

GOVERNMENT ARTS COLLEGE (AUTONOMOUS):: KARUR – 639 005
B.Sc., BOTANY COURSE STRUCTURE UNDER CBCS SYSTEM

(For the candidates admitted from the year 2015-16 onwards)

SEMESTER	COURSE	SUBJECT TITLE	SUBJECT CODE	INSTR. HOURS WEEK	CREDIT	EXAM HOURS	MARKS		TOTAL
							INT	ESE	
I	Tamil - I	Tamil – I	U15L1T1	6	3	3	25	75	100
	English - I	English – I	U15L1E1	6	3	3	25	75	100
	Core Course – I	Phycology and Bryology	U15BO1C1	6	5	3	25	75	100
	Core Course – II	Practical - I (Covering Cc-I & Cc-III)	-	3	-	-	-	-	-
	First Allied Course-I	Allied Chemistry - I	U15CH1A1	5	3	3	25	75	100
	First Allied Course – II	Allied Chemistry – II (Practical)	-	2	-	-	-	-	100
	Value Education	Value Education	U15VE1	2	2	3	25	75	
				30	16				500
II	Tamil – II	Tamil – II	U15L2T2	6	3	3	25	75	100
	English – II	English – II	U15L2E2	6	3	3	25	75	100
	Core Course – II	Practical – I (For CCI & III)	U15BO2C2P	3	4	3	25	75	100
	Core Course – III	Mycology, Lichenology And Plant Pathology	U15BO2C3	6	5	3	25	75	100
	First Allied Course - II	Allied Chemistry – II (Practical)	U15CH2A2P	2	4	3	25	75	100
	First Allied Course – III	Allied Chemistry - III	U15CH2A3	5	3	3	25	75	100
	Environmental Studies	Environmental Studies	U15ES2	2	2	3	25	75	100
				30	24				700
III	Tamil - III	Tamil- III	U15L3T3	6	3	3	25	75	100
	English – III	English -III	U15L3E3	6	3	3	25	75	100
	Core Course – IV	Cytology, Anatomy and Embryology.	U15BO3C4	6	5	3	25	75	100
	Core Course V	Practical - II (Covering CC-IV & CC-VI)	-	3	-	-	-	-	-
	Second Allied Course - I	Allied Zoology - I	U15ZO3A1	5	3	3	25	75	100
	Second Allied Course - II	Allied Zoology - II (Practical)	-	2	-	-	-	-	-
	Non Core Elective I	Economic Entomology	U15ZO3N1	2	2	3	25	75	100
				30	16				500
IV	Tamil – IV	Tamil- IV	U15L4T4	6	3	3	25	75	100
	English – IV	English -IV	U15L4E4	6	3	3	25	75	100
	Core Course – VI	Pteridophytes, Gymnosperms And Palaeobotany	U15BO4C6	5	5	3	25	75	100
	Core Course V	Practical – II (For CC IV & VI)	U15BO4C5P	2	4	3	25	75	100
	Second Allied Course II	Allied Zoology – II (Practical)	U15ZO4A2P	2	4	3	25	75	100
	Second Allied Course III	Allied Zoology - III	U15ZO4A3	5	3	3	25	75	100
	Skill Based Elective I	Mushroom Cultivation	U15BO4S1	2	4	3	25	75	100
Non Core Elective II	Communicable Diseases and Management	U15ZO4N2	2	2	3	25	75	100	
				30	28				800
V	Core Course – VII	Genetics And Evolution	U15BO5C7	5	5	3	25	75	100
	Core Course – VIII	Angiosperm Taxonomy	U15BO5C8	5	4	3	25	75	100
	Core Course – IX	Plant Ecology And Phytogeography	U15BO5C9	4	3	3	25	75	100
	Core Course - X	Practical - III (Covering CC-VII & CC-VIII)		3	-	-	-	-	-
	Core Course - XI	Practical - IV (Covering CC-XII & CC-XIII)		3	-	-	-	-	-
	Elective Course - I	Biostatistics, Computer Application And Bioinformatics	U15BO5E1	4	4	3	25	75	100
	Skill Based Elective II	Herbal Technology	U15BO5S2	2	4	3	25	75	100
	Skill Based Elective III	Plant Tissue Culture	U15BO5S3	2	4	3	25	75	100
Soft Skills Development	Soft Skills Development	U15SSD3	2	2	3	25	75	100	
				30	26				700
VI	Core Course – X	Practical – III (Covering CC VII, VIII and CC IX)	U15BO6C10P	3	4	3	25	75	100
	Core Course – XI	Practical – IV (Covering CC XII & XIII)	U15BO6C11P	3	5	3	25	75	100
	Core Course – XII	General Microbiology	U15BO6C12	6	5	3	25	75	100
	Core Course - XIII	Biophysics, Biochemistry And Plant Physiology	U15BO6C13	6	5	3	25	75	100
	Elective Course - II	Biofertilizers And Biopesticides	U15BO6E2	5	5	3	25	75	100
	Elective Course - III	Plant Biotechnology	U15BO6E3	6	4	3	25	75	100
	Extension Activities	Extension Activities		-	1				
	Gender Education	U15EA4	1	1	3	25	75	100	
				30	30				700
TOTAL					180	140			3900

அரசு கலைக் கல்லூரி (தன்னாட்சி) - ஈரூர் - 5
கலையியல் / அறிவியல் / வணிகவியல் / பட்ட வகுப்பு
 (2015 - 2016 ஆம் கல்வியாண்டு முதல் பயிலும் மாணவர்களுக்குரியது)
 பகுதி - 1 பொதுத்தமிழ் -1 - முதல் பருவம்
 மரபுக்கவிதை, புதுக்கவிதை, சிறுகதை, இலக்கணம், இலக்கிய வரலாறு

பொதுத்தமிழ் -1 முதல் பருவம்

(மரபுக்கவிதை, புதுக்கவிதை, சிறுகதை, இலக்கணம், இலக்கிய வரலாறு)

அலகு 1 மரபுக்கவிதைகள்

- | | | |
|--|---|-----------------|
| அ) தமிழ்த்தாய் | - | பாரதியார் |
| ஆ) புத்தகச்சாலை | - | பாரதிதாசன் |
| இ) புத்தரும் ஏழைச்சிறுவனும்
(ஆசியஜோதி) | - | கவிமணி |
| ஈ) நோயற்ற வாழ்வு | - | நாமக்கல் கவிஞர் |
| உ) இரசம் தீர்ந்து விட்டது
(இயேசு காவியம்) | - | கண்ணதாசன் |
| ஊ) அதிவீரராம பாண்டியன் | - | சுரதா |

அலகு 2 புதுக்கவிதைகள்

- | | | |
|---|---|-----------------|
| அ) மீரா கவிதைகள் (நான் மனிதன்) | - | மீரா |
| ஆ) தேசப்பிதாவுக்கு ஒரு தெருப்பாடகனின் அஞ்சலி (கண்ணீர்ப்பூக்கள்) | - | மு.மேத்தா |
| இ) வடலூரும் வார்தாவும்(நேயர் விருப்பம்)- | - | அப்துல் ரகுமான் |
| ஈ) சர்ப்ப யாகம் | - | சிற்பி |
| உ) விசுவாமித்திரர் (அவதார புருஷன்) | - | வாலி |
| ஊ) நிலத்தை ஜெயித்த விதை
(இன்னொரு தேசிய கீதம்) | - | வைரமுத்து |
| எ) ஒரு வண்டி சென்றியூ(10 கவிதைகள்)- | - | ஈரோடு தமிழன்பன் |

