధారులు–వీరేశలింగం, గిడుగు రామమూర్తి, గురజాడ అప్పారావు

యూనిట్–II: భావకవిత్వం

4. భావకవిత్వం–నిర్వచనం, లక్షణాలు, భావకవితా శాఖలు
5. భావకవులకు మార్గదర్శి–రాయప్రోలు సుబ్బారావు; భావకవితాపితామహుడు దేవులపల్లి కృష్ణశాస్త్రి
6. ప్రసిద్ధ భావకవులు, కృతులు–సమీక్ష.

యూనిట్–III: అభ్యుదయ, విప్లవ కవిత్వాలు

7. అభ్యుదయ కవిత్వం– నిర్వచనం, అంతర్జాతీయ పరిణామాలు, నేపథ్యం;మార్క్సిజం ప్రభావం.
8. శ్రీశ్రీ–మహాప్రస్థానం; ప్రసిద్ధ అభ్యుదయ కవులు–కృతులు–సమీక్ష.
9. తెలంగాణా పోరాట కవిత్వం, విప్లవకవిత్వం

యూనిట్–IV: వచన కవిత్వం

10. వచన కవిత్వం–ఆవిర్భావ, వికాసాలు
11. నవ్యసంప్రదాయ కవిత్వం–స్వరూప స్వభావాలు, చరిత్ర
12. నయాగరా, చేతనావర్త, అనుభూతి కవులు–కృతులు–సమీక్ష

యూనిట్–V: సమకాలీన ఆధుని కవితా ధోరణులు

13. స్త్రీవాదకవిత్వం–నేపథ్యం, ప్రధానాంశాలు, వస్తువైవిధ్యం
14. ప్రసిద్ధ స్త్రీవాద కవయిత్రులు–రచనలు
15. దళితవాదం, మైనార్టీవాదం, ప్రాంతీయవాదం

ఆధార గ్రంథాలు:

1. తెలుగు సాహిత్య సమీక్ష (రెండవ సంపుటం) – ఆచార్య జి. నాగయ్య
2. తెలుగులో కవిత్వోద్యమాలు – సం. ఆవుల మంజులత
3. ఆధునిక తెలుగు సాహిత్యంలో విభిన్న ధోరణులు – సం. ఆచార్య కె.కె. రంగనాథాచార్యులు
4. చారిత్రక సామాజిక నేపథ్యంలో తెలుగు సాహిత్య చరిత్ర – ఆచార్య ముదిగంటి సుజాతారెడ్డి
5. తెలుగు సాహిత్య చరిత్ర – ద్వా.నా.శాస్త్రి

సూచించబడిన సహపాఠ్య కార్యక్రమాలు:

1. ఆధునిక కావ్యాలకు ఆంగ్ల మాతృకలను, ఆధునిక తెలుగు సాహిత్యాన్ని ప్రభావితం చేసిన రచనలను విద్యార్థులచేత పరిశీలింపజేయడం.
2. తరగతిలోని విద్యార్థులకు ప్రత్యేకంగా ఒక 'రచయితను' అంశంగా ఇచ్చి, వ్యక్తిగత ప్రాజెక్టులు తయారు చేయించడం.
3. 'ప్రసిద్ధ రచనలు-రచయితలు','కావ్యాలు-కవులు' మొదలైన అంశాల్లో క్విజ్‌పోటీలు నిర్వహించడం.
4. అంతర్జాతీయ పరిణామాల ఆధారంగా వచ్చిన 'మార్క్సిజం' పై బృందచర్చ నిర్వహించడం
5. తెలంగాణా సాయుధ పోరాట నేపథ్యాన్ని చారిత్రికకోణంలో పరిశీలింపజేయడం
6. సమకాలీన అస్తిత్వవాద ఉద్యమాలను ప్రత్యేకంగా పరిశీలింపజేయడం
7. చారిత్రిక, సాంస్కృతికాంశాలకు సంబంధించిన పర్యాటక ప్రదేశాలను సందర్శించడం.

❖ ప్రశ్నాపత్ర నమూనా ❖

అ-విభాగము

సంక్షిప్త సమాధాన ప్రశ్నలు – ప్రతి యూనిట్ నుంచి తప్పనిసరిగా ఒక ప్రశ్న ఇస్తూ, మొత్తం ఎనిమిది ప్రశ్నలు ఇచ్చి, ఐదింటికి సమాధానం రాయమనాలి. 5×5=25 మా.

ఆ-విభాగము

వ్యాసరూప సమాధాన ప్రశ్నలు-ప్రతి యూనిట్ నుంచి తప్పనిసరిగా రెండు ప్రశ్నలు ఇచ్చి ఒక ప్రశ్నకు సమాధానం రాయమనాలి. మొత్తం ప్రశ్నలు 5. 5×10=50 మా.

❖ మాదిరి ప్రశ్నాపత్రం ❖

అ-విభాగము

క్రింది వానిలో ఐదింటికి సంక్షిప్త సమాధానాలు రాయండి.

ప్రతి సమాధానానికి 5 మార్కులు. 5×5=25 మా.

1. ఆధునిక కవిత్వం-లక్షణాలు
2. రాయప్రోలు సుబ్బారావు
3. విప్లవకవిత్వం
4. అనుభూతి కవులు
5. స్త్రీవాద కవిత్వం
6. దళితవాద కవిత్వం
7. మహాప్రస్థానం
8. అధివాస్తవికతా వాదం

ఆ-విభాగము

క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి.

ప్రతి సమాధానానికి 10 మార్కులు. 5×10=50 మా

9. ఆధునిక కవిత్వంలోని వాదాలను గూర్చి రాయండి.

(లేదా)

ఆధునిక కవిత్వ ప్రక్రియలను గూర్చి వివరించండి.

10. అడుగుజాడ గురజాడది - విమర్శనాత్మకంగా రాయండి.

(లేదా)

భావకవిత్వాన్ని నిర్వచించి, లక్షణాలు రాసి, భావకవితా శాఖలను తెలియజేయండి.

11. అభ్యుదయ కవిత్వం నేపథ్యం, నిర్వచనం రాస్తూ, దానిపై మార్క్సిజం ప్రభావాన్ని విశ్లేషించండి.

(లేదా)

తెలంగాణా పోరాట కవిత్వాన్ని గూర్చి వివరించండి.

12. నవ్య సంప్రదాయ కవిత్వ స్వరూప స్వభావాలను వివరించండి.

(లేదా)

వచనకవిత్వ ఆవిర్భావ వికాసాలను తెలపండి.

13. స్త్రీవాద కవిత్వ నేపథ్యాన్ని, ప్రధానాంశాలను సమీక్షించండి.

(లేదా)

సమకాలీన ఆధునిక తెలుగుకవితా ధోరణులను వివరించండి.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-4

కోర్సు-5 : తెలుగు సాహిత్య విమర్శ

యూనిట్ల సంఖ్య: 5 పీరియడ్ల సంఖ్య: 75

❖ **అభ్యసన ఫలితాలు:-**

ఈ కోర్సు విజయవంతంగా ముగించాక, విద్యార్థులు క్రింది అభ్యసన ఫలితాలను పొందగలరు.

1. కళలు, సాహిత్యం ఎలా పుడుతున్నాయో గుర్తిస్తూ, కళల్లోని రకాలను, కవిత్వం యొక్క ప్రత్యేకత ను గ్రహిస్తారు.
2. కావ్య స్వరూపాన్ని; ప్రాచీన, ఆధునిక కవుల అభిప్రాయాలను అవగాహన చేసుకుంటారు.
3. కావ్యహేతువులను, కావ్య ప్రయోజనాలను, కావ్యభేదాలను గుర్తించడం ద్వారా సాహిత్యం ఎందుకోసమో విశ్లేషించగలుగుతారు.
4. రససూత్రాన్ని అవగాహన చేసుకోవడం ద్వారా కళాభిరుచిని పొందుతారు.
5. ధ్వని స్వరూపాన్ని గ్రహించడం ద్వారా కావ్యానందాన్ని ఆస్వాదిస్తారు.
6. కావ్యలక్షణాలను సంప్రదాయ పద్ధతిలో విమర్శనాత్మకంగా అధ్యయనం చేయడం ద్వారా సంప్రదాయసాహిత్యంలోని విశిష్టతను గ్రహిస్తారు.

పాఠ్య ప్రణాళిక

యూనిట్–I: 'కళలు' – కావ్యము / కవిత్వము

1. కళ–ఉత్పత్తి–భిన్న వాదాలు; దృశ్య–శ్రవ్యకళలు, లలితకళలు; లలితకళల్లో కవిత్వస్థానం
2. కావ్యం–కవి; కావ్య నిర్వచనాలు–ప్రాచ్యులు, పాశ్చాత్యులు
3. కావ్యం/కవిత్వం–ప్రాచీన, ఆధునిక తెలుగు కవుల అభిప్రాయాలు

యూనిట్–II: కావ్యహేతువులు, కావ్యప్రయోజనాలు, కావ్యభేదాలు

4. కావ్యహేతువులు – ప్రతిభ, వ్యుత్పత్తి–అభ్యాసము–సమగ్ర విశ్లేషణ
5. కావ్యప్రయోజనాలు–ప్రాచీన, ఆధునిక దృక్పథాలు
6. కావ్యభేదాలు

యూనిట్–III: రసతత్వం

7. రససూత్రము–విభావ, అనుభావ, సాత్విక, సంచారీ భావాలు
8. రసోత్పత్తి వాదాలు (రసనిష్ఠ)–భట్టలోల్లటుడు, భట్టనాయకుడు, శ్రీశంకుకుడు, అభినవగుప్తుడు
9. రససంఖ్య; రస సమీకరణ వాదాలు/ రసైకత్వం

యూనిట్–IV: ధ్వని

10. ధ్వని : ధ్వని స్వరూపం, ధ్వని నిర్వచనం, ధ్వని సిద్ధాంతం, ధ్వనికావ్య లక్షణం
11. అభిధ, లక్షణ, వ్యంజన
12. ధ్వని భేదాలు

యూనిట్–V: సంప్రదాయసాహిత్యం–విమర్శాపద్ధతులు

13. సాహిత్య విమర్శ–మౌలికాంశాలు, ప్రయోజనాలు
14. సాహిత్య విమర్శ– సంప్రదాయ విమర్శాపద్ధతులు
15. విమర్శా వ్యాసం – (తిక్కన తెరువులు) ఆచార్య జి.వి.సుబ్రహ్మణ్యం
    (చూ. సాహిత్య చరిత్రలో చర్చనీయాంశాలు – పుట 55 నుండి 60 వరకు)

ఆధారగ్రంథాలు :

1. సాహిత్య సోపానాలు– ఆచార్య దివాకర్ల వేంకటావధాని
2. సాహిత్య శిల్ప సమీక్ష – ఆచార్య పింగళి లక్ష్మీకాంతం
3. కావ్యాలోకము–నండూరి రామకృష్ణమాచార్య
4. ధ్వన్యాలోకము (లోచన సహితం) – ఆచార్య పుల్లెల శ్రీరామచంద్రుడు
5. రసోల్లాసము – ఆచార్య జి.వి.సుబ్రహ్మణ్యం
6. భారత ధ్వని దర్శనము – ఆచార్య శలాక రఘునాథ శర్మ

సూచించబడిన సహపాఠ్య కార్యక్రమాలు

1. స్థానిక విమర్శకుల చేత ప్రసిద్ధ కావ్యాలపై ప్రసంగవ్యాసాలు ఇప్పించడం.
2. ప్రసిద్ధకావ్యాల పైన వచ్చిన విమర్శాగ్రంథాలలోని వ్యాసాలను విద్యార్థులచేత చదివించి, సొంత మాటల్లో రాయించడం.
3. ఆధునిక కవుల ప్రసంగాలను, ఆధునిక సాంకేతిక పరిజ్ఞానం (ఆడియో విజువల్) సాయంతో విద్యార్థులకు ప్రదర్శించడం.
4. ప్రాచీన సంస్కృత ఆలంకారిక గ్రంథాలను పరిశీలింపజేయడం.
5. భారతీయాలంకారిక శాస్త్ర కావ్యలక్షణాలను ప్రాచీన కావ్యాల్లో సమన్వయించడం.
6. చారిత్రిక, సాంస్కృతికాంశాలకు సంబంధించిన పర్యాటక ప్రదేశాలను సందర్శించడం.

❖ ప్రశ్నాపత్ర నమూనా ❖

అ–విభాగము

సంక్షిప్త సమాధాన ప్రశ్నలు – ప్రతి యూనిట్ నుంచి తప్పనిసరిగా ఒక ప్రశ్న ఇస్తూ, మొత్తం ఎనిమిది ప్రశ్నలు ఇచ్చి, ఐదింటికి సమాధానం రాయమనాలి. 5×5=25 మా.

ఆ–విభాగము

వ్యాసరూప సమాధాన ప్రశ్నలు–ప్రతి యూనిట్ నుంచి తప్పనిసరిగా రెండు ప్రశ్నలు ఇచ్చి ఒక ప్రశ్నకు సమాధానం రాయమనాలి. మొత్తం ప్రశ్నలు 5. 5×10=50 మా.

❖ మాదిరి ప్రశ్నాపత్రం ❖

అ-విభాగము

క్రింది వానిలో ఐదింటికి సంక్షిప్త సమాధానాలు రాయండి.

ప్రతి సమాధానానికి 5 మార్కులు. 5×5=25 మా.

1. లలితకళలు
2. కవిత్వం
3. ప్రతిభ
4. కావ్యభేదాలు
5. రససంఖ్య
6. ఉత్పత్తివాదం (భట్ట లోల్లటుడు)
7. వ్యంజన
8. సంప్రదాయ విమర్శ

ఆ-విభాగము

క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి.

ప్రతి సమాధానానికి 10 మార్కులు. 5×10=50 మా.

9. కళను నిర్వచించి, లలితకళల్లో కవిత్వ స్థానాన్ని సమీక్షించండి.

(లేదా)

కావ్యనిర్వచనంలో ప్రాచీన, ఆధునిక తెలుగు కవుల అభిప్రాయాలను రాయండి.

10. కావ్యహేతువులను గురించి విశ్లేషణాత్మక వ్యాసం రాయండి.

(లేదా)

కావ్య ప్రయోజనాలను విశ్లేషించండి.

11. రససూత్రాన్ని గూర్చి సమగ్రంగా చర్చించండి.

(లేదా)

రసోత్పత్తి వాదాలను గూర్చి భారతీయ ఆలంకారికుల అభిప్రాయాలు రాయండి.

12. ధ్వని సిద్ధాంతాన్ని నిర్వచించి, లక్షణాలు వివరించి, ధ్వని కావ్య లక్షణం రాయండి.

(లేదా)

ధ్వని భేదాలను సమగ్రంగా చర్చించండి.

13. సంప్రదాయ విమర్శా పద్ధతులను గూర్చి వివరించండి.

(లేదా)

'తిక్కన తెరువులు' వ్యాసంలో రచయిత అభిప్రాయాలను సమీక్షించండి.

Andhra Pradesh State Council of Higher Education

(A Statutory body of the Government of Andhra Pradesh)

Revised UG Syllabus under CBCS

(Implemented from Academic year 2020-21)

Progamme: Three year B.A.,

ఆంధ్రప్రదేశ్ రాష్ట్ర ఉన్నతవిద్యామండలి

బి.ఏ తదితర ప్రోగ్రాములు (మూడు సంవత్సరాల వ్యవధి)

సి.బి.సి.ఎస్. పద్ధతిలో సవరించబడిన పాఠ్యప్రణాళిక

2020-21 విద్యా సంవత్సరం నుంచి అమలు

ప్రధాన విషయం: ప్రత్యేక తెలుగు (Special Telugu)

ఐదవ సెమిస్టర్‌కు సంబంధించిన నైపుణ్యాభివృద్ధి కోర్సులు (2022-23 విద్యా సంవత్సరం నుంచి)

అభ్యసఫలితాలు, ఆధారగ్రంథాలు/వ్యాసాలు, సహపాఠ్యకార్యక్రమాలు, ప్రశ్నాపత్ర నిర్మాణం, మాదిరిప్రశ్నాపత్రంతో కూడిన

పాఠ్యప్రణాళిక

ఐదవ సెమిస్టర్-ఐచ్ఛికాంశాలు

(విద్యార్థులు క్రింద సూచించిన నాలుగు జతల్లో ఒక జతను పాఠ్యప్రణాళికగా ఎంపిక చేసుకోవలసి ఉంటుంది)

యూనివర్శిటీ కోడ్	కోర్సు సంఖ్య 6 & 7	కోర్సు పేరు	పీరియడ్స్ వారానికి	క్రెడిట్లు	మార్కులు	
					అంతర్గత మార్కులు **I.A-20** Field Work-5	Semester End Exam
	6A	**తెలుగుభాషాస్వరూపం**	5	4	25	75
	7A	**తెలుగు రచనారీతులు**	5	4	25	75
			(లేదా)			
	6B	**లలితకళలు**	5	4	25	75
	7B	**జానపదకళలు**	5	4	25	75
			(లేదా)			
	6C	**మాధ్యమాలకు రచన**	5	4	25	75
	7C	**అనువాదం**	5	4	25	75
			(లేదా)			
	6D	**తెలుగు-బోధన పద్ధతులు**	5	4	25	75
	7D	**వాచికాభివృద్ధి**	5	4	25	75

ఐదోసెమిస్టర్‌లో స్పెషల్ తెలుగుకు సంబంధించి, పైన పట్టికలో సూచించిన నాలుగు జతల పాఠ్యాంశాల్లో (6&7), విద్యార్థులు ఏదో ఒక జతను ఎంపిక చేసుకొని చదవవలసి వుంటుంది. అవి-6A మరియు 7A / 6B మరియు 7B / 6C మరియు 7C / 6D మరియు 7D - వీటిలో ఏదో ఒక జత ఎంపిక చేసుకోవాలి. ఈ జతలోని పాఠ్యాంశాలు విడగొట్టకుండా, కలిపే ఎంచుకోవాల్సి ఉంటుంది. ABCD అనే శీర్షిక విభజనకోసం చేసిందే కానీ, ప్రాధాన్యతాక్రమంలో చేసింది కాదు.

ఈ నైపుణ్యాభివృద్ధి కోర్సు (SECs) లకు సంబంధించిన ప్రధానలక్ష్యాల్లో ఒకటి - 'ఆ ప్రత్యేకాంశానికి సంబంధించిన నైపుణ్యాలను అందించడం.' ఈ పాఠ్యప్రణాళిక కూడా పాక్షికంగా నైపుణ్యాభివృద్ధి కేంద్రంగా తయారుచేయబడింది. కాబట్టి, అధ్యాపకులు పాఠ్యప్రణాళికలో ఉద్దేశించిన నైపుణ్యశిక్షణను క్షేత్రస్థాయిలో విద్యార్థులకు అందించే దృష్టితో బోధన చేయాల్సి ఉంటుంది.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5

6-A తెలుగు భాషా స్వరూపం

పీరియడ్లు : 75 క్రెడిట్లు : 4 మొత్తం మార్కులు : 75

◆ **అభ్యసన ఫలితాలు**

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. తెలుగు వ్యాకరణ ప్రయోజనాలు
2. తెలుగు వ్యాకరణపరిభాష పట్ల అవగాహన
3. ప్రాచీన, ఆధునిక తెలుగులోని సంధులను,సమాసాలను తెలుసుకోవడం ద్వారా రచనానైపుణ్యాల అభివృద్ధి
4. క్రియావిజ్ఞానాన్ని అవగాహన చేసుకోవడం ద్వారా తెలుగు క్రియారూపాల వైవిధ్యాన్ని గమనించడం
5. వాక్యవిజ్ఞానం ద్వారా మహాకవుల, రచయితల వాక్యనిర్మాణ రీతులను తెలుసుకోవడం.