அலகு 3 சிறுகதை

- | | | |
|--------------------|---|-------------------------|
| சிறுகதைத் தொகுப்பு | - | நியூ செஞ்சுரி புக ஹவுஸ் |
|--------------------|---|-------------------------|

அலகு 4 இலக்கணம்

- | | | |
|-------------------------|---|---------------------------|
| வல்லினம் மிகும் இடங்கள் | - | நல்ல தமிழ் எழுத வேண்டுமா? |
| வல்லினம் மிகா இடங்கள் | - | அ.கி.பரந்தாமனார் |

அலகு 5 இலக்கிய வரலாறு

மரபுக்கவிதை, புதுக்கவிதை, சிறுகதை

பரிந்துரை நூல்

- | | | |
|----------------------|---|---|
| முனைவர் கா.வாசுதேவன் | - | பன்முக நோக்கில் தமிழ் இலக்கிய வரலாறு
தேவன் பதிப்பகம், 16/43, திருநகர்,
திருவானைக்கோவில், திருச்சி |
|----------------------|---|---|

ஐந்து அலகுகளிலும் சம அளவில் வினாக்கள் அமைதல் வேண்டும்.

வினாத்தாள் அமைப்பு முறை

பகுதி அ (ஒரு மதிப்பெண் வினா - 20)

- | | |
|--|-------|
| அ) பொருத்தமான விடையைத் தேர்ந்தெடுத்தல் | 5*1=5 |
| ஆ) கோடிட்ட இடங்களை நிரப்புதல் | 5*1=5 |
| இ) பொருத்துதல் | 5*1=5 |
| ஈ) ஒரே சொற்களில் விடையளித்தல் | 5*1=5 |

பகுதி ஆ (ஐந்து மதிப்பெண் வினா)

இது அல்லது அது என்ற வகையில் அமைதல் வேண்டும் 5*5=25

பகுதி இ (பத்து மதிப்பெண் வினா)

ஐந்தில் எவையேனும் மூன்றனுக்கு மட்டும் கட்டுரை வடிவில் விடை எழுத வேண்டும்.

3*10=30

மொத்த மதிப்பெண் -75

Sl. No.:

Subject Code:

U15L1E1

GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR- 05

ALL UG COURSES - I SEMESTER - PART – II - ENGLISH

(For the candidates admitted from the year 2015-16 onwards)

ENGLISH – I

Unit I

- Monday Morning - Mark Twain
My Financial Career - Stephen Leacock

Unit II

- Indian Women - S. Radhakrishnan
Head Ache - R. K. Narayan

Unit III

- Thomas Alva Edison - Egon Larson
Helen Keller - Patrick Pringle

Unit IV

Word Classes

- I. Open Classes
1. Nouns
2. Adjectives
3. Verbs
4. Adverbs
II. Closed Classes
1. Pronouns
2. Determiners
3. Prepositions
4. Conjunctions
5. Exclamations / Interjections

Unit V

1. Spelling Rules
2. Words Often Confused or Misused
3. Homophones

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – I SEMESTER – CORE COURSE - I
(For the candidates admitted from the year 2015-16 onwards)

PHYCOLOGY AND BRYOLOGY

PHYCOLOGY:

Unit - I : Fritsch Classification (1935 - 1945). General characteristics and Thallus organization of Algae, Economic importance of Algae.

Unit - II : Structure, Reproduction, and life history of the following types : *Nostoc*, *Chlamydomonas*, *Volvox*, *Oedogonium*, *Caulerpa*.

Unit - III : Structure, Reproduction, and life history of the following types : *Vaucheria*, *Dictyota*, *Sargassum* and *Polysiphonia* .

BRYOLOGY:

Unit- IV : E.V. Watson (1981) Classification. General characteristics, Evolution of Gametophytes and Sporophytes, Economic importance of Bryophytes.

Unit - V : Structure, Reproduction and life history of the following types - *Riccia*, *Marchantia*, *Anthoceros*.

Reference Books :

Phycology:

1. Vashista R.C.(2001) - Botany for degree students - S.Chand and co (P) Ltd., New Delhi.
2. Sharma, O.P. (2011). Diversity of microbes & Cryptogams – Algae, Tata McGraw Hill Education Private Limited, New Delhi.
3. Lee, R. E. (2008). Phycology - IV Edition, Cambridge University Press ,New Delhi.
4. Rashid.A. 2007. An Introduction to Bryophyta – Vikas publications, New Delhi.
5. Sambamurthy A.V. S.S. 2005. A Textbook of Algae. I.K. International Pvt.Ltd, New Delhi.
6. Fritsch F.F. (1935)The structure and reproduction of the Algae volume I&II.Tata McGraw Hill Edu.Private Limited, New Delhi.

Bryology :

1. Smith , G.M. 1955 - Cryptogamic Botany Vol. II (Bryophytes & Pteridophytes) Tata Mcgraw Hill Publishing Co. New Delhi.
2. Chandrakant Pathak, 2003. The latest portfolio of theory & practice in Bryophyta, Dominant publications. New Delhi.
3. Chopra, R.N. and P.K. Kumar, 2003. Biology of Bryophytes, New age International Pvt. ltd., New Delhi.
4. Vashishta, Sinha A.K, Adarsh Kumar. (2011). Bryophytes, S.Chand &Company ltd., New Delhi.

Sl. No.:

Subject Code: U15CH1A1/
U15CH3A1

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.SC., - I & III - SEMESTER – FIRST / SECOND ALLIED COURSE - I
(For the candidates admitted from the year 2015-16 onwards)
(FOR BOTANY, MATHEMATICS, PHYSICS & ZOOLOGY MAJOR)

ALLIED CHEMISTRY – I

- UNIT - I**
(15 hours)
- 1.1 Volumetric Analysis : Standard Solution – Primary and Secondary Standards – Types of titrimetric reactions – reactions – redox- precipitation – EDTA titrations.
 - 1.2 Laboratory Hygiene and Safety: Storage and handling of corrosive, flammable, explosive, toxic, carcinogenic and poisonous Chemicals.
 - 1.3 Simple first aid procedure for Accidents: Acid in eye, alkali in eye, acid burns, alkali burns, poisoning, inhalation of gases, cut by glasses and heat burns.

- UNIT –II**
(15 hours)
- 2.1 Water: Soft water – Temporary and permanent hardness of water - Treatment of water for municipal purpose – Softening of water - Definition – Softening by Zeolite Process.
 - 2.2 Atomic Structure: Rutherford’s Nuclear Atom –Bohr’s Model of the atom- Bohr Sommerfeld theory - Distribution of electrons –Paulis Exclusion Principle-Hund’s Rule of maximum Multiplicity – Aufbau Principle.

UNIT-III (15 hours)

- 3.1 Radioactivity – Definition – types of radioactive rays – Nuclear energy – mass defect – binding energy – magic Numbers – Nuclear fission – Nuclear fusion – difference between Nuclear fission and fusion – Nuclear power plant
- 3.2 Isotopes, Isobars and Isotones.

UNIT – IV (15 hours)

- 4.1 Classification and Nomenclature of organic of Compounds classification of organic compounds – functional groups – homologous series.
- 4.2 IUPAC System of nomenclature of simple and complex aliphatic compounds.

UNIT- V (15 hours)

- 5.1 Polymerisation – Introduction –Preparation of Polymers – addition polymers (Polyethylene, PVC and Teflon) – Condensation polymers (nylon – 6,6 and terylene)
- 5.2 Synthetic rubbers(BUNA, Butyl rubber and SBR) Thermoplastic and thermosetting plastics.

Books Recommended:

1. R.Gopalan, P.S.Subramanian, K.Rengarajan – Elements of Analytical Chemistry Sultan chand & Sons New Delhi -2
2. B.K.Sharma “Industrial Chemistry” GOEL Publishing House Meerut.
3. P.L.Soni and Mohan Katyal “Text Book of inorganic Chemistry 20th Received Edition, Sultan Chand 1992.
4. U.N.Dash-Nuclear Chemistry Sultan Chand & Sons New Delhi-2.
5. I.L.Finar-Organic Chemistry. The fundamental Principles ELBS English Lan.
6. P.L.Soni H.M.Chawla “Text Book of organic chemistry sultan chand and sons New Delhi-2.
7. B.S.Bahl and Arun Bahl ‘Advanced Organice chemistry S.Chand and Co New Delhi.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

U15VE1

அரசு கலைக் கல்லூரி (தன்னாட்சி), ஈரூர் - 639005

அனைத்து இளநிலை - முதல் பருவம் - பகுதி - 4

(2015 - 2016 கல்வியாண்டு முதல் பயிலும் மாணவர்களுக்கு உரியது)

மதிப்புக்கல்வி

அலகு 1

வாழ்வியல் கல்வி ஓர் அறிமுகம் - தனிமனித நெறிமுறைகள் - சமுதாய நெறிமுறைகள் - ஆன்மீக நெறிமுறைகள் - வாழ்வியல் நெறிகளின் மூலங்கள் - வாழ்வியல் நெறிகளின் அவசியம் - நன்னடத்தையும் நற்செயல்களும் - நற்பண்புகள் உருவாக்கம்.

அலகு 2

சமூக நற்பணி - சமூக நலப்பணித்திட்டங்கள் - சமுதாயத் தீமைகள் குறித்த விழிப்புணர்வு - போதை மருந்துகளுக்கு அடிமையாதல் - மதுப்பழக்கம் - புகைப்பிடித்தல் - தற்கொலை.

அலகு 3

இந்து சமயத்தின் போதனைகள் - இஸ்லாம் போதிக்கும் நெறிகள் - கிறித்துவம் போதிக்கும் நெறிகள் - சமயச் சார்பின்மை - சமய நல்லிணக்கம்.

அலகு 4

காந்தியடிகளின் அகிம்சை கொள்கை - அன்னை தெரசாவின் தொண்டுகள் - தன்னலமின்மையின் வடிவம் பெருந்தலைவர் காமராசர்.

அலகு 5

சமூகநீதி - மனித உரிமைகளும் - அவற்றின் பாதுகாப்பும் - மகளிர்க்கு எதிரான வன்முறைகள் - நாட்டின் ஒருமைப்பாடு.

Text Book:

1. மதிப்புக் கல்வி - Y.K.55, கூட்டுறவு பண்டகசாலை, அரசு கலைக்கல்லூரி (தன்னாட்சி), ஈரூர் - 5.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

U15L2T2

அரசு கலைக் கல்லூரி (தன்னாட்சி) - ஈரூர் - 5
கலையியல் / அறிவியல் / வணிகவியல் / பட்ட வகுப்பு
 (2015 - 2016 ஆம் கல்வியாண்டு முதல் பயிலும் மாணவர்களுக்குரியது)
 பகுதி - 1 பொதுத்தமிழ் -2 - இரண்டாம் பருவம்
 (பக்தி இலக்கியங்கள், சிற்றிலக்கியங்கள், உரைநடை, இலக்கணம், இலக்கிய வரலாறு)

அலகு 1 பக்தி இலக்கியங்கள்
 தேவாரம்

- திருநாவுக்கரசர்
 (திருவையாறு- 4ஆம் திருமுறை)

நாலாயிர திவ்விய பிரபந்தம்

- மதுரகவி ஆழ்வார்(கண்ணி நுண் சிறுத்தாம்பு)

தெய்வமணிமாலை

- இராமலிங்க வள்ளலார்

பராபரக்கண்ணி

- குணங்குடி மஸ்தான் சாகிபு

யாக்கை நிலையாமை

- திருமந்திரம்

அலகு 2 சிற்றிலக்கியங்கள்

தமிழ்விடுதாது

- முதல் 16 கண்ணிகள்

திருக்குற்றாலக் குறவஞ்சி

- குறத்தி மலைவளம் கூறல்

நந்திக்கலம்பகம்

- பாடல் எண்கள்: 34,35,36,37,38,39,44,45,46,49

அபிராமி அந்தாதி

- 11-20 பாடல்கள்

கயிலாசநாதர் சதகம்

- அரிதெனல், இறந்தும் இருக்கின்றவர், இருந்தும் இறந்தவர், கோபக்கொடுமை, கல்விச் சிறப்பு

அலகு 3 உரைநடை

இனியவை நாற்பது

- முனைவர் இரா.மோகன்

அலகு 4 இலக்கணம்

வாக்கிய வகைகள்

- நல்ல தமிழ் எழுத வேண்டுமா? அ.கி.பரந்தாமனார்

அலகு 5 இலக்கிய வரலாறு

பக்தி இலக்கியங்கள், சிற்றிலக்கியங்கள், உரைநடை

பரிந்துரை நூல்

முனைவர் கா.வாசுதேவன்

-பன்முக நோக்கில் தமிழ் இலக்கிய வரலாறு தேவன் பதிப்பகம்,16/43, திருநகர், திருவானைக்கோவில்,திருச்சி

ஐந்து அலகுகளிலும் சம அளவில் வினாக்கள் அமைதல் வேண்டும்.

வினாத்தாள் அமைப்பு முறை

பகுதி அ (ஒரு மதிப்பெண் வினா - 20)

அ) பொருத்தமான விடையைத் தேர்ந்தெடுத்தல் 5*1=5

ஆ) கோடிட்ட இடங்களை நிரப்பதல் 5*1=5

இ) பொருத்துதல் 5*1=5

ஈ) ஒரே சொற்களில் விடையளித்தல் 5*1=5

பகுதி ஆ (ஐந்து மதிப்பெண் வினா)

இது அல்லது அது என்ற வகையில் அமைதல் வேண்டும் 5*5=25

பகுதி இ (பத்து மதிப்பெண் வினா)

ஐந்தில் எவையேனும் மூன்றனுக்கு மட்டும் கட்டுரை வடிவில் விடை எழுத வேண்டும்.