◆ **పాఠ్యప్రణాళిక** (మొత్తం పీరియడ్లు 75 ; బోధన: 60; శిక్షణ/ ఇతరాలు : 15)

యూనిట్: I తెలుగు వ్యాకరణ పరిచయం 15 పీరియడ్లు

వ్యాకరణం– పరిచయం, ప్రయోజనాలు

వ్యాకరణ సంజ్ఞలు: అచ్చు, హల్లు, తత్సమము, తద్భవము, దేశ్యము, ఆచ్చికము, గ్రామ్యము

అన్యదేశ్యం, వర్ణం–సవర్ణం, పదాంశం–సపదాంశం.

యూనిట్–II సంధి, సమాసం 15 పీరియడ్లు

తెలుగులో 'సంధి' స్వరూపం: ఆగమ, ఆదేశ, లోప సంధులు (బాలవ్యాకరణం సంధిపరిచ్ఛేదం)

ఆధునికభాషలో సంధి స్వరూపం

సమాసం: నిర్వచనం, సమాసం–స్వరూపం : సాంస్కృతికం, ఆచ్చికం, మిశ్రం

సమాసం–రకాలు: అవ్యయీభావ, తత్పురుష, కర్మధారయ, బహువ్రీహి, ద్వంద్వం (బాలవ్యాకరణం–సమాస పరిచ్ఛేదం);

ఆధునిక భాషలో సమాస స్వరూపం

యూనిట్–III క్రియావిజ్ఞానం 10 పీరియడ్లు

తెలుగు'క్రియా'రూపాలు–వైవిధ్యం; సకర్మక, అకర్మక, ప్రేరణార్థక క్రియలు;
సమాపక, అసమాపక క్రియలు,సంయుక్త క్రియలు;

ధాతువులకు క్రియారూపాలు నిర్మించడం: 'పాడు, పంచు, చేయు, అను, ఉండు'

యూనిట్: IV వాక్య విజ్ఞానం 10 పీరియడ్లు

వాక్యం–కారకం: నిర్వచనాలు; తెలుగు వాక్యస్వరూపం: సామాన్య, సంశ్లిష్ట, సంయుక్తవాక్యాలు;

వాక్య భేదాలు: నిశ్చయార్థక, ప్రశ్నార్థక, విధ్యర్థక, నిర్బంధార్థక, నిషేధార్థక, అనుమత్యర్థక,
సంభావనార్థక, సందేహార్థక, ప్రేరణార్థక, ప్రార్థనార్థక, ఆశీర్యర్థక క్రియలు.

యూనిట్-V వాక్యప్రయోగ రీతులు: ప్రాచీన, ఆధునిక ప్రయోగాలు 10 పీరియడ్లు

సమాన సన్నివేశంలో వివిధ కవుల వాక్యప్రయోగశైలులు : భేదసామ్యాలు

I. ప్రాత:కాల, సంధ్యావర్ణనలు: ధూర్జటి-తిలక్

ధూర్జటి: శ్రీకాళహస్తిమాహాత్మ్యము: ద్వితీయాశ్వాసం

ప్రాత:కాల వర్ణన : నిర్నిద్ర పూర్వాద్రి .... అరుణ శోణాంశురాజి (138వ పద్యం)

సంధ్యావర్ణన : ప్రాగ్వధూమణి .... భానుబింబంబు గ్రుంకె. (128వ పద్యం)

తిలక్:'అమృతం కురిసిన రాత్రి'

ప్రాత:కాలవర్ణన: 'ప్రాత:కాలం' (4,5 పేజీలు)

సంధ్యావర్ణన : 'సంధ్య' (6వ పేజీ)

II. సామాన్యుని వర్ణన: విశ్వనాథ- రావిశాస్త్రి

విశ్వనాథ సత్యనారాయణ - పులుల సత్యాగ్రహం-పుటలు 20-22

(ఇట్లా ఉండగా ఆ ఊరికి పటేలు వచ్చినప్పుడు పట్వారీ రాడు... ఎలాగౌతుంది?)

రాచకొండ విశ్వనాథశాస్త్రి - అల్పజీవి - పుటలు 5-8

(సుబ్బయ్య సుందరుడు కాడు..... తర్వాత ఏమి జరిగిందో సుబ్బయ్యకు జ్ఞప్తి లేదు)

◆ **ఆధారగ్రంథాలు/ వ్యాసాలు**

1. బాలవ్యాకరణము - చిన్నయసూరి
2. ప్రౌఢ వ్యాకరణం - బహుజనపల్లి, సీతారామాచార్యులు
3. సంధి - కోరాడ రామకృష్ణయ్య
4. ఆంధ్రభాషా వికాసము - ఆచార్య గంటి జోగిసోమయాజి.
5. తెలుగుభాషాచరిత్ర - సం.భద్రిరాజు కృష్ణమూర్తి
6. ఆధునిక తెలుగుభాష:సంగ్రహవర్ణన- చేకూరి రామారావు, తెలుగుభాషాచరిత్ర-సం.భద్రిరాజు కృష్ణమూర్తి
7. తెలుగువాక్యం - చేకూరి రామారావు
8. అమృతం కురిసిన రాత్రి (మూడో కూర్పు) - దేవరకొండ బాలగంగాధర తిలక్, విశాలాంధ్ర ప్రచురణ
9. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ **సహపాఠ్య కార్యక్రమాలు** 10 పీరియడ్లు

అధ్యాపకులు, విద్యార్థులు తప్పనిసరిగా చేయాల్సిన పనులు :

1. అధ్యాపకులు :- విద్యార్థులకు తరగతిగదిలో (అవసరమైతే ప్రత్యేక నిపుణుల ద్వారా) తెలుగు వ్యాకరణాంశాలపై అధ్యాపకులు నైపుణ్యశిక్షణ ఇవ్వాలి. తెలుగుభాషపై సంస్కృతభాషా ప్రభావాన్ని తెలియజేస్తూ, వ్యాకరణంలోని సంజ్ఞ, సంధి, సమాస, క్రియ,వాక్యాది భేదాలపై శిక్షణ ఇవ్వాలి.

2. విద్యార్థులు:- విద్యార్థులు పై యూనిట్లలోని 'సంజ్ఞ,సంధి,సమాస,క్రియ,వాక్యాది విషయాలలో ఏదోఒక అంశం మీద క్షేత్రస్థాయిలో/ అంతర్జాలం ద్వారా వాడుకలో ఉన్న వాటిని పరిశీలించాలి. వాటిపై తమపరిశీలనను క్రోడీకరిస్తూ, స్వీయ దస్తూరీలో, పది పేజీలకు మించని ఒక 'నివేదిక'ను తయారుచేసి, అధ్యాపకుడికి సమర్పించాలి. ఉదా: 'పాడు, పంచు, చేయు, అను, ఉండు' ధాతువులకు క్రియారూపాలు నిర్మించడం-మొదలైనవి.

3. ఈ క్షేత్ర పరిశీలనా నివేదిక (Filedwork Report) కు 5 అంతర్గత మార్కులు.

4. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) నమూనా:– ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు / తరగతి / క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు , విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ **సూచించబడిన కార్యక్రమాలు**

(1) సంబంధిత రంగంలో నిపుణులచేత శిక్షణ ఇప్పించడం

(2) అసైన్‌మెంట్లు, సెమినార్ల నిర్వహణ

(3) బృందచర్చల ద్వారా వ్యాకరణరీతులపై ఆసక్తిని పెంపొందించడం

◆ **ప్రశ్నాపత్రనిర్మాణం**

I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.

II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

◆ **మాదిరి ప్రశ్నాపత్రం**

I. క్రింది వానిలో ఐదింటికి సంగ్రహసమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 5 మార్కులు

1. తత్పురుష
2. అన్యదేశ్యాలు
3. వర్ణం–సవర్ణం
4. ఆచ్చికము
5. వ్యాకరణం
6. సంయుక్త క్రియలు
7. విధ్యర్థకం
8. విశ్వనాథవారి వాక్యప్రయోగ శైలి
9. తిలక్ ప్రాత:కాల వర్ణన
10. కారకం.

II. ఈ క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు

11. 'పదాంశం – సపదాంశాలను' విశ్లేషించండి.

(లేదా)

'తత్సమ–తద్భవ–దేశ్యాలను' గురించి వ్రాయండి.

12. ఆదేశసంధులను గూర్చి వ్యాసం రాయండి.

(లేదా)

ఆధునికభాషలో సంధి స్వరూపాన్ని వివరించండి.

13. తెలుగు క్రియారూపాల వైవిధ్యాన్ని గురించి రాయండి.

(లేదా)

'ఉండు', 'చేయు' ధాతువులకు క్రియారూపాలను గుర్తించండి.

14. తెలుగు వాక్యస్వరూపాన్ని గూర్చి విశ్లేషణాత్మక వ్యాసం రాయండి.

(లేదా)

వాక్యభేదాలను గురించి రాయండి.

15. 'ధూర్జటి–తిలక్' కవుల వాక్యశైలుల మధ్య భేదసామ్యాలను గురించి వివరించండి.

(లేదా)

సామాన్యుని వర్ణనలో 'విశ్వనాథ–రావిశాస్త్రి' చూపించిన వాక్యప్రయోగవైవిధ్యాన్ని తెలపండి.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5

7-A తెలుగు రచనారీతులు

పీరియడ్లు : 75 క్రెడిట్లు : 4 మొత్తం మార్కులు : 75

◆ **అభ్యసన ఫలితాలు**

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1 వివిధ రంగాలలోని తెలుగు రచనారీతులపై ప్రాథమిక అవగాహన

2. అనువాద రంగంలో, ముద్రణా మాధ్యమరంగంలోని రచనారీతులను తెలుసుకోవడం

3. ప్రసార మాధ్యమాలు, సామాజిక మాధ్యమాల లోని రచనావిధానాలను అవగాహన

4. భాషలోని అర్థపరిణామ, ధ్వనిపరిణామాలు, అన్యదేశ్యాలపై అవగాహన

5. సృజనరంగంలోని ప్రధాన ప్రక్రియల రచనావిధానాలను తెలుసుకోవడం.

◆ **పాఠ్యప్రణాళిక** (మొత్తం పీరియడ్లు 75 ; బోధన: 60; శిక్షణ/ ఇతరాలు : 15)

యూనిట్-I తెలుగు రచనారీతులు-పరిచయం 10 పీరియడ్లు

తెలుగు రచనా రీతులు- అనువాదరంగం, ముద్రణ-ప్రసార-సామాజిక మాధ్యమ రంగాలు: ప్రాథమిక అవగాహన

అనువాదరంగం: నిఘంటువులు, పారిభాషిక పదకోశాలు, అనువాద రచనావిధానాలు

ముద్రాణామాధ్యమరంగం: వార్తా రచన, శీర్షికారచన, సంపాదకీయాలు, సమీక్షలు, పత్రికారచనా విధానాలు

యూనిట్-II తెలుగు-రచనారీతులు-ప్రసార, సామాజిక మాధ్యమాలు 15 పీరియడ్లు

ప్రసారమాధ్యమరంగం: రేడియో రచన, టెలివిజన్ రచన, సినిమా రచనా విధానాలు

సామాజిక మాధ్యమరంగం: వెబ్‌సైట్, ఫేస్‌బుక్, యూట్యూబ్, ట్విట్టర్, వాట్సాప్, బ్లాగ్-రచనావిధానాలు

యూనిట్-III అర్థపరిణామ, ధ్వనిపరిణామ రీతులు 10 పీరియడ్లు

అర్థపరిణామం: కారణాలు, రకాలు; తెలుగులో అర్థపరిణామం

ధ్వని పరిణామం: కారణాలు, రకాలు, తెలుగులో ధ్వనుల మార్పులు

యూనిట్-IV మాండలిక విజ్ఞానం 10 పీరియడ్లు

మాండలికం: నిర్వచనం, స్వరూపం, భేదాలు; మాండలికాలు-కారణాలు, ప్రయోజనాలు, రకాలు;

తెలుగు మాండలికాల గుర్తింపు; శిష్టభాష-ప్రామాణిక భాష.

యూనిట్-V సృజనరంగంలో తెలుగు 15 పీరియడ్లు

'కవిత, కథ, వ్యాసం, 'నాటకం-నాటిక-ఏకాంకిక', ప్రకటన, పాట- పరిచయం

'ప్రకటన: ముద్రణ రంగం, ప్రసార మాధ్యామాలు; ప్రకటన రచన, విషయసేకరణ-కూర్పు, కంపోజింగ్, వ్యాఖ్యానం (యాంకరింగ్), పాట (సినిమా, లలితసంగీతం; జానపద, మాండలిక గేయాలు) - రచనా విధానం: పరిచయం

◆ **ఆధారగ్రంథాలు వ్యాసాలు**

1. తెలుగు మాండలికాలు: ప్రమాణ భాష (వ్యాసం) – ఆచార్య భద్రిరాజుకృష్ణమూర్తి సం. తెలుగుభాషా చరిత్ర
2. ఆంధ్రభాషా వికాసము – ఆచార్య గంటి జోగిసోమయాజి
3. తెలుగు భాషా వికాసం – డా.బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
4. అనువాద పాఠాలు – బూదరాజు రాధాకృష్ణ
5. తెలుగు మౌలికాంశాలు: భాషా నైపుణ్యాలు – డా.బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
6. మాధ్యమాల రచన – డా.బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
7. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ **సహపాఠ్య కార్యక్రమాలు** 10 పీరియడ్లు

అధ్యాపకులు, విద్యార్థులు తప్పనసరిగా చేయాల్సిన పనులు :

1. అధ్యాపకులు:– తరగతిగదిలో (అవసరమైతే ప్రత్యేకనిపుణుల ద్వారా) అధ్యాపకులు విద్యార్థులకు తెలుగు రచనారీతులను గురించి నైపుణ్యశిక్షణ ఇవ్వాలి. ఉదా. అనువాదరంగం, ముద్రణా మాధ్యమరంగం, ప్రసార మాధ్యమ, సామాజిక మాధ్యమ రంగాలు–రచనా విధానాలు; సృజన రంగంలోని ప్రక్రియల్లో రచనావిధానాలు.
2. విద్యార్థులు:– విద్యార్థులు పైన తెలిపిన 'అనువాదరంగం, ముద్రణా మాధ్యమరంగం, ప్రసార మాధ్యమ, సామాజిక మాధ్యమ రంగాలు–రచనా విధానాల నుండి గానీ, సృజనరంగంలోని ప్రక్రియల్లో రచనావిధానాల నుండి గాని ఏదోఒక అంశాన్ని ఎన్నుకొని, పరిశీలించాలి. తమ విశ్లేషణను క్రోడీకరిస్తూ, స్వీయ దస్తూరీలో, పదిపేజీలకు మించకుండా 'పరిశీలనా నివేదిక' రూపొందించి అధ్యాపకుడికి సమర్పించాలి.
3. ఈ క్షేత్రపరిశీలనా నివేదికకు (Filedwork Report) 5 అంతర్గతమార్కులు.
4. క్షేత్రపరిశీలనా నివేదిక (Fieldwork Report) నమూనా:– ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు / తరగతి / క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు , విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ **సూచించబడిన సహపాఠ్య కార్యక్రమాలు**

1. సంబంధితరంగంలో రచనా నిపుణులచేత శిక్షణ ఇప్పించడం.
2. అసైన్‌మెంట్లు సెమినార్ల నిర్వహణ
3. బృందచర్చల ద్వారా విద్యార్థులను రచనారీతులపై అభిరుచిని కలిగించడం.
4. అంతర్జాల వేదికల ద్వారా రచనా రీతుల పరిశీలన

◆ **ప్రశ్నాపత్రనిర్మాణం**

I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.

II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

◆ మాదిరి ప్రశ్నాపత్రం

I. క్రింది వానిలో ఐదింటికి సంగ్రహ సమాధానాలు రాయండి. **5×5=25 మా.**

1. తెలుగు మాండలికాలు
2. ప్రమాణ భాష
3. అర్థపరిణామం
4. శిష్ట భాష
5. అనువాద రచన
6. సంపాదకీయాలు
7. టెలివిజన్ రచన
8. వీడియో నేపథ్య రచన
9. కవితా రచనావిధానం
10. వ్యాఖ్యాన (యాంకరింగ్) రచన.

II. క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు.

11. అనువాదరంగ ప్రాధాన్యాన్ని వివరిస్తూ, అనువాద రచనావిధానాన్ని గూర్చి రాయండి.

(లేదా)

పత్రికా రచనా విధానాలను సమీక్షించండి.

12. ప్రసారమాధ్యమ రచనారీతులను గురించి వ్రాయండి.

(లేదా)

సామాజిక మాధ్యమ రచనా విధానాన్ని వివరించండి.

13. అర్థపరిణామరీతులను విశ్లేషించండి.

(లేదా)

తెలుగులో ధ్వనుల మార్పులను గురించి రాయండి.

14. మాండలిక స్వరూప స్వభావాలను వివరించండి.

(లేదా)

మాండలికాలకు కారణాలను వివరిస్తూ, తెలుగు మాండలికాలను గూర్చి రాయండి.

15. 'నాటకం–నాటిక–ఏకాంకిక' రచనా విధానాలను సమీక్షించండి.

(లేదా)

'ప్రకటన, విషయసేకరణ–కూర్పు, పాట'–రచనా విధానాలను గురించి రాయండి.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5

6-B లలితకళలు

పీరియడ్లు : 75 క్రెడిట్లు : 4 మొత్తం మార్కులు : 75

◆ **అభ్యసన ఫలితాలు**

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. కళల ప్రాధాన్యాన్ని, లలిత కళల్లోని సౌందర్యాన్ని గ్రహించడం
2. తెలుగు పాలకుల కళాభిరుచిని తెలుసుకోవడం; భారతీయ శిల్పకళల పట్ల, చిత్రకళల పట్ల అవగాహన
3. భారతీయ సంగీత రీతుల విశిష్టతను తెలుసుకోవడం; నాట్య-నృత్త-నృత్యాంశాలపై అభిరుచిని వృద్ధి చేసుకోవడం
4. లలితకళల్లో కవిత్వ ప్రాధాన్యాన్ని గుర్తించి, సృజనరీతులపట్ల అభిరుచి పెంచుకోవడం
5. తెలుగు వాగ్గేయకారుల గేయాల ప్రాధాన్యాల గుర్తింపు ;'సంకీర్తన-పద-కృతుల' పై అవగాహన.

◆ **పాఠ్యప్రణాళిక** (మొత్తం పీరియడ్లు 75 ; బోధన: 60; శిక్షణ/ ఇతరాలు : 15)

యూనిట్-I కళలు 10 పీరియడ్లు

కళలు-నిర్వచనం, ఉత్పత్తి వికాసాలు; కళలు-వర్గీకరణ; లలితకళలు-ప్రత్యేకత

యూనిట్-II శిల్పం, చిత్రలేఖనం 15 పీరియడ్లు

భారతీయ శిల్పకళ, చిత్రకళలు-ప్రాథమిక అవగాహన;

తెలుగువారి శిల్పకళారీతులు:

రామప్పదేవాలయం (కాకతీయులు) లేపాక్షీ ఆలయాలు, హంపీ హజారా రామాలయం(విజయనగర రాజులు);

తెలుగు వారి ఆధునిక కళారీతులు- దామెర్ల రామారావు, బాపు, పి.టి.రెడ్డి.

యూనిట్-III సంగీతం, నాట్యం 15 పీరియడ్లు

భారతీయ సంగీత సంప్రదాయాలు - హిందూస్థానీ, కర్ణాటక

తెలుగులో లలితగీతాలు, సంకీర్తనలు

నాట్యం-సమాహార కళ, తెలుగు నాట్య రీతులు-కూచిపూడి, ఆంధ్రనాట్యం, పేరిణి.