3*10=30

மொத்த மதிப்பெண் -75

Sl. No.:

Subject Code:

U15L2E2

GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR- 05

ALL UG COURSES - II SEMESTER - PART – II - ENGLISH

(For the candidates admitted from the year 2015-16 onwards)

ENGLISH – II

Unit I

- | | | |
|--------------|---|---------------------|
| The Luncheon | - | Somerset Maugham |
| A Cup of Tea | - | Katherine Mansfield |

Unit II

- | | | |
|---------------|---|-------------------|
| A Work of Art | - | Anton Checkov |
| The Necklace | - | Guy de Maupassant |

Unit III

- | | | |
|---------------------|---|---------------------|
| My Lord the Baby | - | Rabindranath Tagore |
| An Astrologer's Day | - | R.K Narayan |

Unit IV

The Sentence

1. Types of Sentences
2. Simple, Compound and Complex Sentences
3. Sentence Patterns

Unit V

Transformation of Sentences

1. Affirmative into Negative and vice versa
2. Interrogative into Assertive and vice versa
3. Exclamatory into assertive and vice versa
4. Simple, Compound and Complex sentences
5. Voice: Active and Passive
6. Degrees of Comparison

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COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – II SEMESTER – CORE COURSE - II
(For the candidates admitted from the year 2015-16 onwards)
PRACTICAL - I (Covering CC-I & CC-III)
(PHYCOLOGY, BRYOLOGY, MYCOLOGY AND PLANT PATHOLOGY)

PHYCOLOGY AND BRYOLOGY :

1. To make suitable micropreparation of the type study.
2. To identify macro specimen relevant to the syllabus.
3. To identify micro slides relevant to the syllabus.
4. To maintain the record note.

MYCOLOGY AND PLANT PATHOLOGY :

1. A study of vegetative , Reproductive and micro preparation of genera included in the fungi and lichen.
2. Study the name of the disease, name of the pathogen, symptom and control measures.

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Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – II SEMESTER – CORE COURSE - III
(For the candidates admitted from the year 2015-16 onwards)
MYCOLOGY, LICHENOLOGY AND PLANT PATHOLOGY

MYCOLOGY

Unit-I : General features, occurrence and distribution. Mode of nutrition in fungi - Classification of fungi (Alexopoulos and Mims, 1979). General characters of major classes: Mastigomycotina, Zygomycotina, Ascomycotina, Basidiomycotina and Deuteromycotina (Any one example in each class). Thallus organization, cell structure and fruit bodies. Economic importance of fungi (medicine and industries).

Unit-II : Homothallism and Heterothallism in fungi. Homokaryon and Heterokaryon, Hormonal control in sex organ development in fungi. Reproduction, life cycle types, reduction in sexuality in fungi. Spore dispersal mechanisms and fungal genetics - Fossil fungi.

LICHENOLOGY

Unit-III : General features of lichen. Classification (Miller,1984). Distribution, thallus organisation, vegetative and sexual reproduction, lichens as indicators of pollution and economic importance.

PLANT PATHOLOGY

Unit-IV : Plant pathology - Methods of studying plant diseases - common terminologies used in plant pathology - symptomology, Etiology, Epidemic disease, Control measures - Host parasite interactions - Mycotoxins - Aflatoxins, Defense mechanisms in plant - integrated disease management.

Unit-V : Causative organism, mode of action and control measures of common plant diseases : Tobacco Mosaic, Citrus canker, Rice blight, Tikka disease of groundnut, Downy mildew of grapes, Damping off disease of seedlings, Rust of wheat.

Reference Books:

Mycology and lichenology:

1. Alexopoulos, C. J. and Mims, C. W. (2000). Introductory Mycology. Wiley Eastern Ltd., New York.
2. Sharma, O.P. (2011). Fungi and allied microbes The McGraw –Hill companies , New Delhi
3. Mehrotra, R. S and Aneja, K. R. (1990). An Introduction of Mycology. Wiley Eastern Ltd., New Delhi.
4. Sharma, P.D (2003). The Fungi. Rastogi Publications, Meerut.
5. Vashishta, B. R. and Sinha, A. K. (2007). Botany for Degree Students - Fungi. S. Chand and Co. Ltd., New Delhi.
6. Muthukumar, S. and Tarar, J.L. (2006).Lichen Flora of Central India, Eastern book Corporation , New delhi
7. Dharani Dhar Awasthi .(2000). A Handbook of Lichens Vedams eBooks (P) Ltd. New Delhi .

Plant Pathology:

1. Bilgrami, K.S. & H.C.Dube (1990) A text book of Modern Plant Pathology – Vikas Publishing House (P) Ltd., New Delhi.
2. Butler, E. J. and Jones, S. G. (1949). Plant Pathology. Macmillan & Co., London.
3. Cooper, J. I. (1995). Viruses and the Environment. 2nd ed. Chapman & Hall, London.
4. Sambamurthy A.V. S.S. 2006. A Textbook of Plant Pathology. I.K. International Pvt.Ltd., New Delhi.
5. Singh. R.S. 2005. Principles of Plant Pathology – 4th edition. Oxford & IBH, New Delhi.

Sl. No.:

Subject Code:

U15CH2A2P
/U15CH4A2P

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05

B.SC., - II & IV - SEMESTER – FIRST ALLIED COURSE - I

(FOR BOTANY, MATHEMATICS, PHYSICS & ZOOLOGY MAJOR)

(For the candidates admitted from the year 2015-16 onwards)

ALLIED CHEMISTRY – II PRACTICAL

1. Acidimetry and alkalimetry
 - a) Strong acid Versus Strong Base
 - b) Weak acid Versus Strong base.
 - c) Determination of hardness of water
2. Permanganometry
 - a) Estimation of ferrous sulphate using KMnO_4
 - b) Estimation of oxalic acid using KMnO_4
3. Iodometry
 - a) Estimation of copper using thiosulphate
 - b) Estimation of $\text{K}_2\text{Cr}_2\text{O}_7$
 - c) Estimation of KMnO_4 using thiosulphate

II ORGANIC ANALYSIS

A study of reactions of the following organic compounds:

1. Carbohydrate
2. Amide
3. Aldehyde
4. Acid
5. Amine
6. Phenol

The students may be trained to perform the specific reactions like

Test for element

(nitrogen only) Aliphatic

or aromatic,

Saturated or unsaturated and functional group present and record their observation.

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05

B.SC., - II & IV - SEMESTER – FIRST / SECOND ALLIED COURSE – III

(FOR BOTANY, MATHEMATICS, PHYSICS & ZOOLOGY MAJOR)

(For the candidates admitted from the year 2015-16 onwards)

ALLIED CHEMISTRY – III

UNIT- I (15 hours) 1.1 Molecular Orbital theory: Basic concepts of M.O. theory – Bonding and antibonding orbitals – Bond order – Application of M.O. theory to H_2, He_2, N_2, O_2 and F_2 molecules.
1.2 Compounds of Sulphur: Preparation, Properties, uses and structures of per acids of sulphur and sodium thio sulphate.

UNIT –II (15 hours) **Co-Ordination Chemistry:**
Nomenclature of Mononuclear complexes – Werner, Sidgwick theories
Chelation – Application and structure of EDTA – Biological role of haemoglobin and chlorophyll (Elementary idea)

UNIT-III (15 hours) 3.1 Electron displacement Effect: Inductive Effect – Definition – Relative strengths of aliphatic mono carboxylic acids and aliphatic amines
3.2 Stereoisomerism: Optical isomerism – Optical activity – Chirality – Lactic and tartaric acids-racemic mixture- resolution. Geometrical isomerism – Maleic and fumaric acids.

UNIT – IV (15 hours) 4.1 Aromatic Hydrocarbons: Structure, Stability, Resonance and aromaticity of benzene. Electrophilic substitution reactions in benzene with mechanism – nitration, sulphonation, halogenation. Naphthalene – isolation, synthesis and properties

4.2 Organic halogen Compounds: Chemistry of Chloroform, Carbon tetra chloride, DDT, BHC and Freon -1,2

UNIT- V (15 hours) 5.1 Surface Chemistry: Emulsions, Gels – Definition, Preparation, Properties and applications.

5.2 Chromatography – Column, paper and thin layer chromatography.

5.3 Catalysis-types, Mechanisms and industrial applications.

Books Recommended:

1. P.L. Soni and Mohan katyal “Text Book of Inorganic Chemistry” 20th Revised Edition, Sultan Chand 1992.

2. R.B. Puri and L.R. Sharma “Principles of Inorganic Chemistry” Sultan Chand 1989.

3. R.D. Madan “Modern inorganic Chemistry” S. Chand and Co.Pvt. Ltd., 1987
New Delhi.

4. P.L. Soni “Text Book of Inorganic Chemistry” ,Sultan Chand and Co.,
New Delhi.

5. B.S. Bahl and Arun Bahl ‘Advanced Organic Chemistry’ S.Chand and
New Delhi.

6. B.R. Puri, L.R.Sharma amd madan S.Pathania ‘Principles of Physical Chemistry’
Shoban Lal Nagin Chand and Co., Delhi.

7. P.L Soni “Text Book of Physical Chemistry” Sultan Chand and Co., new Delhi.

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Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-05
ALL UG COURSES - II SEMESTER – PART – IV
(For the candidates admitted from the year 2015-16 onwards)

ENVIRONMENTAL STUDIES

Unit 1

Environment – Introduction – Nature – Scope – Content – Need for study:
Natural resources – Forest and Energy resources – use and over exploitation –
deforestation – Energy resources – reviewable and non reviewable energy resources.

Unit 2

Eco System: Concept – Structure and function – Procedures – consumers and
decomposers – Food Chains – Food Webs and Ecological Pyramids – Biodiversity
and its conservation : Introduction – definition – genetic – species and eco system
diversity – conservation of biodiversity.

Unit 3

Environmental Pollution – Definition – causes – effects and control Measures –
Types – Air – Water – Soil – Thermal and Nuclear hazards – solid waste and
Management – Disaster Management – Role of an individuals in controlling pollution
– Earth Quake –Earth Quake and Cyclone – Flood.

Unit 4

Social issues and the environment: urbanization – urban problems related to
energy – Water Shed Management – Environmental ethics: issues and possible
solutions – Wasteland reclamation – Climate Change – Global Warming - Acid rain –
Ozone layer depletion – Public awareness.

Unit 5

Human Population and the environment: Population growth, Variation among
nations – Population explosion – Family Welfare Programme – Human rights –
HIV/AIDS – Women and Child Welfare – Role of information technology in
environment and human health.

Text Book:

1. சுற்றுச்சூழல் கல்வி - முனைவர். ஆ. சசிலா அப்பாத்துரை -
நியூ செஞ்சரி புக் ஹவுஸ் (பி) லிட், சென்னை.

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COE

Sl. No.:

Subject Code:

U15L3T3

அரசு கலைக் கல்லூரி (தன்னாட்சி) - ஈநூர் - 5
கலையியல் / அறிவியல் / வணிகவியல் / பட்ட வகுப்பு
(2015 - 2016 ஆம் கல்வியாண்டு முதல் பயிலும் மாணவர்களுக்குரியது)
பகுதி - 1 பொதுத்தமிழ் - 3 - மூன்றாம் பருவம்
(காப்பியங்கள், நாடகம், இலக்கணம், இலக்கிய வரலாறு)

அலகு 1 காப்பியங்கள்

சிலப்பதிகாரம் (புறஞ்சேரியிறுத்த காதை)
 மணிமேகலை (சிறைக்கோட்டம் அறக்கோட்டம் ஆக்கிய காதை)
 கம்பராமாயணம் (இரணிய வதைப்படலம்)

அலகு 2 காப்பியங்கள்

பெரியபுராணம் (இளையான்குடி மாற நாயனார் புராணம்)
 தேம்பாவணி (நாட்டுப்படலம்)
 சீறாப்புராணம் (பாந்தள் வசனித்த படலம்)

அலகு 3 நாடகம்

சேர தாண்டவம் - பாரதிதாசன்

அலகு 4 இலக்கணம்

நிறுத்தக் குறிகள்

அலகு 5 இலக்கிய வரலாறு

காப்பியங்கள், நாடகம்

பரிந்துரை நூல்

முனைவர் கா.வாசுதேவன் - பன்முக நோக்கில் தமிழ் இலக்கிய வரலாறு

தேவன் பதிப்பகம், 16/43, திருநகர்,
 திருவானைக்கோவில், திருச்சி

ஐந்து அலகுகளிலும் சம அளவில் வினாக்கள் அமைதல் வேண்டும்.

வினாத்தாள் அமைப்பு முறை

பகுதி அ (ஒரு மதிப்பெண் வினா - 20)

- | | |
|--|-------|
| அ) பொருத்தமான விடையைத் தேர்ந்தெடுத்தல் | 5*1=5 |
| ஆ) கோடிட்ட இடங்களை நிரப்புதல் | 5*1=5 |
| இ) பொருத்துதல் | 5*1=5 |
| ஈ) ஓரிரூ சொற்களில் விடையளித்தல் | 5*1=5 |

பகுதி ஆ (ஐந்து மதிப்பெண் வினா)

இது அல்லது அது என்ற வகையில் அமைதல் வேண்டும் 5*5=25

பகுதி இ (பத்து மதிப்பெண் வினா)

ஐந்தில் எவையேனும் மூன்றனுக்கு மட்டும் கட்டுரை வடிவில் விடை எழுத வேண்டும்.

3*10=30

மொத்த மதிப்பெண் -75

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-

05

ALL UG COURSES - III SEMESTER - PART – II - ENGLISH

(For the candidates admitted from the year 2015-16 onwards)

ENGLISH – III

Unit I

- | | | |
|--------------------------|---|---------------|
| A Prayer for My Daughter | - | W.B Yeats |
| A Poison Tree | - | William Blake |

Unit II

- | | | |
|--------------------------------------|---|-----------------|
| Stopping by Woods on a Snowy Evening | - | Robert Frost |
| Because I Could Not Stop For Death | - | Emily Dickinson |

Unit III

- | | | |
|--|---|---------------|
| My Grand Mother's House | - | Kamala Das |
| Small Scale Reflections on a Great House | - | A.K Ramanujan |

Unit IV

1. Error Correction
2. One word Substitution
3. Idioms and Phrases

Unit V

1. Comprehension
2. Note Making and Summarizing
3. Précis Writing

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Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – III SEMESTER – CORE COURSE - IV
(For the candidates admitted from the year 2015-16 onwards)

CYTOLOGY, ANATOMY AND EMBRYOLOGY

CYTOLOGY:

Unit - I : Ultrastructure and Function of Plant Cell: Cell Wall, Cytoplasm, Plasma membrane, Endoplasmic reticulum, Golgi Complex, Lysosomes, Mitochondria, Plastids, Ribosomes and Nucleus.