యూనిట్-IV సాహిత్యం-కవిత్వం 10 పీరియడ్లు

సాహిత్య రూపాలు- కవిత్వం; కవిత్వం-ప్రాచ్య, పాశ్చాత్యుల నిర్వచనాలు; లలితకళల్లో కవిత్వ స్థానం

కవిత్వం-భేదాలు: పద్యకవిత్వం, వచనకవిత్వం

యూనిట్-V సంప్రదాయ గేయసాహిత్యం-వాగ్గేయకారులు 10 పీరియడ్లు

సంప్రదాయ గేయసాహిత్యం-పరిచయం, విభాగాలు

వాగ్గేయకారుల సాహిత్యం-అవగాహన: 'అన్నమయ్య త్యాగయ్య, క్షేత్రయ్య, రామదాసు'

"సంకీర్తన - కీర్తన-పదం-కృతి" - ప్రక్రియలు: అవగాహన

◆ **ఆధారగ్రంథాలు/వ్యాసాలు**

1. మన ప్రాచీన కళలు, పుట్టుపూర్వోత్తరాలు – ఎల్లోరా
2. లలిత కళలు, వికసన చరిత్ర – తెలుగు విశ్వవిద్యాలయం ప్రచురణ
3. సంగీత, వాద్య నిర్మాణ కేంద్రం (వ్యాసం) – మనవి మాటలు : తిరుమల రామచంద్ర
4. త్యాగయ్య కీర్తన సంపద (వ్యాసం) – మనవి మాటలు : తిరుమల రామచంద్ర
5. ఆధునిక చిత్రకళ–ప్రజాసామాన్యం (వ్యాసం)– మనవి మాటలు : తిరుమల రామచంద్ర
6. తెలుగు సాహిత్య సమీక్ష (రెండవ సంపుటం)– ఆచార్య జి.నాగయ్య
7. లలితకళా విలాసం – డా॥ మూల మల్లికార్జునరెడ్డి
8. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ **సహపాఠ్య కార్యక్రమాలు** 10 పీరియడ్లు

అధ్యాపకులు, విద్యార్థులు తప్పనిసరిగా చేయాల్సిన పనులు:

1. అధ్యాపకులు:– విద్యార్థులకు తరగతిగదిలో (అవసరమైతే సంస్థల సందర్శన ద్వారా) 'కళాకారుల, కళల,కళారంగాల' లోని అంశాలపై అధ్యాపకులు నైపుణ్యశిక్షణ ఇవ్వాలి. ఉదా. శిల్పకళ, చిత్రకళ, లలితగీతాలు, కవిత్వం, గేయసాహిత్యం–అనే అంశాలలోని విశేషాలు, రకాలు, స్థలకాలాలు, పరిణామవికాసాలు, మేటి కళాకారులు తదితర విషయాల్లో నైపుణ్య శిక్షణ ఇవ్వాలి.
2. విద్యార్థులు:– విద్యార్థులు లలితకళల్లోని 'శిల్పకళ, చిత్రకళ, లలితగీతాలు, కవిత్వం, గేయసాహిత్యం' మొదలైన ఐదు అంశాల్లో ఏదో ఒక అంశానికి సంబంధించిన విషయాన్ని, 'క్షేత్ర/అంతర్జాల పరిశీలన'కు ఎంచుకోవాలి. తమ పరిశీలనలను క్రోడీకరిస్తూ, స్వీయదస్తూరీతో ఒక నివేదిక తయారుచేసి, అధ్యాపకుడికి సమర్పించాలి.
3. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) కు విద్యార్థికి 5 అంతర్గత మార్కులు
4. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) నమూనా:– ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు/తరగతి / క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు, విషయప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ **సూచించబడిన కార్యక్రమాలు**

1. సంబంధిత రంగాల్లో నిపుణులచేత శిక్షణ ఇప్పించడం.
2. అసైన్‌మెంట్లు, సెమినార్లు, నిర్వహణ
3. బృందచర్చలు నిర్వహించడం ద్వారా విద్యార్థులను ప్రోత్సహించడం
4. సంబంధిత అంశాలను అంతర్జాల వేదిక ద్వారా ప్రదర్శించడం.

◆ **ప్రశ్నాపత్రనిర్మాణం**

I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.

II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

◆ మాదిరి ప్రశ్నాపత్రం

I. క్రింది వానిలో ఐదింటికి సంగ్రహ సమాధానాలు రాయండి **5×5=25 మా.**

1. కళలు–నిర్వచనం
2. లలితకళలు – ప్రత్యేకత
3. చిత్రకళలు
4. బాపు
5. లలితగీతాలు
6. కూచిపూడి నృత్యం.
7. వచన కవిత్వం
8. కవిత్వం
9. అన్నమయ్య సంకీర్తనలు
10. 'కృతి'–విశిష్టత

II. క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు

11. కళల ఉత్పత్తి, వికాసాలను సమీక్షించండి.

(లేదా)

కళలను వర్గీకరించి, వివరించండి.

12. తెలుగు వారి శిల్పకళా వైభవాన్ని గూర్చి రాయండి.

(లేదా)

ఆధునిక తెలుగు కళారీతులను వివరిస్తూ బాపు, పి.టి.రెడ్డిల గురించి రాయండి.

13. భారతీయ సంగీత సాంప్రదాయాలను గూర్చి వివరించండి.

(లేదా)

నాట్యాన్ని నిర్వచిస్తూ, తెలుగు వారి నాట్యరీతులను గురించి రాయండి.

14. కవిత్వాన్ని నిర్వచిస్తూ, లలితకళల్లో కవిత్వస్థానాన్ని నిర్ణయించండి.

(లేదా)

కవిత్వ ప్రక్రియలోని ప్రధాన భేదాలను గురించి విశ్లేషించండి.

15. క్షేత్రయ్య–త్యాగయ్య –రామదాసు ల ప్రదిద్ధ గేయసాహిత్యాన్ని పరిశీలించండి.

(లేదా)

'సంకీర్తన–కీర్తన పదం– కృతి' – ప్రక్రియల భేదసాదృశ్యాలను వివరించండి.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5

7-B జానపద కళలు

పీరియడ్లు : 75 క్రెడిట్లు : 4 మొత్తం మార్కులు : 75

◆అభ్యసన ఫలితాలు

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. విద్యార్థులు జానపదవిజ్ఞానం పట్ల ప్రాథమిక అవగాహన
2. జానపద సాహిత్యాన్ని, దాని ప్రాధాన్యాన్ని, విశిష్టతను తెలుసుకోవడం
3. జానపద భాషాసంస్కృతుల వైవిధ్యాన్ని గూర్చి అవగాహన చేసుకోవడం
4. జానపద ప్రదర్శనకళలైన యక్షగానం, బుర్రకథ మొదలైన ప్రక్రియలను గూర్చి అవగాహన
5. మన గ్రామాల జాతీయ సంపదగా జానపదగేయాలను గుర్తిస్తూ, వాటిని పాడే విధానాన్ని గమనించడం

◆ పాఠ్యప్రణాళిక మొత్తం పీరియడ్లు - 75; బోధన: 60; శిక్షణ/ఇతరాలు:15

యూనిట్-I జానపద విజ్ఞానం: పరిచయం 10 పీరియడ్లు

జానపదవిజ్ఞానం: పరిచయం, వర్గీకరణ (శాఖలు), ప్రయోజనాలు, ఆవశ్యకత

జానపద విజ్ఞానం పై ప్రాచ్య,పాశ్చాత్యుల కృషి

యూనిట్-II జానపద సాహిత్యం: పరిచయం 15 పీరియడ్లు

జానపద గేయం, కథాగేయాలు: లక్షణాలు-పరిచయం

జానపద గద్యం: కథలు, పురాణాలు, ఐతిహ్యాలు : పరిచయం

యూనిట్-III జానపదుల భాష, సంస్కృతి 10 పీరియడ్లు

జానపదుల భాష సంస్కృతి: ఆహారం, దుస్తులు, వేషభాషలు, నమ్మకాలు, పండుగలు, వైద్యం.

యూనిట్-IV జానపద కళలు 15 పీరియడ్లు

జానపద కళలు- పరిచయం

తెలుగు వారి కళారూపాలు: తోలుబొమ్మలాటలు, యక్షగానం, బుర్రకథ, హరికథ, ఒగ్గుకథ,

జానపదనాటకం (పద్యనాటకం-రంగస్థల పద్యాలు: పరిచయం)

జానపద నృత్యాలు : కోలాటం, భజనలు, థింసా-గొరవ నృత్యాలు, చిందుభాగవతం

యూనిట్-V జానపద గేయాలు 10 పీరియడ్లు

జానపద గేయం: నిర్వచనం, లక్షణాలు, వైశిష్ట్యం

గేయం-గీతం,పాట,పదం,జావళీలు; జానపద గేయాలు-విభజన; జానపద బాణీలు, పాడే విధానం

జానపద గాయకులు - రకాలు:

పిచ్చుకకుంట్లు, శారదకాండ్రు, బైండ్లవారు, వీరముష్టివారు, గొల్లసుద్దులు, జంగములు, దాసరివారు

◆ **ఆధార గ్రంథాలు/ వ్యాసాలు**

1. ఆంధ్రుల జానపద విజ్ఞానం – ఆచార్య ఆర్.వి.యస్. సుందరం
2. తెలుగు జానపద గేయసాహిత్యం – ఆచార్య బిరుదురాజు రామరాజు
3. జానపద విజ్ఞానాధ్యయనం – ఆచార్య జి.యస్.మోహన్
4. తెలుగు జానపద గేయగాధలు – ఆచార్య నాయని కృష్ణకుమారి
5. 'జానపదుల భాషా సారస్వతములు' వ్యాసం – డా॥ పాలెం వేణుగోపాల్ (భావవీణ ప్రచురణ,జూన్ 2020)
6. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ **సహపాఠ్య కార్యక్రమాలు** 10 పీరియడ్లు

అధ్యాపకులు, విద్యార్థులు కలిసి తప్పనిసరిగా చేయాల్సిన పనులు:

1. అధ్యాపకులు:– విద్యార్థులకు తరగతిగదిలో (అవసరమైతే క్షేత్రపర్యటన ద్వారా) 'జానపద సాహిత్యం, భాష, సంస్కృతి, జానపదకళలు, జానపదగేయాలు–అందులోని రకాలు, పరిణామ వికాసాలు, జానపద కళాకారులు–తదితర అంశాల్లో అధ్యాపకులు నైపుణ్యశిక్షణ ఇవ్వాలి.స్థానిక పల్లెపాటలను, పండుగ పాటలను విద్యార్థులచేత సేకరింపజేసి, పాడించవచ్చు.
2. విద్యార్థులు:– విద్యార్థులు పైన తెలిపిన 'జానపద సాహిత్యం, భాష, సంస్కృతి, జానపదకళలు, జానపదగేయాలు–అందులోని రకాలు, పరిణామ వికాసాలు, జానపద కళాకారులు–తదితర అంశాల్లో ఏదైనా ఒక విషయాన్ని క్షేత్ర పరిశీలనకు ఎంచుకోవాలి. తమ విశ్లేషణను క్రోడీకరిస్తూ, స్వీయదస్తూరీలో, పది పేజీలకు మించని ఒక నివేదికను తయారుచేసి, అధ్యాపకునికి సమర్పించాలి.
3. 'క్షేత్రపరిశీలనా నివేదిక (Fieldwork Report) విద్యార్థికి 5 అంతర్గత మార్కులు
4. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) నమూనా:– ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు / తరగతి / క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు , విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ **సూచించబడిన కార్యక్రమాలు**

1. సంబంధిత కళారూపాల్లోని నిపుణులచేత ప్రదర్శనలు ఇప్పించడం.
2. అసైన్‌మెంట్లు, సెమినార్ల నిర్వహణ
3. బృందచర్చల ద్వారా విద్యార్థులను జానపద కళారంగాల వైపు ప్రోత్సహించడం
4. సంబంధిత అంశాలను అంతర్జాల వేదిక ద్వారా ప్రదర్శించడం.

◆ **ప్రశ్నాపత్రనిర్మాణం**

I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.

II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

◆ మాదిరి ప్రశ్నాపత్రం

I. క్రింది వానిలో ఐదింటికి సంగ్రహ సమాధానాలు రాయండి **5×5=25** మా.

1. జానపదవిజ్ఞానం
2. జె.ఎ.బోయల్
3. కథా గేయాలు లక్షణాలు
4. ఐతిహ్యాలు
5. జానపదుల సంస్కృతి
6. జానపదుల వేషభాషలు
7. యక్షగానం
8. చిందుభాగవతం
9. జానపద గేయం నిర్వచనం
10. పిచ్చుకకుంట్లు

II. క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు **10** మార్కులు

11. జానపద విజ్ఞానాన్ని వర్గీకరించి, వివరించండి.

(లేదా)

జానపద విజ్ఞానంపై ప్రాచ్యపాశ్చాత్యుల కృషిని గురించి రాయండి.

12. జానపద సాహిత్యాన్ని పరిచయం చేస్తూ, కథాగేయాల ప్రాధాన్యాన్ని గురించి చర్చించండి.

(లేదా)

జానపద గద్యకథనాలపై విమర్శనాత్మక వ్యాసం రాయండి.

13. జానపదుల భాష పై విమర్శనాత్మక వ్యాసం రాయండి.

(లేదా)

జానపదసంస్కృతి పై ప్రత్యేక వ్యాసం రాయండి.

14. జానపద కళలను పరిచయం చేస్తూ, బుర్రకథ, ఒగ్గు కథలను గురించి రాయండి.

(లేదా)

జానపద నృత్యాలను వివరిస్తూ కోలాటం గురించి రాయండి.

15. జానపదగేయాల విశిష్టతను వివరించండి.

(లేదా)

జానపద గాయకులను గూర్చి ప్రత్యేక వ్యాసం రాయండి.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5

6-C మాధ్యమాలకు రచన

పీరియడ్లు : 75 క్రెడిట్లు : 4 మొత్తం మార్కులు : 75

◆ **అభ్యసన ఫలితాలు**

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. మాధ్యమాల్లోని విస్తృతి, ప్రయోజనాలపై అవగాహన
2. పత్రికా సంపాదకులుగా వివిధ రకాల రచనాంశాల్లో రాణించగలగడం
3. ముద్రణ, ప్రసారమాధ్యమ రంగాల్లోని అవకాశాలను, ప్రాధాన్యాన్ని గమనించడం
4. ప్రసార మాధ్యమాల్లోని రచనల తీరుతెన్నులను గుర్తించడం
5. ప్రసారమాధ్యమాలకు రచనలు చేసే నైపుణ్యాన్ని సంపాదించగలగడం.

◆ **పాఠ్యప్రణాళిక** (మొత్తం పీరియడ్లు 75 ; బోధన: 60; శిక్షణ/ ఇతరాలు:15)

యూనిట్-I: 'మాధ్యమాలు'-పరిచయం 10 పీరియడ్లు

'మాధ్యమాలు'-నిర్వచనం, రకాలు; మాధ్యమాల్లో భాషా ప్రయోగం

మాధ్యమాల విస్తృతి, ప్రాధాన్యత; మాధ్యమాలు-చట్టాలు; మాధ్యమాలు-ఉపాధి అవకాశాలు

యూనిట్-II: ముద్రణామాధ్యమం-పరిచయం 10 పీరియడ్లు

వివిధ రకాల పత్రికలు - పరిశీలన

పత్రికా భాష-శైలి, వైవిధ్యం; పత్రికారచన- భాషాపరమైన మెళకువలు

యూనిట్-III: ముద్రణా మాధ్యమం-నైపుణ్యాభివృద్ధి 15 పీరియడ్లు

పత్రికలు: వార్తా రచన; శీర్షికా రచన; వార్తల సంక్షిప్తీకరణ, విపులీకరణ; సంపాదకీయాలు;

పుస్తక సమీక్షలు, ఇంటర్వ్యూలు, నివేదికలు, ప్రకటనలు, కరపత్రాల రచన; విరామ చిహ్నాలు-అవగాహన,

యూనిట్-IV: ప్రసార మాధ్యమం -పరిచయం 10 పీరియడ్లు

ప్రసార మాధ్యమాలు-విస్తృతి, ప్రయోజనాలు

ప్రసారమాధ్యమాల్లో కార్యక్రమాల నిర్వహణ-తీరుతెన్నులు

ప్రసార మాధ్యమాల్లోని వివిధ రచనలు- పరిశీలన, అవగాహన

యూనిట్-V ప్రసార మాధ్యమం-నైపుణ్యాభివృద్ధి 15 పీరియడ్లు

స్క్రిప్ట్ రచన, కెమెరా రచన, డ్రాప్ట్ రచన, వార్తా రచనా విధానాలు

వాణిజ్య ప్రకటనలు, ఇంటర్వ్యూలు, ప్రత్యక్షప్రసారాలు, డాక్యుమెంటరీలు-రచనా విధానాలు

రేడియో రచన, టెలివిజన్ రచన, డిజిటల్ వేదికలు -రచనా విధానం

◆ **ఆధార గ్రంథాలు/ వ్యాసాలు**

1. తెలుగు జర్నలిజం – బూదరాజు రాధాకృష్ణ
2. తెలుగు జర్నలిజం – దుర్గం రవీందర్
3. తెలుగు–మౌలిక భావనలు – డా॥బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
4. మాధ్యమాలకు రచన – డా॥ బి.ఆర్ అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
5. కమ్యూనికేషన్ సిద్ధాంత పరిచయం, పత్రికల చరిత్ర–పొట్టిశ్రీరాములు తెలుగువిశ్వవిద్యాలయం ప్రచురణ
6. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ **సహపాఠ్య కార్యక్రమాలు** 10 పీరియడ్లు

అధ్యాపకులు, విద్యార్థులు కలసి తప్పనిసరిగా చేయాల్సిన పనులు:

1. అధ్యాపకులు:– విద్యార్థులకు తరగతిగదిలో (అవసరమైతే క్షేత్రపర్యటన ద్వారా) మాధ్యమాలకు సంబంధించిన అంశాల రచనావిధానాలపై అధ్యాపకులు నైపుణ్యశిక్షణ ఇవ్వాలి.
   ఉదా. పత్రికా రచన, రేడియో రచన, టెలివిజన్ రచన, డిజిటల్ వేదికలకు రచన–మొదలైనవి.
2. విద్యార్థులు:– విద్యార్థులు పైన తెలిపిన 'పత్రికా రచన, రేడియో రచన, టెలివిజన్ రచన, డిజిటల్ వేదికలకు రచన' మొదలైన అంశాల్లో ఒక అంశాన్ని ఎంచుకొని, పరిశీలించాలి. తమ పరిశీలనలను క్రోడీకరిస్తూ, స్వీయదస్తూరిలో, పదిపేజీలకు మించకుండా 'నివేదిక'ను తయారుచేసి, అధ్యాపకునికి సమర్పించాలి.
3. క్షేత్రపరిశీలనా నివేదికకు (Fieldwork Report) 5 అంతర్గత మార్కులు
4. క్షేత్రపరిశీలనా నివేదిక (Fieldwork Report) నమూనా:– ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు/ తరగతి / క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు, విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ **సూచించబడిన కార్యక్రమాలు**

1. సంబంధిత రంగంలో నిపుణలను రప్పించి, వారిచేత శిక్షణ ఇప్పించడం / అతిథి ఉపన్యాసాలు.
2. సెమినార్లు, అసైన్‌మెంట్లు నిర్వహణ
3. బృందచర్చల ద్వారా విద్యార్థుల్లో ఆసక్తి కలిగిన వారిని గుర్తించి వారిచేత కార్యక్రమాలను నిర్వహించడం.
4. సంబంధిత అంశాలను అంతర్జాల వేదికల ద్వారా ప్రదర్శింపజేయడం

◆ **ప్రశ్నాపత్ర నిర్మాణం**

I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.