Unit - II: Structure, Types and Functions of Chromosomes, DNA and RNA. Cell division ; Amitosis, Mitosis and Meiosis. Programmed Cell Death (PCD) - Apoptosis.

ANATOMY:

Unit - III : Plant Tissues ; Classification. Meristematic Tissue - Cytological characteristics and Types. Simple Tissues - Parenchyma, Collenchyma and Sclerenchyma. Complex Tissues; Xylem and Phloem, Stomatal Types.

Unit - IV : Primary Structure of Root, Stem and Leaf in Dicots and Monocots. Normal Secondary Growth in Stem and Root. Annual Rings - Heartwood and Sapwood. Anomalous Secondary Growth in Dicots, Ex: Dracaena, Nodal Anatomy - Uni and Trilocular.

EMBRYOLOGY :

Unit - V: Structure and development of Anther and Male gametophyte. Structure, development and types of Ovule and Embryo sac (Polygonum type). Double Fertilization. Endosperm: Structure and Types. Development of Embryo in Dicot and Monocot.

Text Books:

1. Annie Ragland, 2014 - Cytology, Anatomy, Pteridophytes & Gymnosperms - Saras Publication.
2. Verma P.S. and Agarwal,V.K. Cytology, Revised Edition 2010. S. Chand & Co Publication.
3. S.S. Bhojwani and S.P. Bhatnagar - 2009 (Revised Edition) The Embryology of Angiosperms. – Vikas Publishing House, Pvt. Ltd., New Delhi.

Reference Books:

1. Singh, S.P. and Tomar B.s. 2014 - Cell Biology - Rostogi Publications. 10th Revised Edition.
2. Gupta P.K. 2014 - Cell and Molecular Biology. Rostogi Publications. 4th Revised Edition.
3. Rastogi, S.C, 1992. Cell Biology. Tata MCGRAW. Hill publication Co. Ltd, New Delhi.
4. De Robertis, E.D.P and De Robertis E.M.P, 1980. Cell and Molicular Biology (7th edtn.).Holt Sauders International Ed., Publication, Tokyo.
5. Pijushroy,(2010).plant Anatomy, New central Book Agency ,Pvt Lit, New delhi
6. Easu,K. - Plant Anatomy - John Wiley & Sons. Inc. N.Y.
7. Singh.V., P.C. Pandey and D.K.Jain. 2003. Embryology of Angiosperms. Rastogi Publications. Meerut.

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COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc., BOTANY & CHEMISTRY – III SEMESTER – ALLIED COURSE - I

(For the candidates admitted from the year 2015-16 onwards)

**ALLIED ZOOLOGY - I
(INVERTEBRATA AND CHORDATA)**

- UNIT- I** General Characters of the Phyla based on the following types
Phylum Protozoa – *Paramecium*
Phylum Porifera – Acon Sponges
Phylum Coelenterata – *Obelia Sp.*
- UNIT- II** General Characters of the Phyla based on the following types.
Phylum Platyhelminthes – *Fasciola hepatica*
Phylum Nematelminthes – *Ascaris lumbricoides*
Phylum Annelida – *Megascolex Sp.*
- UNIT-III** General Characters of the Phyla based on the following types
Phylum Arthropoda – *Penaeus Sp.*
Phylum Mollusca – *Lamellidens Sp.*
Phylum Echinodermata – *Astrea Sp.*
- UNIT-IV** General characters of the classes based on the following types
Class Pisces – *Scoliodon*; Class Amphibia – *Rana*; Class Reptilia – *Calotes* –
Morphology, digestive, respiratory, circulatory, nervous system, sense organs,
excretory and reproductive system.
- UNIT-V** General Characters of the classes based on the following types.
Class Aves – *Columba*; Class Mammalia – *Oryctolagus* – Morphology,
digestive, respiratory, circulatory, nervous system, sense organ, excretory and
reproductive system.

Text Books:

1. Text Book of Invertebrates, Arumugam, N. Saras Publications, Nagercoil
2. Text book of Chordates, Arumugam, N. Saras Publications, Nagercoil.

Reference Books:

1. Outlines of Zoology – M. Ekambaranatha Ayyar – Viswanathan Publications.
2. A Manual of Zoology, Vol -I & II M. Ekambaranatha Ayyar – Viswanathan Publications.

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COE

Sl. No.:

Subject Code:

U15ZO3N1

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc. BOTANY – III SEMESTER – NON-CORE ELECTIVE –I

(For the candidates admitted from the year 2015-16 onwards)

NUTRITION AND DIETETICS

UNIT-I Introduction and Scope. Components of Food- Carbohydrate, protein, and lipids, vitamins and minerals sources and functions- Deficiency diseases, Importance of water in diet.

UNIT-II Digestion, absorption and assimilation of carbohydrate, protein, lipid, Calcium, Phosphorous, Potassium, Sodium, Iron, Iodine and Vitamins.

UNIT-III Calorific values of Food- Energy Units- Balanced diet- BMR- Energy requirements of man, woman, infants and children

UNIT-IV Nutritional value of food: cereals, fruits, milk, egg, meat, fish and their properties, Food spoilage- Food adulteration- Food poisoning Food preservatives, Sterilization, Refrigeration, Dehydration and chemical preservation

UNIT-V Nutritional requirements: Infants, School children, Pregnant and lactating mother, Adolescence old age, Faulty food habits- obesity, Diabetes and cardiac problems.

References:

1. Swaminathan , M., 1989. Hand book of food and nutrition, Bapco, Bangalore
2. Gopalan, C., B.S. Raasatri and S. Balasubramanian, 1971, Nutritive value of Indian Foods, NIN, Hyderabad.
3. Ghosh, S.1981. The feeding care of infants and your children, UNICEF, New Delhi
4. Goyal, S. and Gupta, P., 2012, Food nutrition and Health, S. Chand & Company Ltd.
5. Mudambi, S.R., 1995, Fundamentals of food nutrition. New age International, New Delhi.