II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

◆ **మాదిరి ప్రశ్నాపత్రం**

I. క్రింది వానిలో ఐదింటికి సంగ్రహ సమాధానాలు రాయండి ప్రతి ప్రశ్నకు 5 మార్కులు. 5×5= 25 మా.

1. మాధ్యమాలు–నిర్వచనం
2. మాధ్యమాలు–ఉపాధి అవకాశాలు
3. పత్రికాభాష
4. ప్రసిద్ధ తెలుగు పత్రికలు
5. వార్తా రచన
6. కరపత్ర రచన
7. ప్రసారమాధ్యమాలు
8. ప్రసారమాధ్యమాలు– ప్రయోజనాలు
9. డాక్యుమెంటరీ రచనా విధానం
10. డిజిటల్ వేదికలు–రచనా విధానం

II. ఈ క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు

11. మాధ్యమాల విస్తృతిని వివరిస్తూ, వాటి ప్రాధాన్యతను గురించి రాయండి.

(లేదా)

మాధ్యమాల్లోని భాషా ప్రయోగాన్ని వివరిస్తూ, మాధ్యమాల చట్టాలను గురించి రాయండి.

12. పత్రికా భాష శైలి, వైవిధ్యాలను గురించి రాయండి.

(లేదా)

పత్రికా రచనను వివరిస్తూ, అందులోని భాషాపరమైన మెళకువలను వివరించండి.

13. వార్తారచనలోని మెళకువలను వివరిస్తూ, సంపాదకీయాలను గురించి వ్యాసం రాయండి.

(లేదా)

“ఇంటర్వ్యూలు, నివేదికలు, ప్రకటనలు”–రచనా విధానాన్ని వివరించండి.

14. ప్రసారమాధ్యమాల విస్తృతిని, ప్రయోజనాలను సమీక్షించండి.

(లేదా)

ప్రసారమాధ్యమాల్లోని ఏవేని రెండు కార్యక్రమాల నిర్వహణ తీరుతెన్నులను వివరించండి.

15. డిజిటల్ వేదికల రచనావిధానాన్ని గురించి ఒక వ్యాసం రాయండి.

(లేదా)

స్క్రిప్ట్ మరియు కెమెరా రచనను గురించి వివరించండి.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5

7-C అనువాదం

పీరియడ్లు : 75 క్రెడిట్లు : 4 మొత్తం మార్కులు : 75

◆ **అభ్యసన ఫలితాలు**

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. భాషాతత్వాన్ని, ప్రాధాన్యాన్ని గుర్తిస్తూ, అనువాద అవసరాన్ని తెలుసుకోవడం
2. అనువాదకుని లక్షణాలను గూర్చి అవగాహన
3. అనువాదరంగంలో నైపుణ్యాన్ని సంపాదించగలగడం
4. భాషాసామర్థ్యాన్ని పెంపొందించుకునే మార్గాలను తెలుసుకోగలగడం
5. అనువాదవృత్తిలో స్థిరపడడానికి అవసరమయ్యే నైపుణ్యాలను, సృజన-ప్రసారమాధ్యమరంగాల్లో ఉపాధి అవకాశాలను గురించి తెలుసుకోగలగడం.

◆ **పాఠ్యప్రణాళిక** (మొత్తం పీరియడ్లు 75 ; బోధన: 60; శిక్షణ/ ఇతరాలు:15)

యూనిట్-I అనువాదం 10 పీరియడ్లు

అనువాదం-నిర్వచనం, స్వరూప స్వభావాలు; అనువాదం-ఆవశ్యకత

అనువాద ప్రమాణాలు; అనువాదం శాస్త్రమా? కళా?

వివిధ రకాల అనువాదాలు (మూలవిధేయానువాదం,స్వేచ్ఛానువాదం, నుడికారపు అనువాదం, యాంత్రిక అనువాదం)

యూనిట్-II అనువాదకుడు 10 పీరియడ్లు

అనువాదకుడు-లక్షణాలు, రకాలు; అనువాద సమస్యలు, వాటి పరిష్కార మార్గాలు

తెలుగులో ప్రసిద్ధ అనువాద గ్రంథాలు, వాటి అనువాదకులు-సమీక్ష.

యూనిట్-III వ్యావహారిక భాషలో అనువాద ప్రాధాన్యం 15 పీరియడ్లు

గ్రాంథిక, వ్యావహారిక భాషోద్యమాలు-నేపథ్యం

వ్యావహారిక భాషోద్యమానికి గిడుగు, గురజాడల కృషి

అనువాదంలో వ్యావహారిక భాష-వ్యక్తీకరణ విధానాలు

యూనిట్-IV అధికారభాషగా తెలుగు-అనువాద ప్రాధాన్యం 15 పీరియడ్లు

మాతృభాష, పాలనాభాష, అధికారభాషగా తెలుగు-రాష్ట్ర పాలనా యంత్రాంగంలో జరిగిన, జరుగుతున్న కృషి

తెలుగు అనువాదం-"అధికారపత్రాలు, ఉత్తర్వులు, మార్గదర్శకాలు,ఉత్తరాలు"

యూనిట్-V అనువాద రచన-ఆవశ్యకత 10 పీరియడ్లు

ప్రపంచీకరణ నేపథ్యంలో అనువాదాల ప్రాధాన్యం

విద్యార్థులను వివిధ రంగాల్లో అనువాదకులుగా రాణించడానికి అవసరమయ్యే సూచనలు

భాషాసామర్థ్యాన్ని పెంపొందించుకునే మార్గాలు.

◆ **ఆధార గ్రంథాలు/వ్యాసాలు**

1. అనువాద సమస్యలు – రాచమల్లు రామచంద్రరెడ్డి
2. అనువాద పద్ధతులు, ఆచరణ సమస్యలు – చేకూరి రామారావు 'భాషాంతరంగం', పుటలు 130–146, తెలుగు విశ్వవిద్యాలయ ప్రచురణ
3. అనువాద సిద్ధాంతాలు – డా॥ ఎస్.అక్కిరెడ్డి
4. అనువాద పాఠాలు – బూదరాజు రాధాకృష్ణ
5. అధికార భాషగా తెలుగు – సి.ధర్మారావు
6. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ **సహపాఠ్యకార్యక్రమాలు** 10 పీరియడ్లు

అధ్యాపక, విద్యార్థులు చేయవలసిన తప్పనిసరి పనులు

1. అధ్యాపకులు:– విద్యార్థులకు తరగతి గదిలో (అవసరమైతే సంస్థాగత సందర్శనల ద్వారా) అనువాదం చేయడంలో అధ్యాపకులు నైపుణ్యశిక్షణ ఇవ్వాలి. ఉదా. చిన్నవ్యాసాలు, ప్రకటనలు, ఉత్తర్వులు, వార్తలు, మార్గదర్శకాలు, ఉత్తరాలు మొదలైనవి.
2. విద్యార్థులు:–విద్యార్థులు ఏవైనా వార్తాపత్రికలు/అంతర్జాలం/అనువాద గ్రంథాలలోని అనువాదాలను పరిశీలించాలి. తమ పరిశీలనలను క్రోడీకరిస్తూ, పదిపేజీలకు మించని ఒక 'నివేదిక'ను స్వీయదస్తూరీలో తయారుచేసి, అధ్యాపకుడికి సమర్పించాలి.
3. 'క్షేత్ర పరిశీలనా నివేదిక' (Fieldwork Report) కు 5 అంతర్గత మార్కులు
4. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) నమూనా:– ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు/తరగతి/క్రమసంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు, విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ **సూచించబడిన కార్యక్రమాలు**

1. సంబంధిత రంగంలో నిపుణులచేత శిక్షణ ఇప్పించడం
2. అసైన్‌మెంట్లు, సెమినార్ల నిర్వహణ
3. బృంద చర్చలు నిర్వహిస్తూ, విద్యార్థులను ప్రోత్సహించడం
4. సంబంధిత అంశాలను అంతర్జాల వేదిక ద్వారా ప్రదర్శించడం

◆ **ప్రశ్నాపత్ర నిర్మాణం**

I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.

II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

◆ మాదిరి ప్రశ్నాపత్రం

I. క్రింది వానిలో ఐదింటికి సంగ్రహ సమాధానాలు రాయండి.

పదవ ప్రశ్నకు తప్పనిసరిగా సమాధానం రాయాలి. ప్రతి ప్రశ్నకు 5 మార్కులు.

1. అనువాదం–అవశ్యకత
2. అనువాద ప్రమాణాలు
3. అనువాదం–భాషా సమస్యలు
4. అనువాదకుడు–లక్షణాలు
5. గ్రాంథిక భాషావాదం
6. వ్యావహారిక భాషావాదం
7. అధికార భాషగా తెలుగు
8. అనువాద పద్ధతులు
9. అనువాదాలు–ప్రాధాన్యం
10. క్రింది అంశాన్ని తెలుగులోకి అనువదించండి

Insccription of Chalukyas of Kalyana king Vikramaditya VI

This office received photograph of this inscritpion engrave on a slab found in the field of Kurnool District, Andhra Pradesh. It is written in Kannada Language and characters, dated in Chalukya Vikrama year 27.It seems to register the gift of some taxes and one oil crusher to the god Billesvara by Dandanayaka. Further it seem to record that a official named Raviya gifted a village to the deity.

II. ఈ క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు

11. అనువాద స్వరూప స్వభావాలను వివరించండి

(లేదా)

అనువాదం శాస్త్రమా? కళా? విశ్లేషించండి

12. అనువాదకుడి లక్షణాలను రాయండి.

(లేదా)

అనువాద సమస్యలను ప్రస్తావిస్తూ పరిష్కార మార్గాలు సూచించండి.

13. వ్యావహరిక భాషోద్యమనేపథ్యాన్ని వివరించండి

(లేదా)

వ్యావహరిక భాషోద్యమానికి గిడుగు వారి కృషిని వివరించండి.

14. అధికారభాషగా తెలుగు అమలును గురించి చర్చించండి

(లేదా)

అధికారభాషను నిర్వచించి, అధికారభాష అవసరాన్ని తెలియజేయండి.

15. ప్రపంచీకరణ నేపథ్యంలో అనువాదాల ప్రాధాన్యాన్ని విశ్లేషించండి.

(లేదా)

అనువాదరంగంలో రాణించడంకోసం విద్యార్థులకవసరమయ్యే భాషానైపుణ్యాల గురించి రాయండి.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5

6-D తెలుగు-బోధన పద్ధతులు

పీరియడ్లు : 75 క్రెడిట్లు : 4 మొత్తం మార్కులు : 75

◆ **అభ్యసన ఫలితాలు:-**

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. భాషానైపుణ్యాలను గూర్చి తెలుసుకోవడం ద్వారా భాషాభివృద్ధి
2. మాతృభాషాబోధన ప్రాధాన్యాన్ని తెలుసుకోవడం
3. తెలుగు సాహిత్య బోధనాపద్ధతులైన పద్య-గద్య-వ్యాకరణాది బోధనల ద్వారా భాషోపాధ్యాయులుగా రాణించగలగడం.
4. పాఠశాల, కళాశాల స్థాయిల్లో ప్రథమభాషగా, ద్వితీయభాషగా తెలుగు బోధనాప్రాధాన్యాన్ని తెలుసుకోగలగడం.
5. సాహిత్య ప్రక్రియల బోధనాపద్ధతులను తెలుసుకోవడం ద్వారా భాషాసాహిత్యాల పట్ల అభిరుచిని పెంచుకోగలగడం,

◆ **పాఠ్య ప్రణాళిక** (మొత్తం పీరియడ్లు - 75; బోధన: 60; శిక్షణ/ఇతరాలు:15)

యూనిట్-I భాషానైపుణ్యాలు 10 పీరియడ్లు

భాష-నిర్వచనం, స్వరూప స్వభావాలు; భాషానైపుణ్యాలు-శ్రవణం, భాషణం, పఠనం, లేఖనం;
భాష నైపుణ్యాల ఆచరణలు లక్షణాలు - ప్రాథమిక, మాధ్యమికస్థాయి

యూనిట్-II మాతృభాషా బోధన 10 పీరియడ్లు

మాతృభాష భావన, నిర్వచనాలు; మాతృభాషగా తెలుగు బోధన-ఉద్దేశాలు
మాతృభాష బోధన-విలువలు; విషయ ప్రణాళికలు-మాతృభాషగా 'తెలుగు'స్థానం

యూనిట్-III మాతృభాషగా తెలుగు-బోధన పద్ధతులు 10 పీరియడ్లు

పద్య బోధనా పద్ధతులు; గద్య బోధనాపద్ధతులు; వ్యాకరణ బోధనాపద్ధతులు; నాటక బోధనా పద్ధతులు

యూనిట్-IV మాతృభాషా బోధన-ఆధునికధోరణులు 15 పీరియడ్లు

మాతృభాషాబోధన-ఆధునిక ధోరణులు
ద్వితీయభాషాబోధన-ద్వితీయభాష, భావనలు, అధ్యయనసామగ్రి, బోధనా లక్ష్యాలు, బోధనా పద్ధతులు

యూనిట్-V తెలుగులోని వివిధ సాహిత్యప్రక్రియలు-బోధనాలక్ష్యాలు 15 పీరియడ్లు

సాహిత్యం: నిర్వచనం, ప్రయోజనం
సృజనాత్మక సాహిత్యభాష-బోధనాలక్ష్యాలు:
ప్రాచీన కవిత్వ ప్రక్రియలు: పురాణం; ఇతిహాసం, ప్రబంధం, ద్విపద, ఉదాహరణ
ఆధునిక కవిత్వ ప్రక్రియలు: ఖండకావ్యం, వచనకవిత, దీర్ఘకవిత, గజల్, హైకూ-బోధనా లక్ష్యాలు.

◆ **ఆధారగ్రంథాలు/వ్యాసాలు**

1. తెలుగు–బోధన పద్ధతులు – తెలుగు అకాడమీ ప్రచురణ
2. తెలుగు బోధన పద్దతులు – బి.ఎడ్ పాఠ్యపుస్తకం, తెలుగు అకాడమీ ప్రచురణ
3. తెలుగు భాషా సాహిత్య బోధనాపద్ధతులు– డా॥ బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
4. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ **సహపాఠ్యకార్యక్రమాలు** (మొత్తం పీరియడ్లు 75, బోధన:60, శిక్షణ/ఇతరాలు:15)

అధ్యాపకులు విద్యార్థులు తప్పనిసరిగా చేయాల్సిన పనులు 10 పీరియడ్లు

1. అధ్యాపకులు:– విద్యార్థులకు తరగతిగదిలో (అవసరమైతే పాఠశాలలను, విద్యాసంస్థలను సందర్శించడం ద్వారా) తెలుగు భాషాసాహిత్య బోధనాపద్ధతులలో అధ్యాపకులు నైపుణ్యశిక్షణ ఇవ్వాలి. ఉదా. పద్య బోధన, గద్య బోధన, వ్యాకరణ బోధన, నాటక బోధన, సాహిత్య ప్రక్రియల బోధన మొదలైనవి. విద్యార్థులచేత మాదిరిపాఠ్యాంశాలను బోధించే ప్రయత్నం చేయవచ్చు.
2. విద్యార్థులు:–విద్యార్థులు పైన తెలిపిన భాషాసాహిత్య బోధనాపద్ధతులలో ఏదో ఒక అంశాన్ని, లేదా ఏదైనా ఒక సాహిత్యప్రక్రియను ఎంచుకొని పరిశీలించాలి. ఆ అంశాన్ని బోధించే విధానాన్ని, పాఠ్యాంశబోధనగా తరగతిగదిలో బోధించే పద్ధతిని పేర్కొంటూ, తమ పరిశీలనలను పదిపేజీలకు మించకుండా, స్వీయ దస్తూరీలో, నివేదికను తయారుచేసి, అధ్యాపకుడికి సమర్పించాలి.
3. ఈ క్షేత్రపరిశీలనా నివేదిక (Fieldwork Report) కు 5 అంతర్గత మార్కులు
4. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) నమూనా:– ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు / తరగతి / క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు, విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ **సూచించబడిన కార్యక్రమాలు**

(1) సంబంధిత రంగంలో నిపుణులచేత శిక్షణ ఇప్పించడం

(2) అసైన్‌మెంట్లు, సెమినార్ల నిర్వహణ

(3) బృందచర్చల ద్వారా వ్యాకరణరీతులపై ఆసక్తిని పెంపొందించడం

◆ **ప్రశ్నాపత్రనిర్మాణం**

I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.

II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

మాదిరిప్రశ్నాపత్రం

I. క్రింది వానిలో ఐదింటికి సంగ్రహసమాధానాలు రాయండి ప్రతి ప్రశ్నకు 5 మార్కులు. 5×5=25 మా.

1. భాషానైపుణ్యాలు
2. భాషణం
3. మాతృభాషా బోధన
4. మాతృభాష–ప్రాధాన్యం
5. వ్యాకరణ బోధన
6. నాటక బోధన
7. ద్వితీయభాషగా తెలుగు
8. మాతృభాషాబోధన–ఆధునిక దృష్టి
9. సాహిత్యం
10. అలంకారం

II. ఈ క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు

11. భాషను నిర్వచించి, భాష స్వరూప స్వభావాలను వివరించండి

(లేదా)

భాషానైపుణ్యాలను గురించి వివరించండి.

12. మాతృభాషగా తెలుగు బోధన ఉద్దేశాలను వివరించండి.

(లేదా)

విషయ ప్రణాళిక ప్రాధాన్యాన్ని పేర్కొంటూ, అందులో మాతృభాష 'తెలుగు' స్థానాన్ని నిర్ణయించండి.

13. పద్యబోధన పద్ధతులను వివరించండి

(లేదా)

గద్యబోధనా పద్ధతులను వివరించండి

14. మాతృభాషాబోధనలోని ఆధునిక ధోరణులను గురించి రాయండి.

(లేదా)

ద్వితీయభాషగా తెలుగు బోధనా లక్ష్యాలను వివరించండి.

15. ప్రాచీన తెలుగు కవిత్వ ప్రక్రియల బోధనాలక్ష్యాలను వివరించండి.

(లేదా)

ఆధునిక తెలుగు కవిత్వ ప్రక్రియల బోధనాలక్ష్యాలను వివరించండి.

బి.ఏ., తదితర ప్రోగ్రాములు

అంశం: స్పెషల్ తెలుగు సెమిస్టర్-5

7-D వాచికాభివృద్ధి

పీరియడ్లు : 75 క్రెడిట్లు : 4 మొత్తం మార్కులు : 75

◆ **అభ్యసన ఫలితాలు:-**

ఈ నైపుణ్యాభివృద్ధి కోర్సును ముగించాక, విద్యార్థులు క్రింది సామర్థ్యాలను పొందగలరు.

1. భాషానైపుణ్యాల్లో భాషణానికి (వాచికానికి) ఉండే ప్రాధాన్యాన్ని తెలుసుకోవడం
2. భాషా వినియోగ నైపుణ్యరంగాలను గుర్తించడం ద్వారా వాచిక ప్రాధాన్యాన్ని తెలుసుకోగలగడం
3. వాచికాభివృద్ధి ప్రక్రియలను గుర్తించడం ద్వారా వాచికాభివృద్ధి నైపుణ్యాలు పొందడం
4. మాధ్యమాల్లో వాచికభివృద్ధి నైపుణ్యాన్ని మెరుగుపరచుకోగలగడం
5. ప్రాచీన,ఆధునిక కావ్యపఠనం ద్వారా సాహిత్యాభిరుచిని పొందుతూ, వాచికాభివృద్ధి నైపుణ్యాలను అందుకోగలగడం.

◆ **పాఠ్యప్రణాళిక** (మొత్తం పీరియడ్లు: 75 ; బోధన: 60; శిక్షణ/ ఇతరాలు:15)

యూనిట్ I భాషానైపుణ్యాలు-'వాచిక' ప్రాధాన్యత 15 పీరియడ్లు

వాచికం (భాషణం)-లక్షణాలు, స్వరూపం, ప్రయోజనాలు

భాషావినియోగ నైపుణ్యాలు: వాచికరంగం-దైనందిన వ్యవహారాలు; రేడియో, టీవీ, సినిమా, పరిపాలన-ఇతరరంగాలు

యూనిట్ II వాచికాభివృద్ధి ప్రక్రియలు 10 పీరియడ్లు

శిశుగేయాలు/అభినయగేయాలు, పద్య పఠనం, కథాకథనం, నాటకీకరణ, ఉక్తరచన (వక్తృత్వశిక్షణ), భాషాక్రీడలు, సారస్వత సమావేశాలు, భాషా విహారయాత్రలు

యూనిట్ III వాచికాభివృద్ధి చర్యలు 10 పీరియడ్లు

వాచికాభివృద్ధి: జాతీయాలు, సామెతలు, లోకోక్తుల వినియోగం

వాచికదోషాలు : భావదోషాలు, భాషాదోషాలు, ఉచ్చారణాదోషాలు-నివారణోపాయాలు

యూనిట్ IV మాధ్యమాలు-వాచికాభివృద్ధి చర్యలు 15 పీరియడ్లు

ప్రసారమాధ్యమరంగం : రేడియో, టెలివిజన్ సినిమా 'మాధ్యమాల్లో 'వాచికం'-ప్రయోగాలు

సామాజిక మాధ్యమరంగం: ప్రసంగాలు, వీడియోనేపథ్య కథనాలు, వ్యాఖ్యానం(యాంకరింగ్) లలో 'వాచికం'- ప్రయోగాలు

యూనిట్ V వాచికం-నైపుణ్యాభివృద్ధి 10 పీరియడ్లు

ఆధునిక కావ్యపఠనం: గుర్రం జాషువా కావ్యశైలి-పాపాయి పద్యాలు (4 పద్యాలు)

(నవమాసములు...., బొటవ్రేల ముల్లోకముల...., గానమాలింపక..., ఊయేల తొట్టి...,)

ఆధునిక గేయ పఠనం: శ్రీశ్రీ రచనాశైలి-ప్రతిజ్ఞ (మహాప్రస్థానం)

సరళ గ్రాంథిక పఠనం: పానుగంటి 'సాక్షి సంఘనిర్మాణము'

ఆధునికవచన పఠనం: అనువాదమంటే? (64వ పుట) రారా 'అనువాద సమస్యలు'- గ్రంథం నుండి

(అనువాదమంటే... సూపును వాళ్ళూ అంతే.)

◆ **ఆధారగ్రంథాలు/వ్యాసాలు**

1. తెలుగు–బోధన పద్ధతులు – తెలుగు ఆకాడమీ ప్రచురణ
2. తెలుగు భాషాసాహిత్య బోధనాపద్ధతులు – డా.బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
3. మాధ్యమాలకు రచన – డా.బి.ఆర్.అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయ ప్రచురణ
4. వసుచరిత్ర (గిరిక బాల్యం) – రామరాజభూషణుడు
5. ఖండకావ్యములు – గుర్రం జాషువా
6. ప్రతిజ్ఞ – మహాప్రస్థానం – శ్రీరంగం శ్రీనివాసరావు
7. నీతిచంద్రిక (మిత్రలాభము) – చిన్నయసూరి
7. అంతర్జాలం లోని సంబంధిత ఆధారాలు

◆ **సహపాఠ్యకార్యక్రమాలు** 10 పీరియడ్లు

అధ్యాపకులు విద్యార్థులు తప్పనిసరిగా చేయాల్సిన పనులు:

1. అధ్యాపకులు:– విద్యార్థులకు తరగతిగదిలో (అవసరమైతే నిపుణలచేత శిక్షణ ద్వారా) అధ్యాపకులు వాచికాభివృద్ధికి సంబంధించిన నైపుణ్యశిక్షణ ఇవ్వాలి. ఉదా. అభినయగేయాలు, నాటకీకరణ, సారస్వత సమావేశాలు, ప్రసార–సామాజిక మాధ్యమాల్లో వాచికం–లక్షణాలు, వివిధ సాహిత్య ప్రక్రియల్లో వాచికం–లక్షణాలు మొదలైనవి.
2. విద్యార్థులు:– విద్యార్థులు పైన తెలిపిన 'అభినయగేయాలు, నాటకీకరణ, సారస్వత సమావేశాలు, ప్రసార–సామాజిక మాధ్యమాల్లో వాచికం–లక్షణాలు, వివిధ సాహిత్య ప్రక్రియల్లో వాచికం–లక్షణాలు' మొదలైన అంశాల్లో ఏదో ఒక అంశాన్ని అంతర్జాలం ద్వారా ఎన్నుకొని, అందులోని వాచికాన్ని పరిశీలించాలి. తమ పరిశీలనలను క్రోడీకరిస్తూ, వాచికాభివృద్ధి అంశంపై ఒక నివేదికను తయారుచేసి, అధ్యాపకుడికి సమర్పించాలి.
3. ఈ పరిశీలనా నివేదికకు (Fieldwork Report) 5 అంతర్గత మార్కులు ఇవ్వాలి.
4. క్షేత్ర పరిశీలనా నివేదిక (Fieldwork Report) నమూనా:– ఎంపిక చేసుకున్న అంశం శీర్షిక, విద్యార్థి పేరు/తరగతి/క్రమ సంఖ్య తదితర వివరాలు, క్షేత్రపరిశీలనా లక్ష్యాలు, విషయ ప్రణాళిక, విషయ వివరణ, పరిశీలనా ఫలితాలు.

◆ **సూచించబడిన కార్యక్రమాలు:**

(1) సంబంధిత రంగంలో నిపుణులచేత శిక్షణ ఇప్పించడం

(2) అసైన్‌మెంట్లు, సెమినార్ల నిర్వహణ

(3) బృందచర్చల ద్వారా వ్యాకరణరీతులపై ఆసక్తిని పెంపొందించడం

◆ **ప్రశ్నాపత్రనిర్మాణం**

I. మొదటివిభాగంలో ప్రతియూనిట్ నుండి రెండు ప్రశ్నలు తప్పనిసరిగా ఇస్తూ, మొత్తం పది ప్రశ్నలలో ఐదు ప్రశ్నలకు సంగ్రహ సమాధానాలు రాయమని అడగాలి. 5×5= 25 మా.

II. రెండో విభాగంలో ప్రతియూనిట్ నుండి రెండు వ్యాస ప్రశ్నలిచ్చి, ఒకదానికి సమాధానం రాయమనాలి. (అంతర్గత ఛాయిస్) 5×10=50 మా.

◆ **మాదిరి ప్రశ్నాపత్రం**

I. క్రింది వానిలో ఐదింటికి సంగ్రహసమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 5 మార్కులు. 5×5=25 మా

1. వాచికం–లక్షణాలు
2. వాచికరంగం–భాషావినియోగం
3. భాషాక్రీడలు
4. సారస్వత సమావేశాలు
5. జాతీయాలు–వాచికాభివృద్ధి
6. ఉచ్చారణా దోషాలు–నివారణ
7. టెలివిజన్‌లో వాచికం
8. వ్యాఖ్యానం (యాంకరింగ్) లో వాచికం
9. శ్రీశ్రీ
10. రామరాజభూషణుడు

II. ఈ క్రింది ప్రశ్నలకు వ్యాసరూప సమాధానాలు రాయండి. ప్రతి ప్రశ్నకు 10 మార్కులు

11. వాచిక స్వరూపాన్ని వివరిస్తూ, వాచిక ప్రాధాన్యాన్ని గురించి రాయండి.

(లేదా)

వాచికం ఉపయోగించే రంగాలను పేర్కొని, వాటిలో భాషావినియోగ నైపుణ్యాలను ఎలా మెరుగుపరచుకోవాలో తెలపండి.

12. వాచికాభివృద్ధికి ఉపయోగపడే ప్రక్రియలను మూడింటిని వివరించండి.

(లేదా)

'భాషాక్రీడలు, సారస్వతసమావేశాలు, ఉక్తరచన'ల గురించి రాయండి.

13. జాతీయాలు లోలోక్తులు, సామెతల వినియోగంలో వాచికాభివృద్ధి చర్యలను వివరించండి.

(లేదా)

వాచికదోషాలను వివరిస్తూ, నివారణ మార్గాలను తెలపండి.

14. ప్రసారమాధ్యమ రంగాల్లో వాచికాభివృద్ధి క్రమాన్ని వివరించండి.

(లేదా)

సామాజిక మాధ్యమాల్లో వాచికాభివృద్ధి మార్గాలను పేర్కొనండి.

15. పానుగంటి వారి భాషా శైలిని వివరించండి.

(లేదా)

మహాప్రస్థానంలో శ్రీశ్రీ రచనాశైలిని గురించి రాయండి.

SUBJECT EXPERTS

Prof. N.V. Krishna Rao,
Dept of Telugu
Acharya Nagarjuna University,
Nagarjuna Nagar,
GUNTUR.

Dr. K.N. Sundareswara Rao,
Lecturer in Telugu,
Government College for Men (Autonomous),
Kadapa.

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

3rd, 4th and 5th floors, Neeladri Towers, Sri Ram Nagar, 6th Battalion Road,
Atmakur (V), Mangalagiri (M), Guntur-522 503, Andhra Pradesh
Web:www.apsche.org **Email**: acapsche@gmail.com

REVISED SYLLABUS OF B Com (General) UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-2021

PROGRAMME: FOUR-YEAR UG HONOURS PROGRAMME

B.Com (General)

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P.)

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

CBCS – UG SYLLABUS SUBJECT REVIEW COMMITTEE

(To be implemented from the Academic Year 2020-21)

PROGRAMME: Four-Year B.Com (General and Computer Applications)

Domain Subject: Commerce

(Syllabus with Outcomes, Co-curricular Activities, References for Fifteen Courses of 1, 2, 3 & 4 Semesters)

Structure of COMMERCE Syllabus under CBCS for 4-year B Com Programme (with domain subject covered during the first 4 Semesters with 15 Courses)

Sl. No	Code	Sem	Courses	Name of Course (Each Course consists 5 Units with each Unit having 12 hours of class-work)	Hours/ Week	Credits	Marks	
							Mid Sem	Sem End
1		I	1A	Fundamentals of Accounting	5	4	25	75
2		I	1B	Business Organization and Management	5	4	25	75
3		I	1C	Business Environment	5	4	25	75
4		II	2A	Financial Accounting	5	4	25	75
5		II	2B	Business Economics	5	4	25	75
6		II	2C	Banking Theory &Practice	5	4	25	75
7		III	3A	Advanced Accounting	5	4	25	75
8		III	3B	Business Statistics	5	4	25	75
9		III	3C	Marketing	5	4	25	75
10		IV	4A	Corporate Accounting	5	4	25	75
11		IV	4B	Cost and Management Accounting	5	4	25	75
12		IV	4C	Income Tax	5	4	25	75
13		IV	4D	Business Laws	5	4	25	75
14		IV	4E	Auditing	5	4	25	75
15		IV	4F	Goods and Service Tax	5	4	25	75
Total					**75**	**60**	**375**	**1125**

PROGRAMME: FOUR-YEAR B Com

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

I Year B Com (Gen & CA)–Semester – I

Course1A: Fundamentals of Accounting

Learning Outcomes:

At the end of the course, the student will able to

- Identify transactions and events that need to be recorded in the books of accounts.
- Equip with the knowledge of accounting process and preparation of final accounts of sole trader.
- Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP.
- Analyze the difference between cash book and pass book in terms of balance and make reconciliation.
- Critically examine the balance sheets of a sole trader for different accounting periods.
- Design new accounting formulas & principles for business organisations.

Syllabus:

Unit-I – Introduction

Need for Accounting – Definition – Objectives, – Accounting Concepts and Conventions – GAAP - Accounting Cycle - Classification of Accounts and its Rules – BookKeeping and Accounting - Double Entry Book-Keeping - Journalizing - Posting to Ledgers, Balancing of Ledger Accounts (including Problems).

Unit-II: Subsidiary Books:

Types of Subsidiary Books - Cash Book, Three-column Cash Book- Petty Cash Book (including Problems).

Unit-III: **Trial Balance and Rectification of Errors:**

Preparation of Trial balance - Errors – Meaning – Types of Errors – Rectification of Errors – Suspense Account (including Problems)

Unit-IV: Bank Reconciliation Statement:

Need for Bank Reconciliation - Reasons for Difference between Cash Book and Pass Book Balances- Preparation of Bank Reconciliation Statement - Problems on both Favourable and Unfavourable Balance (including Problems).

Unit -V: Final Accounts:

Preparation of Final Accounts: Trading account – Profit and Loss account – Balance Sheet – Final Accounts with Adjustments (including Problems).

References:

1. Ranganatham G and Venkataramanaiah, Fundamentals of Accounting, S Chand Publications
2. T.S.Reddy& A. Murthy, Financial Accounting, Margham Publications
3. S N Maheswari and SK Maheswari, Financial Accounting, Vikas Publications
4. R L Gupta & V K Gupta, Principles and Practice of Accounting, Sultan Chand & Sons
5. S.P. Jain & K.L Narang, Accountancy-I, Kalyani Publishers
6. Tulasian, Accountancy -I, Tata McGraw Hill Co.
7. V.K.Goyal, Financial Accounting, Excel Books
8. K. Arunjothi, Fundamentals of Accounting; Maruthi Publications
9. Prof EChandraiah : Financial Accounting Seven Hills International Publishers

Suggested Co-Curricular Activities:

- Bridge Course for Non-commerce Students
- Practice of Terminology of Accounting
- Quiz, Word Scramble
- Co-operative learning
- Seminar
- Co-operative learning
- Problem Solving Exercises
- Matching, Mismatch
- Creation of Trial Balance
- Visit a firm (Individual and Group)
- Survey on sole proprietorship and prepare final accounts of concern
- Group Discussions on problems relating to topics covered in syllabus
- Examinations (Scheduled and surprise tests)
- Any similar activities with imaginative thinking beyond the prescribed syllabus

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

I Year B Com (Gen & CA) – Semester – I

Course 1B: Business Organization and Management

Learning Outcomes:

At the end of the course, the student will be able to

- Understand different forms of business organizations.
- Comprehend the nature of Joint Stock Company and formalities to promote a Company.
- Describe the Social Responsibility of Business towards the society.
- Critically examine the various organizations of the business firms and judge the best among them.
- Design and plan to register a business firm. Prepare different documents to register a company at his own.
- Articulatenew models of business organizations.

Syllabus:

Unit-I –Introduction Concepts of Business, Trade, Industry and Commerce: Business – Meaning, Definition, Features and Functions of Business - Trade Classification – Aids to Trade – Industry Classification and Commerce - Factors Influencing the Choice of Suitable form of Organisation

Unit –II– **Forms of Business Organizations:** Features,Merits and Demerits of Sole Proprietor Ship and Partnership Business - Features Merits and Demits of Joint Stock Companies - Public Sector Enterprises (PSEs) - Multinational Corporations (MNCs)- Differences between Private Limited Public Limited Company

Unit-III -Company Incorporation: Preparation of Important Documents for Incorporation of Company - Certificate of Incorporation and Certificate of Commencement of Business - Contents of Memorandum and Articles of Association - Contents of Prospectus

Unit-IV- Management: Meaning Characteristics - Fayol's 14 Principles of Management - Administration Vs Management - Levels of Management

Unit-V-Functions of Management: Different Functions of Management - Meaning – Definition – Characteristics Merits and Demits of Planning - Principles of Organisation – Line and staff of Organisation

Reference Books:

1. Industrial Organization and Management,C.B.Guptha, Sultan Chand.
2. Business Organization - C.D.Balaji and G. Prasad, Margham Publications, Chennai.
3. Business Organization -R.K.Sharma and Shashi K Gupta, Kalyani Publications.
4. Business Organization & Management: Sharma Shashi K. Gupta, Kalyani Publishers
5. Business Organization & Management: C.R. Basu, Tata McGraw Hill
6. Business Organization & Management: M.C. Shukla S. Chand,
7. Business Organisation and Management, Dr.NeeruVasishth, Tax Mann Publications.
8. Business Organisation and Management, Dr B E V L Naidu, Seven Hills International Publishers, Hyderabad

Suggested Co-Curricular Activities:

- Book Reading
- Student Seminars, Debates
- Quiz Programmes
- Assignments
- Co-operative learning
- Individual / Group Field Studies
- Group Discussions on problems relating to topics covered by syllabus
- Collecting prospectus of different companies through media
- Collection of news reports and maintaining a record of paper-cuttings relating to topics covered in syllabus
- Talk on current affairs about business, industry etc.
- Simple project work on development of Certificate of Incorporation, Prospectus and Certificate of commencement of business
- Biography of well-known management thinkers and managers of gigantic companies
- Examinations (Scheduled and surprise tests)

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

I Year B Com (Gen & CA) – Semester – I

Course 1C: Business Environment

Learning Outcomes:

At the end of the course, the student will able to;

- Understand the concept of business environment.
- Define Internal and External elements affecting business environment.
- Explain the economic trends and its effect on Government policies.
- Critically examine the recent developments in economic and business policies of the Government.
- Evaluate and judge the best business policies in Indian business environment.
- Develop the new ideas for creating good business environment.

SYLLABUS:

Unit–I:Overview of Business Environment: Business Environment – Meaning – Characteristics – Scope -Macro and Micro Dimensions of Business Environment - Environmental Analysis.

Unit – II:Economic Environment: Economic Environment – Nature of the Economy – Structure of Economy – Economic Policies & Planning the Economic Condition – NITI Ayog – National Development Council – Five Year Plans

Unit–III: Economic Policies: Economic Reforms and New Economic Policy – New Industrial Policy – Competition Law – Fiscal Policy – Objectives and Limitations – Monetary Policy and RBI

Unit – IV:Social, Political and Legal Environment: Concept of Social Responsibility of Business towards Stakeholders - Demonetisation, GST and their Impact - Political Stability - Legal Changes.

Unit–V:Global Environment : Globalization – Meaning – Role of WTO – WTO Functions - IBRD– Trade Blocks, BRICS, SAARC, ASEAN in Globalisation

Suggested Readings:

1. K. Aswathappa : Essentials of Business Environment, Himalaya Publishing House
2. Francis Cherunilam : Business Environment,Himalaya Publishing House
3. Dr S Sankaran: : Business Environment, MarghamPublications
4. S.K. Mishra and V.K. Puri : Economic Environment of Business, HPH
5. Rosy Joshi and Sangam Kapoor : Business Environment, Kalyanai Publications
6. A C Fernando: Business Environment, Pearson
7. Dr V Murali Krishna, Business Environment, Spectrum Publications
8. Namitha Gopal, Business Environment, McGraw Hill

Suggested Co-Curricular Activities:

- Seminar on overview of business environment
- Debate on micro v/s macro dimensions of business environment
- Co-operative learning
- Seminar on Monetary policies of RBI
- Debate on social, political and legal environment
- Group Discussions on Global environment and its impact on business
- To learn about NITI Ayog and National Development Council
- Seminars on Economic policies like New Industrial policy, Fiscal policy etc.
- Reports on WTO,BRICS, SAARC etc.
- Examinations (Scheduled and surprise tests) on all units

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

I Year B Com (Gen & CA)– Semester – II

Course 2A: Financial Accounting

Learning Outcomes:

At theend of the coursethe student will able to;

- Understand the concept of consignment and learn the accounting treatment of the various aspects of consignment.
- Analyze the accounting process and preparation of accounts in consignment and joint venture.
- Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture.
- Determine the useful life and value of the depreciable assets and maintenance of Reserves in business entities.
- Design an accounting system for different models of businesses at his own using the principles of existing accounting system.