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COE

Sl. No.:

Subject Code:

U15L4T4

அரசு கலைக் கல்லூரி (தன்னாட்சி) - ஈநர் - 5
கலையியல் / அறிவியல் / வணிகவியல் / பட்ட வகுப்பு
(2015 - 2016 ஆம் கல்வியாண்டு முதல் பயிலும் மாணவர்களுக்குரியது)
பகுதி - 1 பொதுத்தமிழ் - 4 - நான்காம் பருவம்
(சங்க இலக்கியம், புதினம், இலக்கணம், இலக்கிய வரலாறு)

அலகு 1

நற்றிணை - 5,21,27,80,92
குறுந்தொகை -10 பாடல்கள் (2,16,20,40,62,67,202,244,263,286)
ஐங்குறுநூறு (அன்னாய் வாழிப்பத்து)
அகநானூறு - 2 பாடல்கள் (10,23)
புறநானூறு - 5 பாடல்கள் (74,192,204,206,312)
கலித்தொகை- 2 பாடல்கள் (11,88)

அலகு 2

சிறுபாணாற்றுப்படை (முழுவதும்)

அலகு 3

பூர்வீக பூமி - சூரியகாந்தன்

அலகு 4 கட்டுரை

பொதுக்கட்டுரை, விண்ணப்பம், மடல், அலுவலகக் கடிதங்கள் எழுதப் பழகாதல்

அலகு 5

இலக்கிய வரலாறு - சங்க இலக்கியம், புதினம்

பரிந்துரை நூல்

முனைவர் கா.வாசுதேவன் -பன்முக நோக்கில் தமிழ் இலக்கிய வரலாறு

தேவன் பதிப்பகம்,16/43, திருநகர்,
திருவானைக்கோவில்,திருச்சி

ஐந்து அலகுகளிலும் சம அளவில் வினாக்கள் அமைதல் வேண்டும்.

வினாத்தாள் அமைப்பு முறை

பகுதி அ (ஒரு மதிப்பெண் வினா - 20)

- | | |
|--|-------|
| அ) பொருத்தமான விடையைத் தேர்ந்தெடுத்தல் | 5*1=5 |
| ஆ) கோடிட்ட இடங்களை நிரப்புதல் | 5*1=5 |
| இ) பொருத்துதல் | 5*1=5 |
| ஈ) ஓரிரூ சொற்களில் விடையளித்தல் | 5*1=5 |

பகுதி ஆ (ஐந்து மதிப்பெண் வினா)

இது அல்லது அது என்ற வகையில் அமைதல் வேண்டும் 5*5=25

பகுதி இ (பத்து மதிப்பெண் வினா)

ஐந்தில் எவையேனும் மூன்றனுக்கு மட்டும் கட்டுரை வடிவில் விடை தருக.

3*10=30

மொத்த மதிப்பெண் -75

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U15L4E4

**GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-
05**

ALL UG COURSES - IV SEMESTER - PART – II - ENGLISH
(For the candidates admitted from the year 2015-16 onwards)

ENGLISH – IV

Unit I

- Grand Mother's Gold - Ella Adkins
Medieval Magic - Geoffrey Chaucer

Unit II

- The little Man - John Galsworthy
The Pot of Broth - W.B Yeats

Unit III

- The Proposal - Anton Checkov
The Bishop's Candle Sticks - Norman Mc Kinnell

Unit IV

1. Letter Writing
2. Developing Hints
3. Complete the Dialogue

Unit V

1. Essay
2. Group Discussion
3. Interview Techniques

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Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – IVSEMESTER – CORE COURSE - VI
(For the candidates admitted from the year 2015-16 onwards)
PTERIDOPHYTES, GYMNOSPERMS AND PALAEOBOTANY

PTERIDOPHYTES

Unit - I : General characteristics and Classification (Sporne, 1970). Stelar evolution, Heterospory and origin of seed habit in Pteridophytes.

Unit - II : Morphology, Structure, Reproduction, and Life history of the following genera *Psilotum*, *Lycopodium*, *Selaginella* and *Equisetum*.

Unit - III : Morphology, Structure, Reproduction, and Life history of the following genera *Ophioglossum*, *Adiantum* and *Salvinia*.

GYMNOSPERMS

Unit - IV : General characteristics and Classification (Sporne, 1965). Morphology, Structure and reproduction of following genera - *Cycas*, *Pinus* and *Gnetum*.

PALAEOBOTANY

Unit - V : Fossils, Types and methods of fossilization - Geological time scale. A brief study of the following fossil forms - *Rhynia*, *Lepidodendron*, *Lepidocarpon*, *Calamites* and *Williamsonia*.

Reference Books :

Pteridophytes:

1. Sporne, K.R. (1970) - The morphology of pteridophytes(The structure of ferns and allied plants).
2. Singh, V., Pande, P.C. and Jain, D.K. - 4th Edition (2014-15) - A Text Of Botany, Diversity of Microbes and Cryptogams - Rastogi Publications, Meerut.
3. Vashishta , P.C , Sinha and Anilkumar (2010). Pteridophytes, S. Chand &company Ltd, New Delhi.

Gymnosperms :

1. Johri, RM, Lata S, Tyagi K (2005), A text book of Gymnosperms, Dominate pub. & Distributer, New Delhi.
2. Biswas, C. and Johri, B.M. (2004). The Gymnosperms. Narosa Publishing House, New Delhi.

Palaeobotany :

1. A.C.Arnold 2000. An introduction to palaeobotany, Tata McGraw Hill Education Private Limited, New Delhi.
2. Kimura, M. (1983). The natural theory of molecular evolution, Cambridge University Press, Cambridge.
3. Arora M.P. (1990). Evolutionary biology, Himalaya Publication House, Delhi.

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – IV SEMESTER – CORE COURSE - V
(For the candidates admitted from the year 2015-16 onwards)

PRACTICAL - II (Covering CC-IV & CC-VI)

**(CYTOLOGY, ANATOMY, EMBRYOLOGY, PTERIDOPHYTES, GYMNOSPERMS
AND PALAEOBOTANY)**

Cytology

1. Cellular organelles- Nucleus, Mitochondria, Chloroplast, Golgi complex, Endoplasmic reticulum (Identification only from electron microphotographs of standard publications).
2. Study of mitosis (squash) using Onion root tip.

Anatomy

Preparation of microslides - Dicot and monocot stem, leaf and root (Primary structure). Secondary structure of Dicot stem and root - Anomalous growth in *Aristolochia*, *Boerhaavia* and *Dracaena*.

Embryology

Slides showing T.S. of Anther, Types of ovules. Embryo dissection in *Tridax*.

Pteridophytes:

Preparation of Microslides in the following plants. Transverse sections of *Psilotum* stem, *Adiantum* leaf and *Marsilea* sporocarp.

Gymnosperms:

Study of Anatomy and reproductive features of the following plants. Transverse section of *Cycas* leaf, *Pinus* needle leaf, *Gnetum* stem and *Cupressus* stem

Palaeobotany

Study and observation of Morphology, Anatomy and Reproductive features in the following fossil forms *Rhynia*, *Lepidodendron*, *Lagenostoma*, *Calamites* and *Williamsonia*

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Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5
B.Sc. BOTANY & CHEMISTRY – IV SEMESTER – ALLIED COURSE II
(For the candidates admitted from the year 2015-16 onwards)

ALLIED ZOOLOGY – II PRACTICAL

1. DISSECTIONS:

Earth worm – Nervous System.

Cockroach – Digestive System, Nervous System.

2. MOUNTINGS:

Earthworm – Body setae

Cockroach – Mouth Parts.

Honey Bee – Mouth Parts.

Shark – Placoid Scales

Any Carp – Cycloid & Ctenoid Scales.