Syllabus

Unit-I:Depreciation: Meaning and Causes of Depreciation - Methods of Depreciation: Straight Line – Written Down Value –Annuity and Depletion Method (including Problems).

Unit-II:Provisions and Reserves: Meaning – Provision vs. Reserve – Preparation of Bad Debts Account – Provision for Bad and Doubtful Debts – Provision for Discount on Debtors – Provision for Discount on Creditors - Repairs and Renewals Reserve A/c (including Problems).

Unit-III: Bills of Exchange: Meaning of Bill – Features of Bill – Parties in the Bill – Discounting of Bill – Renewal of Bill – Entries in the Books of Drawer and Drawee (including Problems).

Unit-IV: Consignment Accounts: Consignment - Features - Proforma Invoice - Account Sales – Del-credere Commission - Accounting Treatment in the Books of Consigner and Consignee - Valuation of Closing Stock - Normal and Abnormal Losses (including Problems).

Unit-V: Joint Venture Accounts: JointVenture - Features - Difference between Joint-Venture and Consignment – Accounting Procedure – Methods of Keeping Records–One Vendor Keeps the Accounts and Separate Set off Books Methods (including Problems).

Reference Books:

1. Ranganatham G and Venkataramanaiah, **Financial Accounting-II,** S Chand Publications, New Delhi.
2. T. S. Reddy and A. Murthy - **Financial Accounting**, Margham Publications.
3. R.L. Gupta & V.K. Gupta, **Principles and Practice of Accounting**, Sultan Chand.
4. SN Maheswari and SK Maheswari – **Financial Accounting**, Vikas Publications.
5. S.P. Jain & K.L Narang,**Accountancy-I**, Kalyani Publishers.
6. Tulsan, **Accountancy-I**, Tata McGraw Hill Co.
7. V.K. Goyal, **Financial Accounting**, Excel Books
8. T.S. Grewal, **Introduction to Accountancy**, Sultan Chand & Co.
9. Haneef and Mukherjee, **Accountancy-I**, Tata McGraw Hill.
10. Arulanandam and Ramana, **Advanced Accountancy**, Himalaya Publishers.
11. S.N.Maheshwari&V.L.Maheswari, **Advanced Accountancy-I**, Vikas Publishers.
12. Prof E Chandraiah, **Financial Accounting**, Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- ★ Quiz Programs
- ★ Problem Solving Exercises
- ★ Co-operative learning
- ★ Seminar
- ★ Group Discussions on problems relating to topics covered by syllabus
- ★ Reports on Proforma invoice and account sales
- ★ Visit a consignment and joint venturefirms(Individual and Group)
- ★ Collection of proforma of bills and promissory notes
- ★ Examinations (Scheduled and surprise tests)
- ★ Any similar activities with imaginative thinking beyond the prescribed syllabus

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

I Year B Com (Gen & CA)– Semester – II

Course 2B: Business Economics

Learning Outcomes:

At the end of the course, the student will able to;

- Describe the nature of economics in dealing with the issues of scarcity of resources.
- Analyze supply and demand analysis and its impact on consumer behaviour.
- Evaluate the factors,such as production and costs affecting firmsbehaviour.
- Recognize market failure and the role of government in dealing with those failures.
- Use economic analysis to evaluate controversial issues and policies.
- Apply economic models for managerial problems, identify their relationships, and formulate the decision making tools to be applied for business.

Syllabus

Unit-I: Introduction: Meaning and Definitions of Business Economics - Nature and Scope of Business Economics -Micro and Macro Economics and their Interface.

Unit-II: Demand Analysis: Meaning and Definition of Demand – Determinants to Demand –Demand Function -Law of Demand – Demand Curve – Exceptions to Law of Demand - Elasticity of Demand – Measurements of Price Elasticity of Demand

Unit – III: Production, **Cost and Revenue Analysis**: Concept of Production Function – Law of Variable Proportion -Law of Returns to Scale - Classification of Costs -Break Even Analysis - Advantages

Unit-IV: Market Structure: Concept of Market – Classification of Markets -Perfect Competition – Characteristics – Equilibrium Price -Monopoly – Characteristics – Equilibrium Under Monopoly.

Unit-V: National Income: Meaning – Definition – Measurements of National Income - Concepts of National Income -Components of National Income-Problems in Measuring National Income

References:

1. Business Economics -S.Sankaran, Margham Publications, Chennai.
2. Business Economics - Kalyani Publications.
3. Business Economics - Himalaya Publishing House.
4. Business Economics - Aryasri and Murthy, Tata McGraw Hill.
5. Business Economics -H.L Ahuja, Sultan Chand & Sons
6. Principles of Economics -Mankiw, Cengage Publications
7. Fundamentals of Business Economics -Mithani, Himalaya Publishing House
8. Business Economics -A.V. R. Chary, Kalyani Publishers, Hyderabad.
9. Business Economics -Dr K Srinivasulu, Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- Assignments
- Student Seminars
- Quiz , JAM
- Study Projects
- Group Discussion
- Graphs on Demand function and demand curves
- Learning about markets
- The oral and written examinations (Scheduled and surprise tests),
- Market Studies
- Individual and Group project reports,
- Annual talk on union and state budget
- Any similar activities with imaginative thinking beyond the prescribed syllabus

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

I Year B Com (Gen)– Semester – II

Course 2C:Banking Theory and Practice

Learning Outcomes:

At the end of the course, the student will able to;

- Understand the basic concepts of banks and functions of commercial banks.
- Demonstrate an awareness of law and practice in a banking context.
- Engage in critical analysis of the practice of banking law.
- Organize information as it relates to the regulation of banking products and services.
- Critically examine the current scenario of Indian Banking system.
- Formulate the procedure for better service to the customers from various banking innovations.

Syllabus:

Unit-I: Introduction:

Meaning & Definition of Bank – Functions of Commercial Banks – Credit Creation with Examples - Kinds of Banks – Central Banking Vs. Commercial Banking.

Unit-II: Banking Systems:

Unit Banking, Branch Banking, Investment Banking - Innovations in Banking – E banking - Online and Offshore Banking, Internet Banking - Anywhere Banking - ATMs – RTGS-NEFT – Mobile Banking

Unit-III: Types of Banks:

Indigenous Banking - Cooperative Banks, Regional Rural Banks, SIDBI, NABARD - EXIM bank

Unit-IV: Banker and Customer:

Meaning and Definition of Banker and Customer – Types of Customers – General Relationship and Special Relationship between Banker and Customer - KYC Norms.

Unit-V: Collecting Banker and Paying Banker:

Concepts - Duties & Responsibilities of Collecting Banker – Holder for Value – Holder in Due Course – Statutory Protection to Collecting Banker - Responsibilities of Paying Banker - Payment Gateways.

Books for Reference:

1. Banking Theory: Law &Practice : K P M Sundram and V L Varsheney, Sultan Chand &Sons.
2. Banking Theory, Law and Practice : B. Santhanam; Margam Publications.
3. Banking Theory and Practice, Seven Hills International Publishers, Hyderabad.
4. Banking and Financial Systems: Aryasri, Tata McGraw-Hill Education India.
5. Introduction to Banking :VijayaRaghavan,Excel books.
6. Indian Financial System :M.Y.Khan, McGraw Hill Education.
7. Banking Theory and Practice, Jagroop Singh, Kalyani Publishers.

Suggested Co-Curricular Activities:

- Debates
- Student Seminars
- Quiz Programmes
- Visit to Bank premises
- Guest Lecture by Banking Official
- Prepare a statement on periodical declarations of RBI like SLR, REPO etc
- Collection, display and Practicing of filling of different forms used in banks
- Survey on customers satisfaction of Banking services
- Know about KYC norms
- Talk on latest trends in banking industry
- Online Banking
- Individual and group project reports
- Current Affairs of Banking Sector
- Examinations (Scheduled and surprise tests)
- Any similar activities with imaginative thinking beyond the prescribed syllabus

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

II Year B Com (Gen &CA)– Semester – III

Course 3A:Advanced Accounting

Learning Outcomes:

At the end of the course, the student will able to;

- Understand theconcept of Non-profit organisations and its accounting process
- Comprehend the concept of single-entry system and preparation of statement of affairs
- Familiarize with the legal formalities at the time of dissolution of the firm
- Prepare financial statements for partnership firm on dissolution of the firm.
- Employ critical thinking skills to understand the difference between the dissolution of the firm and dissolution of partnership

Syllabus

Unit-I:**Accounting for Non Profit Organisations**: Non Profit Entities- Meaning - Features of Non-Profit Entities –Provisions as per Sec 8 - Accounting Process- Preparation of Accounting Records - Receipts and Payments Account- Income and Expenditure Account - Preparation of Balance Sheet (including problems).

Unit-II: Single Entry System: Features – Differences between Single Entry and Double Entry – Disadvantages of Single Entry- Ascertainment of Profit and Preparation of Statement of Affairs (including Problems).

Unit-III:Hire Purchase System: Features –Difference between Hire Purchase and Instalment Purchase Systems - Accounting Treatment in the Books of Hire Purchaser and Hire Vendor - Default and Repossession (including Problems).

Unit-IV: Partnership Accounts-I: Meaning – Partnership Deed - Fixed and Fluctuating Capitals-Accounting Treatment of Goodwill - Admission and Retirement of a Partner(including problems).

Unit-V: Partnership Accounts-II: Dissolution of a Partnership Firm – Application of Garner v/s Murray Rule in India – Insolvency of one or more Partners (including problems).

References:

1. Advanced Accountancy: T S Reddy and A Murthy by Margham Publications.
2. Financial Accounting: SN Maheswari& SK Maheswari by Vikas Publications.
3. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta, Sultan Chand & Sons.
4. Advanced Accountancy: R.L.Gupta&Radhaswamy, Sultan Chand &Sons..
5. Advanced Accountancy (Vol-II): S.N.Maheshwari&V.L.Maheswari, Vikas publishers.
6. Advanced Accountancy: Dr. G. Yogeshwaran, Julia Allen - PBP Publications.
7. Accountancy–III: Tulasian, Tata McGraw Hill Co.
8. Accountancy–III: S.P. Jain & K.L Narang, Kalyani Publishers.
9. Advanced Accounting (IPCC): D. G. Sharma, Tax Mann Publications.
10. Advanced Accounting: Prof B Amarnadh, Seven Hills International Publishers.
11. Advanced Accountancy: M Shrinivas& K Sreelatha Reddy, Himalaya Publishers.

Suggested Co-Curricular Activities:

- Quiz Programs
- Problem Solving exercises
- Co-operative learning
- Seminar
- Visit a single-entry firm, collect data and Creation of Trial Balance of the firm
- Visit Non-profit organization and collect financial statements
- Critical analysis of rate of interest on hire purchase schemes
- Visit a partnership firm and collect partnership deed
- Debate on Garner v/s Murray rule in India and outside India
- Group Discussions on problems relating to topics covered by syllabus
- Examinations (Scheduled and surprise tests) on all units

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

II Year B Com (Gen & CA)– Semester – III

Course 3B: Business Statistics

Learning Outcomes:

At the end of the course, the student will able to;

- Understand the importance of Statistics in real life
- Formulate complete, concise, and correct mathematical proofs.
- Frame problems using multiple mathematical and statistical tools, measuring relationships by using standard techniques.
- Build and assess data-based models.
- Learn and apply the statistical tools in day life.
- Create quantitative models to solve real world problems in appropriate contexts.

Syllabus:

Unit 1: Introduction to Statistics: Definition – Importance, Characteristics and Limitations of Statistics -Classification and Tabulation – Frequency Distribution Table -Diagrams and Graphic Presentation of Data (including problems)

Unit 2: Measures of Central Tendency: Types of Averages – Qualities of Good Average - Mean, Median, Mode, and Median based Averages-Geometric Mean – Harmonic Mean(including problems)

Unit 3: Measures of Dispersion: Meaning and Properties of Dispersion – Absolute and Relative Measures - Types of Dispersion-Range - Quartile Deviation (Semi – Inter Quartile Range) -Mean Deviation - Standard Deviation - Coefficient of Variation. (including problems)

Unit 4: Skewness and Kurtosis: Measures of Skewness: Absolute and Relative Measures- Co-efficient of Skewness: Karl Pearson's, Bowley's and Kelly's - Kurtosis: Meso kurtosis, Platy kurtosis and Leptokurtosis (including problems)

Unit 5: Measures of Relation: Meaning and use of Correlation – Types of Correlation - Karlpearson's Correlation Coefficient - Probable Error-Spearman's Rank-Correlation (including problems)

Suggested Readings:

1. Business Statistics, Reddy C.R., Deep Publications.
2. Statistical Methods: Gupta S.P.Sultan Chand & Sons.
3. Statistics-Problems and Solutions: Kapoor V.K, Sultan Chand &Sons.
4. Fundamentals of Statistics: Elhance. D.N
5. Business Statistics, Dr.P.R.Vittal, Margham Publications
6. Business Statistics, LS Agarwal, Kalyani Publications.
7. Statistics: Dr V Murali Krishna, Seven Hills International Publishers.
8. Fundamentals of Statistics: Gupta S.C. Sultan Chand &Sons.
9. Statistics-Theory, Methods and Applications: Sancheti, D.C. & Kapoor V.K.
10. Business Statistics: J.K. Sharma, Vikas Publishers.
11. Business Statistics: Bharat Jhunjhunwala, S Chand Publishers.
12. Business Statistics: S.L.Aggarval, S.L.Bhardwaj and K.Raghuveer, Kalyani Publishers.

Suggested Co-Curricular Activities

- Student Seminars,Quiz
- Problem Solving Exercises
- Observe Live Population Clocks – India and world
- Collection of statistical data of village/town, District, State, Nation
- Participate in Crop Cutting Experiments at villages
- Percentiles in CET exams
- Practice Statistical Functions in MS Excel
- Draw diagrams and Graphs in MS Excel
- Use statistical tools in real life like class/college results, local production etc
- Prepare questionnaire and schedule
- Application of averages in everyday life
- Examinations (Scheduled and surprise tests)
- Any similar activities with imaginative thinking beyond the prescribed syllabus

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

II Year B Com (Gen) – Semester – III

Course 3C:Marketing

Learning Outcomes:

At the end of the course, the student will able to;

- Develop an idea about marketing and marketing environment.
- Understand the consumer behaviourand market segmentation process.
- Comprehendthe product life cycle and product line decisions.
- Know the process of packaging and labeling to attract the customers.
- Formulate new marketing strategies for a specific new product.
- Develop new product line and sales promotion techniques for a given product.
- Design and develop new advertisements to given products.

Syllabus:

Unit-I: **Introduction:** Concepts of Marketing: Need, Wants and Demand - Marketing Concepts – Marketing Mix - 4 P's of Marketing – Marketing Environment.

Unit-II: **Consumer Behaviour and Market Segmentation:** Buying Decision Process – Stages – Buying Behaviour – Market Segmentation –Bases of Segmentation - Selecting Segments – Advantages of Segmentation.

Unit-III: Product Management: Product Classification – Levels of Product - Product Life Cycle - New Products, Product Mix and Product Line Decisions - Design, Branding, Packaging and Labelling.

Unit-IV: Pricing Decision: Factors Influencing Price – Determination of Price - Pricing Strategies: Skimming and Penetration Pricing.

Unit-V: Promotion and Distribution: Promotion Mix - Advertising - Sales promotion - Publicity – Public Relations - Personal Selling and Direct Marketing - Distribution Channels – Online Marketing

References:

1. Philip Kotler, Marketing Management, Prentice Hall of India.
2. Philip Kotler & Gary Armstrong, Principles of Marketing, Pearson Prentice Hall.
3. Stanton J. William & Charles Futrel, Fundamentals of Marketing, McGraw Hill.
4. V.S. Ramaswamy S. NamaKumari, Marketing Management – Planning, McMillan.
5. The Consumer Protection Act 1986 and Consumer Protection Act 2019.
6. Dhruv Grewal and Michael Levy,Marketing, McGraw Hill Education.
7. Dr L Natarajan, Financial Markets, Margham Publications.
8. Dr M Venkataramanaiah, Marketing, Seven Hill International Publishers.
9. C N Sonanki, Marketing, Kalyani Publications.

Suggested Co-Curricular Activities:

- Quiz programs
- Seminars
- Practice of Terminology of Marketing
- Guest lectures on various topics by marketing agents,
- Observing consumer behaviour on field trips to local markets
- Visit a manufacturing industry/firm for product manufacturing process
- Showing Graphs on Pricing decisions
- Analyse the advertisements
- Product demonstration by the student
- Conducting the survey on middle man in marketing process
- Making a advertisement
- Examinations (Scheduled and surprise tests)

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

II Year B Com (Gen & CA)– Semester – IV

Course 4A:Corporate Accounting

Learning Outcomes:

At the end of the course, the student will able to;

- Understand the Accounting treatment of Share Capital and aware of process of book building.
- Demonstratetheprocedure for issue of bonus shares and buyback of shares.
- Comprehend the important provisions of Companies Act, 2013 and prepare final accounts of a company with Adjustments.
- Participate in the preparation of consolidated accounts for a corporate group.
- Understand analysis of complex issues, formulation ofwell-reasoned arguments and reachingbetter conclusions.
- Communicate accounting policy choiceswith reference to relevant laws and accounting standards.

SYLLABUS:

Unit-I:

Accounting for Share Capital: Kinds of Shares – Types of Preference Shares – Issue of Shares at Par, Discount and Premium - Forfeiture and Reissue of Shares (including problems).

Unit-II:

Issue and Redemption of Debentures and Issue of Bonus Shares: Accounting Treatment for Debentures Issued and Repayable at Par, Discount and Premium -Issue of Bonus Shares - Buyback of Shares - (including problems).

Unit-III:

Valuation of Goodwill: Need and Methods - Average Profit Method, Super Profits Method – Capitalization Method and Annuity Method (Including problems).

Unit –IV:

Valuation Shares: Need for Valuation - Methods of Valuation - Net Assets Method, Yield Basis Method, Fair Value Method (including problems).

UNIT – V:

Company Final Accounts: Provisions of the Companies Act, 2013 - Preparation of Final Accounts – Adjustments Relating to Preparation of Final Accounts – Profit and Loss Account and Balance Sheet – (including problems with simple adjustments).

Reference Books:

1. Corporate Accounting – T.S Reddy and Murthy, MarghamPublications, Chennai.
2. Advanced Accounts: M C Shukla, T S Grewal and S C Gupta, S Chand Publications
3. Corporate Accounting – Haneef & Mukherji, Tata McGraw Hill Publications.
4. Corporate Accounting – RL Gupta & Radha Swami,Sultan Chand & sons
5. Corporate Accounting – P.C. Tulsian, S.Chand Publishers
6. Advanced Accountancy: Jain and Narang,,Kalyani Publishers
7. Advanced Accountancy: R.L. Gupta and M.Radhaswamy, S Chand.
8. Advanced Accountancy :Chakraborthy, Vikas Publishers
9. Corporate Accounting: S.N. Maheswari, S.K. Maheswari, Vikas Publishing House.
10. Advanced Accounts: M.C. Shukla, T.S. Grewal, S.C. Gupta, S. Chand & Company
11. Corporate Accounting: Umamaheswara Rao, Kalyani Publishers
12. Corporate Accounting: Dr ChandaSrinivas, SevenHills International Publishers,
13. Advanced Accountancy: Arulanandam& Raman, Himalaya Publishing House.

Suggested Co-Curricular Activities:

- Assignments
- Problem Solving Exercises
- Collect and fill the share application form of a limited Company
- Collect Prospectus of a company and identify its salient features
- Collect annual report of a Company and List out its assets and Liabilities.
- Collect the annual reports of company and calculate the value of goodwill under different methods
- Power point presentations on types of shares and share capital
- Group Discussions on problems relating to topics covered by syllabus

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

II Year B Com (Gen & CA)– Semester – IV

Course 4B:Cost and Management Accounting

Learning Outcomes:

At the end of the course, the student will able to;

- Understand various costing methods and management techniques.
- Apply Cost and Management accounting methods for both manufacturing and service industry.
- Prepare cost sheet, quotations, and tenders to organization for different works.
- Analyze cost-volume-profit techniques to determine optimal managerial decisions.
- Compare and contrast the financial statements of firms and interpret the results.
- Prepare analysis of various special decisions, using relevant management techniques.

SYLLABUS:

UNIT-I: Introduction:

Cost Accounting: Definition – Features – Objectives – Functions – Scope – Advantages and Limitations - Management Accounting: Features – Objectives – Functions –
Elements of Cost - Preparation of Cost Sheet (including problems)

UNIT-II: Material and Labour Cost:

Techniques of Inventory Control – Valuation of Material Issues: FIFO - LIFO - Simple and Weighted Average Methods

Labour: Direct and Indirect Labour Cost – Methods of Payment of Wages- Incentive Schemes -Time Rate Method, Piece Rate Method, Halsey, Rowan Methods and Taylor Methodsonly(including problems)

UNIT-III: Job Costing and Batch Costing:

Definition and Features of Job Costing – Economic Batch Quantity (EBQ) – Preparation of Job Cost Sheet – Problems on Job Cost Sheet and Batch Costing(including problems)

UNIT-IV: Financial Statement Analysis and Interpretation:

Financial Statements - Features, Limitations. Need, Meaning, Objectives, and Process of Financial Statement Analysis- Comparative Analysis – Common Size Analysis and Trend Analysis (including problems)

UNIT-V: Marginal Costing:

Meaning and Features of Marginal Costing – Contribution –Profit Volume Ratio- Break Even Point – Margin of Safety – Estimation of Profit and Estimation of Sales(including problems)

References:

1. S.P. Jain and K.L. Narang – Advanced Cost Accounting, Kalyani Publishers.
2. M.N. Arora – A test book of Cost Accounting, Vikas Publishing House Pvt. Ltd.
3. S.P. Iyengar – Cost Accounting, Sultan Chand & Sons.
4. Nigam & Sharma – Cost Accounting Principles and Applications, S.Chand& Sons.
5. S.N. Maheswari– Principles of Management Accounting, Sultan Chand & Sons.
6. I.M.Pandey – Management Accounting, Vikas Publishing House Pvt. Ltd.
7. Sharma & Shashi Gupta – Management Accounting, Kalyani Publishers.
8. Murthy & Guruswamy – Management Accounting, Tata McGraw Hill, New Delhi.
9. S.P. Gupta – Management Accounting, S. Chand Publishing, New Delhi.
10. Umamaheswara Rao and Ranganath, Cost Accounting, Kalyani Publishers.
11. Dr V Murali Krishna – Cost Accounting, Seven Hills International Publishers.

Suggested Co-Curricular Activities:

- Debate on methods of payments of wages
- Seminars
- Problem Solving Exercises
- Seminar on need and importance of financial statement analysis
- Graphs showing the breakeven point analysis
- Identification of elements of cost in services sector by Visiting any service firm
- Cost estimation for the making of a proposed product
- Listing of industries located in your area and methods of costing adopted by them
- Collection of financial statements of any two organization for two years and prepare a common Size Statements
- Collection of cost sheet and pro-forma of quotation
- Examinations (Scheduled and surprise tests)

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

II Year B Com (Gen& CA)– Semester – IV

Course 4C: Income Tax

Learning Outcomes:

At the end of the course, the student will able to;

- Acquire the complete knowledge of the tax evasion, tax avoidance and tax planning.
- Understand the provisions and compute income tax for various sources.
- Grasp amendments made from time to time in Finance Act.
- Compute total income and define tax complicacies and structure.
- Prepare and File IT returns of individual at his own.

Syllabus:

Unit-I: Introduction: Income Tax Act-1961 - Basic Concepts: Income, Person, Assessee - Assessment Year, Previous Year, Rates of Tax, Agricultural Income, Residential Status of Individual -Incidence of Tax – Incomes Exempt from Tax (theory only).

Unit-II: Income from Salaries: Basis of Charge, Tax Treatment of Different Types of Salaries Allowances, Perquisites, Profits in Lieu of Salary, Deductions from Salary Income, Computation of Salary Income (including problems).

Unit-Ill: Income from House Property and Profits and Gains from Business: Annual Value, Let-out/Self Occupied/Deemed to be Let-out house -Deductions from Annual Value - Computation of Income from House Property

Definition of Business and Profession – Procedure for Computation of Income from Business – Revenue and Capital Nature of Incomes and Expenses – Allowable Expenses – Expenses Expressly Disallowed – Computation (including problems).

Unit-IV: Income from Capital Gains - Income from Other Sources: Meaning of Capital Asset – Types – Procedure for Computation of Long-term and Short-term Capital Gains/Losses

Meaning of Other Sources - General Incomes – Specific Incomes – Computation (including problems).

Unit-V: Computation of Total Income of an Individual: Deductions under Section 80 - Computation of Total Income (Simple problems).

Reference Books:

1. Dr. Vinod; K. Singhania; Direct Taxes – Law and Practice, Taxman Publications
2. T. S. Reddy and Dr. Y. Hari Prasad Reddy - Taxation , by Margham Publications
3. Premraj and Sreedhar, Income Tax, Hamsrala Publications
4. B.B. Lal - Direct Taxes; Konark Publications
5. Dr. Mehrotra and Dr. Goyal -Direct Taxes, Law and Practice, Sahitya Bhavan Publication.
6. Balachandran&Thothadri- Taxation Law and Practice, PHI Learning.
7. V.P. Gaur and D.B. Narang - Income Tax, Kalyani Publications
8. Dr Y Kiranmayi - Taxation, Jai Bharath Publishers
9. Income Tax, Seven Lecture Series, Himalaya Publications

Suggested Co-Curricular Activities:

- Seminar on different topics of Income tax
- Quiz programs
- Problem Solving Exercises
- Debate on Tax Evasion and Avoidance
- Practice of provisions of Taxation
- Visit a Tax firm
- Talk on Finance Bill at the time of Union Budget
- Guest lecture by Chartered Accountant
- Presentation of tax rates
- Practice of filing IT Returns online
- Group Discussions on problems relating to topics covered by syllabus
- Examinations (Scheduled and surprise tests)

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

II Year B Com (Gen & CA)– Semester – IV

Course 4D:Business Law

Learning Outcomes:

At the end of the course, the student will able to;

- Understand the legal environment of business and laws of business.
- Highlight the security aspects in the present cyber-crime scenario.
- Apply basic legal knowledge to business transactions.
- Understand the various provisions of Company Law.
- Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to business associations and legal issues.
- Integrate concept of business law with foreign trade.

Syllabus:

Unit-I: Contract:

Meaning and Definition of Contract - Essential Elements of Valid Contract -Valid, Void and Voidable Contracts - Indian Contract Act, 1872

Unit-II: Offer, Acceptance and Consideration:

Definition of Valid Offer, Acceptance and Consideration - Essential Elements of a Valid Offer, Acceptance and Consideration.

Unit-Ill: Capacity of the Parties and Contingent Contract:

Rules Regarding to Minors Contracts - Rules Relating to Contingent Contracts - Different Modes of Discharge of Contracts - Rules Relating to Remedies to Breach of Contract.

Unit-IV: Sale of Goods Act 1930 and Consumer Protection Act 2019:

Contract of Sale - Sale and Agreement to Sell - Implied Conditions and Warranties - Rights of Unpaid Vendor- Definition of Consumer - Person - Goods - Service - Consumer Dispute - Consumer Protection Councils - Consumer Dispute Redressal Mechanism

Unit-V: Cyber Law:

Overview and Need for Cyber Law - Contract Procedures - Digital Signature – Safety Mechanisms.

References:

1. J. Jaysankar, Business Laws, Margham Publication. Chennai.
2. ND Kapoor, Business Laws, S Chand Publications.
3. Balachandram V, Business law, Tata McGraw Hill.
4. Tulsian, Business Law, Tata McGraw Hill.
5. Pillai Bhagavathi, Business Law,SChand Publications.
6. Business Law, Seven Hills Publishers, Hyderabad.
7. K C Garg, Business Law, Kalyani Publishers.

Suggested Co-Curricular Activities

- Seminar on Basics of Indian Contract Act,1872
- Quiz programs
- Co-operative learning
- Seminar on Cyber Law
- Group Discussions
- Debate on Offer, Agreement, and Contract
- Creation of Contract by abiding rules of Indian Contract Act,1872
- Making a sale by abiding rules of Sale of Goods Act,1930
- Guest lecture by a Lawyer/Police officer
- Celebrating consumers day by creating awareness among the students
- Examinations (Scheduled and surprise tests)
- Any similar activities with imaginative thinking beyond the prescribed syllabus

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

II Year B Com (Gen& CA)– Semester – IV

Course 4E:Auditing

Learning Outcomes:

At the end of the course, the student will able to;

- Understanding the meaning and necessity of audit in modern era
- Comprehend the role of auditor in avoiding the corporate frauds
- Identify the steps involved in performing audit process
- Determine the appropriate audit report for a given audit situation
- Apply auditing practices to different types of business entities
- Plan an audit by considering concepts of evidence, risk and materiality

SYLLABUS:

Unit-I: Introduction: Meaning – Objectives – Importance of Auditing – Characteristics - Book Keeping vs Auditing - Accounting vs Auditing – Role of Auditor in Checking Corporate Frauds.

Unit-II: Types of Audit: Based on Ownership,Time and Objective - Independent, Financial, Internal, Cost,Tax, Government, Secretarial Audits

Unit-III: Planning of Audit: Steps to be taken at the Commencement of a New Audit – Audit Programme - Audit Note Book– Audit Working Papers - Audit Evidence - Internal Check, Internal Audit and Internal Control.

Unit-IV: Vouching and Investigation: Definition and Importance of Vouching – Objectives of Vouching -Vouching of Cash and Trading Transactions – Investigation - Auditing vs. Investigation

Unit-V: Company Audit and Auditors Report: Auditor's Qualifications – Appointment andReappointment – Rights, Duties, Liabilities and Disqualifications - Audit Report: Contents –Preparation - Relevant Provisions of Companies Act, 2013.

References:

1. S.Vengadamani, “Practical Auditing”, Margham Publications, Chennai.
2. Ghatalia, “Principles of Auditing”, Allied Publishers Pvt. Ltd., New Delhi.
3. Pradeesh Kumar, BaldevSachdeva&Jagwant Singh, “Auditing Theory and Practice,Kalyani Publications
4. N.D. Kapoor, “Auditing”, S Chand, New Delhi.
5. R.G. Saxena, “Principles and Practice of Auditing”, Himalaya Publishing House New Delhi
6. JagadeshPrakesh, “Principles and Practices of Auditing”, Kalyani Publications
7. Kamal Gupta and Ashok Gupta, “Fundamentals of Auditing”, Tata McGraw Hill
8. B.N. Tondan, “Practical Auditing”, S.Chand, New Delhi.
9. K J Vijaya Lakshmi & A S Roopa, Auditing, Seven Hills International Publishers, Hyderabad

Suggested Co-Curricular Activities:

- Seminars
- Visit the audit firms
- Visit an audit firm, write about the procedure followed by them in Auditing the books of accounts of a firm.
- Guest lecture by an auditor
- Collect the information about types of audit conducted in any one Organization
- Collection of audit reports
- Group Discussions
- Draft an audit program.

PROGRAMME: FOUR-YEAR B COM

Course Code:

Domain Subject: Commerce

Semester-wise Syllabus under CBCS

(w.e.f. 2020-21 Admitted Batch)

II Year B Com (Gen)– Semester – IV

Course 4F:Goods and Service Taxes

Learning Outcomes:

At the end of the course, the student will able to;

- Understand the basic principles underlying the Indirect Taxation Statutes.
- Examine the method of tax credit. Input and Output Tax credit and Cross Utilisation of Input Tax Credit.
- Identify and analyze the procedural aspects under different applicable statutes related to GST.
- Compute the assessable value of transactions related to goods and services for levy and determination of duty liability.
- Develop various GST Returns and reports for business transactions in Tally.

Syllabus:

Unit I: Introduction: Overview of GST - Concepts –Taxes Subsumed under GST – Components of GST- GST Council- Advantages of GST-GST Registration.

Unit II: GST Principles –Vijay Kelkar Sha Committee Recommendations - Comprehensive Structure of GST Model in India: Single, Dual GST – GST Rates - Taxes Exempted from GST- Taxes and Duties outside the purview of GST- Taxation of Services

Unit-III: Tax Invoice- Bill of Supply-Transactions Covered under GST-Composition Scheme- Reverse Charge Mechanism- Composite Supply -Mixed Supply.

Unit-IV: Time of Supply of Goods & Services: Value of Supply - Input Tax Credit - Distribution of Credit -Matching of Input Tax Credit - Availability of Credit in Special Circumstances- Cross utilization of ITC between the Central GST and the State GST.

Unit-V:GST Returns: Regular Monthly Filing Returns-Composition Quarterly Filing Returns-GSTR-1, GSTR-2, GSTR 2A, GSTR-3, GSTR 3B -Annual Returns GSTR-9, GSTR 9A, GSTR 9B& GSTR 9C - Records to be Maintained under GST

References:

1. T. S. Reddy and Dr. Y. Hari Prasad Reddy, Business Taxation (Goods and Services Taxes),Margham Publications.
2. Taxmann's Basics of GST.
3. Taxmann's GST: A practical Approach.
4. Theory & Practice of GST, Srivathsala, Himalaya Publishing House.
5. Goods and Services Tax in India - Notifications on different dates.
6. GST Bill 2012.
7. Background Material on Model GST Law, Sahitya Bhawan Publications.
8. The Central Goods and Services Tax Act, 2017, No. 12 of 2017 Published by Authority,
9. Ministry of Law and Justice, New Delhi, the 12thApril, 2017.
10. Theory & Practice of GST: Dr. Ravi M.N, BPB Publications.

Suggested Co-Curricular Activities

- Seminars
- Show the flow chart of GST Suvidha Provider (GST).
- Practice of Terminology of Goods and Service Tax
- Prepare chart showing rates of GST
- Follow GST Council meeting updates regularly
- Creation of GST Vouchers and Tax invoices
- Visit a Tax firm (Individual and Group)
- Guest lecture by GST official
- Prepare Tax invoice under the GST Act.
- Practice on how to file a Returns
- Debate on Single GS, Dual GST
- Group Discussions on Goods and Services outside the Purview of GST

Recommended Format for Question Paper

For Courses 1A, 2A, 3A, 3B, 4A, 4B, 4C

Time: 3 Hours] *[Max. Marks : 75*

Section-A ***[5X5=25]***

Answer any **FIVE** of the following questions.

(at least 4 problems must be given)

1 Contents of **Unit-I**

2 Contents of **Unit-II**

3 Contents of **Unit-III**

4 Contents of **Unit-IV**

5 Contents of **Unit-V**

6 Contents of **Unit-I to Unit V**

7 Contents of **Unit-I to Unit V**

8 Contents of **Unit-I to Unit V**

Section-B **[5X10=50]**

Answer **FIVE** questions

9 a Contents of **Unit-I**(Theory/Problem)

(OR)

9 b Contents of **Unit-I**(Problem)

10 a Contents of **Unit-II**(Theory/Problem)

(OR)

10 b Contents of **Unit-II**(Problem)

11 a Contents of **Unit-III**(Theory/Problem)

(OR)

11 b Contents of **Unit-III**(Problem)

12 a Contents of **Unit-IV**(Theory/Problem)

(OR)

12 b Contents of **Unit-IV**(Problem)

13 a Contents of **Unit-V**(Theory/Problem)

(OR)

13 b Contents of **Unit-V**(Problem)

Recommended Format for Question Paper

For Courses 1B, 1C, 2B, 2C, 3C, 4D, 4E,4F

Time: 3 Hours] *[Max. Marks : 75*

Section-A ***[5X5=25]***

Answer any **FIVE** of the following questions.

1 Contents of **Unit-I**

2 Contents of **Unit-II**

3 Contents of **Unit-III**

4 Contents of **Unit-IV**

5 Contents of **Unit-V**

6 Contents of **Unit-I to Unit V**

7 Contents of **Unit-I to Unit V**

8 Contents of **Unit-I to Unit V**

Section-B **[5X10=50]**

Answer **FIVE** questions

9 a Contents of **Unit-I**

(OR)

9 b Contents of **Unit-I**

10 a Contents of **Unit-II**

(OR)

10 b Contents of **Unit-II**

11 a Contents of **Unit-III**

(OR)

11 b Contents of **Unit-III**

12 a Contents of **Unit-IV**

(OR)

12 b Contents of **Unit-IV**

13 a Contents of **Unit-V**

(OR)

13 b Contents of **Unit-V**

SUBJECT EXPERTS

Prof. M. Venkateswarlu

Dept of Commerce, S V University, Tirupathi

Dr.D.Jayarama Reddy

Dept of Commerce, Govt College (A), Anantapur

Dr. K. Srinivasa Rao

Dept of Commerce, Govt. Degree College, Ravulapalem

SYLLABUS VETTED BY

Prof. M. Rajasekhar

Dept of Commerce, S V University, Tirupathi

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

3rd,4thand 5thfloors,NeeladriTowers,Sri Ram Nagar,6th Battalion Road,
Atmakur(V),Mangalagiri(M),Guntur-522 503,Andhra Pradesh
Web:www.apsche.org**E.mail**: acapsche@gmail.com

REVISED SYLLABUS OF B Com (COMPUTER APPLICATIONS)

UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-21

PROGRAMME: THREE-YEAR B Com(Computer Applications)

FOR
Computer Application Papers/Titles

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P.)

For Fifteen Courses of 1, 2, 3 & 4 Semesters)

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

(A Statutory body of the Government of Andhra Pradesh)

CBCS – UG SYLLABUS SUBJECT REVIEW COMMITTEE

(w.e.f. 2020-21 Admitted Batch)

PROGRAMME: Three-Year BCom(Computer Applications)

Domain Subject: Commerce (Computer Applications)

(Syllabus with Outcomes, Co-curricular Activities, Referencesfor Fifteen Courses of 1, 2, 3 & 4 Semesters)

Structure of B.Com (Computer Applications)Programme under Revised CBCS

Sl. No	Code	Sem	Courses	Name of Course (Each Course consists 5 Units with each Unit having 12 hours of class-work)	Hours/ Week	Credits	Marks	
							Mid Sem	Sem End
1		I	1A	Fundamentals of Accounting	5	4	25	75
2		I	1B	Business Organization and Management	5	4	25	75
3		I	1C	**Information Technology**	3T + 2P	3 +1	25	50T+25P
4		II	2A	Financial Accounting	5	4	25	75
5		II	2B	Business Economics	5	4	25	75
6		II	2C	**E-commerce and Web Designing**	3T + 2P	3 +1	25	50T+25P
7		III	3A	Advanced Accounting	5	4	25	75
8		III	3B	Business Statistics	5	4	25	75
9		III	3C	**Programming with C & C++**	3T + 2P	3 +1	25	50T+25P
10		IV	4A	Corporate Accounting	5	4	25	75
11		IV	4B	Cost and Management Accounting	5	4	25	75
12		IV	4C	Income Tax	5	4	25	75
13		IV	4D	Business Laws	5	4	25	75
14		IV	4E	Auditing	5	4	25	75
15		IV	4F	**Data Base Management System**	3T + 2P	3 +1	25	50T+25P
Total					**75**	**60**	**375**	**1125**

Syllabus Approved 6/1/21

A. Madhavi 16/1/21

PROGRAMME: THREE-YEAR DEGREE

B Com (Computer Applications)

Domain Subject: Commerce

Semester-wise Syllabus under CBCS(w.e.f. 2020-21 Admitted Batch)

I Year B Com (CA), Semester- I

Discipline: COMPUTER APPLICATIONS

Course 1A:Information Technology

Model Outcomes:

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

A. *Remembers and states in a systematic way (Knowledge)*

1. Describe the fundamental hardware components that make up a computer's hardware and the role of each of these components
2. understand the difference between an operating system and an application program, and what each is used for in a computer
3. Use technology ethically, safely, securely, and legally
4. Use systems development, word-processing, spreadsheet, and presentation software to solve basic information systems problems

B. *Explains (Understanding)*

5. Apply standard statistical inference procedures to draw conclusions from data
6. Retrieve information and create reports from databases
7. Interpret, produce, and present work-related documents and information effectively and accurately

C. *Critically examines, using data and figures (Analysis and Evaluation**)*

8. Analyse compression techniques and file formats to determine effective ways of securing, managing, and transferring data
9. Identify and analyse user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing based systems.
10. Analyse a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

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11. Identify and analyse computer hardware, software

D. Working in 'Outside Syllabus *Area' under a Co-curricular Activity*(Creativity) Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

E. Efficiently learn and use Microsoft Office applications.

Syllabus:

Course 1C :Information Technology

(Five units with each unit having 12 hours of class work)

Unit	Details
I	**Introduction:** Computer Definition - Characteristics and Limitations of Computer Hardware— Generations of Computer, Classification of Computers, Applications of Computer, Basic Components of PC, Computer Architecture - Primary and Secondary Memories- Input and Output Devices- Operating System- Function of Operating System- Types of Operating System- Languages and its Types
II	**MS word:** Word Processing – Features-Advantages and Applications- Parts of Word Window-Toolbar-Creating, Saving, Closing, Opening and Editing of a Document-Moving and Coping a Text-Formatting of Text and Paragraph- Bullets and Numbering-Find and Replace - Insertion of objects-Headers and Footers- Page Formatting- Auto Correct-Spelling and Grammar- Mail Merge- Macros
III	**MS Excel:** Features – Spread Sheet-Workbook – Cell-Parts of a window-Saving, Closing, Opening of a Work Book – Editing – Advantages – Formulas- Types of Function-

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Templates – Macros – Sorting- Charts – Filtering – Consolidation – Grouping- Pivot Table

IV MS Power point:

Introduction – Starting – Parts-Creating of Tables- Create Presentation – Templates-Auto Content Wizard-Slide Show-Editing of Presentation-Inserting Objects and charts

V MS Access:

Orientation to Microsoft Access - Create a Simple Access Database - Working with Table Data - Modify Table Data - Sort and Filter Records - Querying a Database - Create Basic Queries - Sort and Filter Data in a Query - Perform Calculations in a Query - Create Basic Access Forms - Work with Data on Access Forms - Create a Report - Add Controls to a Report - Format Reports

Learning Resources (Course 1C:Information Technology)

References:

(1) P.Mohan computer fundamentals- HimalayaPublications.

(2) R.K.Sharma and Shashi K Gupta, Computer Fundamentals - Kalyani Publications

(3) Fundamentals of Computers ByBalagurusamy, Mcgraw Hill

(4) Computer Fundamentals Anita Goel Pearson India

(5) Introduction to Computers Peter Norton

(6) Fundamentals of Computers Rajaraman V Adabala N

(7) Office 2010 All-in-One For Dummies Peter Weverka

(8) MS-Office S.S. Shrivastava

(9) MS-OFFICE 2010 Training Guide Prof. Satish Jain, M. Geetha, KratikaBPB Publications

Online Resources:

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https://support.office.com/en-us/office-training-center

https://www.skillshare.com/browse/microsoft-office

https://www.tutorialspoint.com/computer_fundamentals/index.htm

https://www.javatpoint.com/computer-fundamentalstutorial

https://edu.gcfglobal.org/en/subjects/office/

https://www.microsoft.com/en-us/learning/training.aspx

Practical Component: @ 2 hours/week/batch

- MS word creation of documents letters invitations etc, tables, mailmerge, animations in word, formatting text
- MS Excel performing different formulas, creating charts,macros
- MS power point slide creation, creation of animation
- MS Access creation of database, forms and reports

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity)
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity)
5. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

General

1. Group Discussion
2. Visit to Software Technology parks / industries

Syllabus Approved 6/1/21 A. Madhavi 16/1/21

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Coding exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports,
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

PROGRAMME: THREE-YEAR DEGREE

B Com (Computer Applications)

Domain Subject: Commerce

Semester-wise Syllabus under CBCS(w.e.f. 2020-21 Admitted Batch)

I Year B Com (CA), Semester – II

Discipline: COMPUTER APPLICATIONS

Course 2C: E- Commerce & Web Designing

(Five units with each unit having 12 hours of class work)

Learning Outcomes:

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

B. *Remembers and states in a systematic way (Knowledge)*

1. Understand the foundations and importance of E-commerce
2. Define Internet trading relationships including Business to Consumer, Business-to-Business, Intra-organizational
3. Describe the infrastructure for E-commerce
4. Discuss legal issues and privacy in E-Commerce
5. Understand the principles of creating an effective web page, including an in-depth consideration of information architecture

B. *Explains (Understanding)*

6. Recognize and discuss global E-commerce issues
7. Learn the language of the web: HTML and CSS.

C. *Critically examines, using data and figures (Analysis and Evaluation)*

8. Analyze the impact of E-commerce on business models and strategy
9. Assess electronic payment systems
10. Exploring a web development framework as an implementation example and create dynamically generated web site complete with user accounts, page level security, modular design using css

Syllabus Approved: 16/1/21 A. Madhavi 16/1/21

D. Working in 'Outside Syllabus *Area' under a Co-curricular Activity*(Creativity)

Use the Systems Design Approach to implement websites with the following steps:

- Define purpose of the site and subsections
- Identify the audience
- Design and/or collect site content
- Design the website theme and navigational structure
- Design & develop web pages including: CSS Style Rules, Typography, Hyperlinks, Lists, Tables, Frames, Forms, Images, Behaviours, CSS Layouts

E. Build a site based on the design decisions and progressively incorporate tools and techniques covered

SYLLABUS

Course 2C: E-commerce & Web Designing

Unit	Details
I	**Unit I: Introduction:** Meaning, Nature, Concepts, Advantages, Disadvantages and reasons for Transacting Online, Types of E-Commerce, e-commerce Business Models (Introduction , Key Elements of a Business Model And Categorizing Major E-Commerce Business Models), Forces Behind e-commerce. **Technology used in E-commerce:** The dynamics of World Wide Web and Internet (Meaning, EvolutionAnd Features); Designing, Building and Launching e-commerce website (A systematic approach involving decisions regarding selection of hardware, software, outsourcing Vs. in-house development of a website)
II	**Unit-II: E-payment System:** Models and methods of e-payments (Debit Card, Credit Card, Smart Cards, e-money), Digital Signatures (Procedure, Working And Legal Position), Payment Gateways, Online Banking (Meaning, Concepts, Importance, Electronic Fund Transfer, Automated Clearing House, Automated Ledger Posting), Risks Involved in e-payments.

Syllabus Approved : 6/1/21 A. Madhavi 16/1/21

III **Unit-III: On-line Business Transactions:**

Meaning, Purpose, Advantages and Disadvantages of Transacting Online, E-Commerce Applications in Various Industries Like {Banking, Insurance, Payment of Utility Bills, Online Marketing, E-Tailing (Popularity, Benefits, Problems and Features), Online Services (Financial, Travel and Career), Auctions, Online Portal, Online Learning, Publishing and Entertainment} Online Shopping (Amazon, Snap Deal, Alibaba, Flipkart, etc.)

IV **Unit-IV: Website designing**

Designing a home page, HTML document, Anchor tag Hyperlinks, Head and body section, Header Section, Title, Prologue, Links, Colorful Pages, Comment, Body Section, Heading Horizontal Ruler, Paragraph, Tabs, Images And Pictures, Lists and Their Types, Nested Lists, Table Handling.

Frames: Frameset Definition, Frame Definition, Nested Framesets, Forms and Form Elements. DHTML and Style Sheets: Defining Styles, elements of Styles, linking a style sheet to a HTML Document, Inline Styles, External Style Sheets, Internal Style Sheets & Multiple Style Sheets.

V **Unit V: Security and Encryption:**

Need and Concepts, E-Commerce Security Environment: (Dimension, Definition and Scope Of E-Security), Security Threats in The E-Commerce Environment (Security Intrusions And Breaches, Attacking Methods Like Hacking, Sniffing, Cyber-Vandalism Etc.), Technology Solutions (Encryption, Security Channels Of Communication, Protecting Networks And Protecting Servers And Clients)

Syllabus Approved: 6/11/21 D. Madhavi 6/11/21

References:

(1) E-commerce and E-business Himalaya publishers
(2) E-Commerce by Kenneth C Laudon, PEARSON INDIA
(3) Web Design: Introductory with MindTap Jennifer T Campbell, Cengage India
(4) HTML & WEB DESIGN:TIPS& TECHNIQUES JAMSA, KRIS, McGraw Hill
(5) Fundamentals Of Web Development by Randy Connolly, Ricardo Hoar, Pearson
(6) HTML & CSS: COMPLETE REFERENCE POWELL,THOMAS, McGrawHill

Online Resources:

http://www.kartrocket.com
http://www.e-commercecеo.com
http://www.fastspring.com
https://teamtreehouse.com/tracks/web-design

Practical Component:@ 2 hours/week/batch

1. Creation of simple web page using formatting tags
2. Creation of lists and tables with attributes
3. Creation ofhyperlinks and including images
4. Creation of forms
5. Creation of framesets
6. Cascading style sheets – inline, internal and external

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

MEASURABLE

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity)

Syllabus Approved : 6/1/21 A. Madhavi 16/1/21

3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams)
4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity)
5. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity)

GENERAL

Group Discussion

Visit to Software Technology parks / industries

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Coding exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports,
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

Syllabus Approved : 16/1/21 A. Madhavi 16/1/21

PROGRAMME: THREE-YEAR DEGREE

B Com (Computer Applications)

Domain Subject: Commerce

Semester-wise Syllabus under CBCS(w.e.f. 2020-21 Admitted Batch)

I Year B Com (CA), Semester – III

Discipline: COMPUTER APPLICATIONS

Course 3C: Programming with C & C++

(Five units with each unit having 12 hours of class work)

Model Outcomes:

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

C. Remembers and states in a systematic way (Knowledge)

1. Develop programming skills
2. Declaration of variables and constants use of operators and expressions
3. learn the syntax and semantics of programming language
4. Be familiar with programming environment of C and C++
5. Ability to work with textual information (characters and strings) & arrays

D. Explains (Understanding)

6. Understanding a functional hierarchical code organization
7. Understanding a concept of object thinking within the framework of functional model
8. Write program on a computer, edit, compile, debug, correct, recompile and run it

E. Critically examines, using data and figures (Analysis and Evaluation)

9. Choose the right data representation formats based on the requirements of the problem

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10. Analyze how C++ improves C with object-oriented features
11. Evaluate comparisons and limitations of the various programming constructs and choose correctone for the task in hand.

D. Working in 'Outside Syllabus *Area' under a Co-curricular Activity*(Creativity)

Planning of structure and content, writing, updating and modifying computer programs for user solutions

E. Exploring C programming and Design C++ classes for code reuse (Practical skills***)

SYLLABUS

Course 3C: Programming with C & C++

Unit	Details
I	**Introduction and Control Structures:** History of 'C' - Structure of C program – C character set, Tokens, Constants, Variables, Keywords, Identifiers – C data types - C operators - Standard I/O in C - Applying if and Switch Statements
II	**Loops And Arrays:** Use of While, Do While and For Loops - Use of Break and Continue Statements - Array Notation and Representation - Manipulating Array Elements - Using Multi Dimensional Arrays
III	**Strings and Functions:** Declaration and Initialization of String Variables - String Handling Functions -Defining Functions - Function Call - Call By Value, Call By Reference – Recursion
IV	**Classes and Objects** Introduction to OOP and its basic features - C++ program structure - Classes and objects - Friend Functions- Static Functions –Constructor – Types of constructors – Destructors - Unary Operators

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V **Inheritance:**

Inheritance - Types of Inheritance -Types of derivation- Public – Private - Protected Hierarchical Inheritance - Multilevel Inheritance – Multiple Inheritance - Hybrid Inheritance

Learning Resources (Course 3C: : Programming with C & C++)

References:

(1) E. Balagurusamy "Object oriented programming with C++

(2) R.Ravichandran "Programming with C++"

(3) Mastering C by K R Venugopal and Sudeep R Prasad, McGraw Hill

(4) Expert C Programming: Deep Secrets Kindle Edition Peter van der Linden

(5) Let Us C YashavantKanetkar

(6) The C++ Programming Language Bjarne Stroustrup

(7) C++ Primer Stanley B. Lippman, Josée Lajoie, Barbara E. Moo

Online Resources:

https://www.tutorialspoint.com/cprogramming/index.html

https://www.learn-c.org/

https://www.programiz.com/c-programming

https://www.w3schools.in/c-tutorial/

https://www.cprogramming.com/tutorial/c-tutorial.html

https://www.tutorialspoint.com/cplusplus/index.html

https://www.programiz.com/cpp-programminghttp://www.cplusplus.com/doc/tutorial/

https://www.learn-cpp.org/

https://www.javatpoint.com/cpp-tutorial

Practical Component: @ 2 hours/week/batch

1. Write C programs for
   a. Fibonacci Series
   b. Prime number
   c. Palindrome number
   d. Armstrong number.

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2. 'C' program for multiplication of two matrices
3. 'C' program to implement string functions
4. 'C' program to swap numbers
5. 'C' program to calculate factorial using recursion
6. 'C++' program to perform addition of two complex numbers using constructor
7. Write a program to find the largest of two given numbers in two different classes using friend function
8. Program to add two matrices using dynamic contructor
9. Implement a class string containing the following functions:
   a. Overload + operator to carry out the concatenation of strings.
   b. Overload == operator to carry out the comparison of strings.
10. Program to implement inheritance.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

MEASURABLE

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity)
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams)
4. Field studies (individual observations and recordings as per syllabus content and related areas (Individual or team activity)
5. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

General

Group Discussion

Visit to Software Technology parks / industries

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RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted:

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Coding exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports,
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

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PROGRAMME: THREE-YEAR DEGREE
B Com (Computer Applications)

Domain Subject: Commerce
Semester-wise Syllabus under CBCS(w.e.f. 2020-21 Admitted Batch)

I Year B Com (CA), Semester – I
Discipline: COMPUTER APPLICATIONS

Course 3F:Database Management System

(Five units with each unit having 12 hours of class work)

Model Outcomes for Database Management System

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

F. Remembers and states in a systematic way (Knowledge)

1. Understand the role of a database management system in an organization.
2. Understand basic database concepts, including the structure and operation of the relational data model.
3. Understand and successfully apply logical database design principles, including E-R diagrams and database normalization
4. Understand Functional Dependency and Functional Decomposition

G. Explains (Understanding)

5. To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.
6. Perform PL/SQL programming using concept of Cursor Management, Error Handling, Packages

H. Critically examines, using data and figures (Analysis and Evaluation)

7. Apply various Normalization techniques
8. Model an application's data requirements using conceptual modeling tools like ER diagrams and design database schemas based on the conceptual model

D. Working in 'Outside Syllabus *Area' under a Co-curricular Activity*(Creativity)
Design and implement a small database project

E. Construct simple and moderately advanced database queries using Structured Query Language (SQL)(Practical skills)

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SYLLABUS

Course 4F: Database Management System

Unit	Details
I	**Overview of Database Management System** Introduction, Data and Information, Database, Database Management System, Objectives of DBMS, Evolution of Database Management System, Classification of Database Management System.
II	**File-Based System** File Based System. Drawbacks of File-Based System, DBMS Approach, Advantage of DBMS, Data Models, Components of Database System, Database Architecture, DBMS Vendors and their products.
III	**Entity-Relationship Model:** Introduction, The Building Blocks of an Entity-Relationship, Classification of Entity Set, Attribute Classification, Relationship Degree, Relationship Classification, Generalization and Specialization, Aggregation and Composition, CODD's Rules, Relational Data Model, Concept of Relational Integrity.
IV	**Structured Query Language** Introduction, History of SQL Standards, Commands in SQL, Data types in SQL, Data Definition Language (DDL),Selection Operation Projection Operation, Aggregate Functions, Data Manipulation Language, Table Modification, Table Truncation, Imposition of Constraints, Set Operations.
V	**PL/SQL:** Introduction, Structure of PL/SQL,PL/SQL Language Elements, Data Types, Control Structure, Steps to Create a PL/SQL Program, Iterative Control Cursors, Steps to Create a Cursor, Procedure, Functions, Packages, Exceptions Handling, Database Triggers, Types of triggers.

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References:

1. Paneerselvam:Database Management system,PHI.
2. David Kuklinski, Osborne, Data management system McGraw Hill Publication.
3. Shgirley Neal And Kenneth LC Trunik Database management system in Business-PHI.
4. Godeon C. EVEREST, Database Management-McGraw Hill Book Company.
5. MARTIN,Database Management-Prentice Hall of India, New Delhi.
6. Bipin C.Desai ,'An Introduction to Database System',Galgotia Publications
7. Korth, Database Management System.
8. Navathe, Database Management System.
9. S. Sumathi, S. Esakkirajan,Fundamentals of Relational Database Management System

Online resources:

http:// www.onlinegdb.com/

http:// www.tutorialspoint.com/

http://learnsql.com

https://www.codecademy.com/learn/learn-sql/

https://www.w3schools.com/sql/default.asp

Practical Component: @ 2 hours/week/batch

1. Create tables department and employee with required constraints.
2. Initially only the few columns (essential) are to be added. Add the remaining columns separately by using appropriate SQL command.
3. Basic column should not be null
4. Add constraint that basic should not be less than 5000.
5. Calculate hra, da, gross and net by using PL/SQL program.
6. The percentage of hra and da are to be stored separately.
7. When the da becomes more than 100%, a message has to be generated and with user permission da has to be merged with basic.
8. Empno should be unique and has to be generated automatically.

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Recommended Format for Question Paper

For Courses : 1C,2C,3C,4F(ALL COMPUTER APPLICATION PAPERS)

Time: 2 Hours *[Max. Marks :50]*

Section-A ***[5X2=10]***

Answer any **FIVE** of the following questions.

1 Contents of **Unit-I**

2 Contents of **Unit-II**

3 Contents of **Unit-III**

4 Contents of **Unit-IV**

5 Contents of **Unit-V**

6 Contents of **Unit-I to Unit V**

7 Contents of **Unit-I to Unit V**

8 Contents of **Unit-I to Unit V**

Section-B **[5X8=40]**

Answer **FIVE** questions

9 a Contents of **Unit-I**

(OR)

9 b Contents of **Unit-I**

10 a Contents of **Unit-II**

(OR)

10 b Contents of **Unit-II**

11 a Contents of **Unit-III**

(OR)

11 b Contents of **Unit-III**

12 a Contents of **Unit-IV**

(OR)

12 b Contents of **Unit-IV**

13 a Contents of **Unit-V**

(OR)

13 b Contents of **Unit-V**

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