3. SPOTTERS:

Amoeba, Paramoecium, Ascon sponge, Obelia colony, Metridium, Fasciola hepatica, Taenia solium, Taenia scolex, Planaria, Ascaris, Earthworm, Earthworm T. S., Nereis, Leech, Leech T.S, Prawn, Scorpion, Grasshopper, Centipede, Peripatus, Freshwater mussel, Pila, Sepia, Sea-star, Sea-urchin, Sea- cucumber, Amphioxus, Ascidian, Balanoglossus, Shark, Anabas, Exocoetus, Echineis, Frog, Salamander, Calotes, Draco, Turtle, Naja Naja, Vipera russellii, Pigeon, Parrot, Rat, Rabbit, Bat.

4. Species of animals used in Vermiculture, Apiculture, Sericulture, Aquaculture and Poultry farming.

5. Products: Vermicompost, Honey, Bee's wax, Silk, Cod liver oil, Abnormal Eggs of poultry birds.

A record of laboratory work should be submitted at the time of Practical examination.

Mark distribution for the Practical Examination:

1. Dissection	: 25
2. Mounting	: 15
3. Spotters (5x5)	: 25
4. Record	: 10
Total	: 75

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Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc. BOTANY & CHEMISTRY – IV SEMESTER - ALLIED COURSE - III

(For the candidates admitted from the year 2015-16 onwards)

**ALLIED ZOOLOGY – III
(COMMERCIAL ZOOLOGY)**

- UNIT- I** Vermiculture and composting – Types of earthworm – Significance – Rearing – Rearing technology – Management – Economic importance – Composting.
- UNIT- II** Apiculture – Species of Honey bees – Newton’s Bee hive – Care and management – Honey extraction – Economic importance – Nutritive and medicinal values of honey.
- UNIT-III** Sericulture – Feeding habits of larvae – Life cycle of silk worm (*Bombyx mori*) – Economic importance of silk worm and silk.
- UNIT-IV** Aquaculture – Construction of pond – Management of pond – Freshwater cultivable fishes – Fish feed – Induced breeding – fish diseases (Furunculosis, Epizootic Ulcerative syndrome (EUS) and Vibriosis).
- UNIT-V** Poultry farming – types of poultry – Management – Poultry nutrition – diseases and their prevention – Economics of poultry production.

Text Book:

1. G.S. Shukla and V.B. Upadhyay – Economic Zoology, Rastogi Publications.
2. Thiyagarajan, S. 2000 – Commercial Zoology, Tee Jay Publication, Thanjavur (Tamil version)

Reference Books:

1. Ashan, J. and S.P. Sinha – A hand book of Economic zoology – S. Chand & Co
2. Sardar Singh – Bees Keeping in India, ICAR, New Delhi, 1982.
3. Santhanam, et al., 1999, Aquaculture, Oxford & IBH Pub. Co., Pvt. Ltd, New Delhi.
4. Ullal, S.R. and M. N. Narasimhan – Central Silk Board, Government of India, Mumbai
5. Singh – Livestock and Poultry Production
6. Manju Yadav, 2003. Economic zoology, Discovery Publishing House, New Delhi
7. Rose, S.P., Principles of Poultry science, C & B International
8. Ismail. S., 2001, Vermiculture, Orient Longman Ltd., Chennai

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Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – IVSEMESTER – SKILL BASED ELECTIVE - I
(For the candidates admitted from the year 2015-16 onwards)

MUSHROOM CULTIVATION

UNIT - I: INTRODUCTION

History, Outlines of Classification, Characteristics and Types of mushrooms. Economic importance, Nutritional value, Edible, Poisonous and Hallucinogenic mushrooms.

UNIT - II: LIFE CYCLE

Systematic position, morphology, distribution, structure and life cycle of *Volvariella*, *Agaricus*, *Pleurotus*, *Lentinus* and *Calocybe*.

UNIT - III: CULTIVATION TECHNOLOGY

Laboratory - Mushroom farm layout and mushroom shed - Preparation of slants - collection of tissue - Raising of pure culture - Spawn production - management of fruiting bodies / mushroom development - harvest. Cultivation of Button, Oyster and Paddy straw mushroom.

UNIT - IV: DISEASE MANAGEMENT

Diseases caused by viruses, bacteria, fungi, termites and insects - control measures. Post harvesting technology - Blanching, steeping, sun drying, pickling, freeze drying and canning - Short term and long term storages.

UNIT - V: BIOLOGICAL IMPORTANCE

Medicinal and nutritive value of mushrooms - Important recipes from mushrooms - Bioremediation - Recycling, composting of organic waste and restoration of damaged environment - Marketing - Economic return, Foreign exchange from Mushroom cultivating countries and International trade.

Reference Books:

1. Dubey, RC. (2001) A text book of Biotechnology, S.Chand & Co. Ltd.
2. Changs.T.W.A. Hayanes 1978. "Biology and cultivation of Mushrooms" Academic Press.N.Y.
3. Zadrazil. F & K. Grabbe 1983 "Edible Mushroom, Biotechnology" Vol. 3, Weinheim: Verlag Chemie, Berlin.
4. Kannaiyan. 2001. Handbook of Edible Mushrooms" TNAU Publication.
5. Verma, B.N. & Prasad, Prem Kumar & Sahu, K.K. (2013) - Mushrooms : Edible and Medicinal Cultivation Conservation Strain Improvement With Their Marketing.

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Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), KARUR-5

B.Sc., BOTANY – IV SEMESTER - NON-CORE ELECTIVE - II

(For the candidates admitted from the year 2015-16 onwards)

COMMUNICABLE DISEASES AND MANAGEMENT

- UNIT- I** **Classification** of communicable diseases, Mode of transmission. **Viral diseases** – Polio, Rabies, Yellow fever, Mumps, Influenza, Measles, Encephalitis, Hepatitis and AIDS – Causes, symptoms, prevention and cure.
- UNIT- II** **Bacterial diseases:** Dysentery, Cholera, Tuberculosis, Tetanus, Diphtheria, Typhoid, STD and Leprosy – causes, symptoms, prevention and cure.
- UNIT-III** **Protozoan Diseases:** Amoebiasis, Leishmaniasis, Trichomoniasis and Malaria – Causes, symptoms, prevention and cure. **Fungal Diseases:** Superficial and Systemic Mycoses.
- UNIT-IV** **Helminth Parasites:** Taeniasis, Ascariasis, Ancylostomiasis, Elephantiasis, and Filariasis – Causes, symptoms, prevention and cure.
- UNIT-V** **Vaccines and Antibiotics:** Types of Vaccines, Vaccination schedule for pregnant mothers and children. Types, sources and importance of antibiotics

Text Books:

1. Park, K. 2005 Park's Text book of Preventive and Social Medicine, M/s Banarsidas Bhanot, Publishers, Jabalpur, India, 18 Ed.,
2. Kotpal, R.L., A Text Book of Invertebrates, Rastogi Publishers, Meerut.

Reference Books:

1. Deepak Kumar, 2001, Diseases and Medicines in India; A Historical Overview, Tulika, New Delhi
2. Turk and Turk, Text Book of Social and Preventive Medicine

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GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – V SEMESTER – CORE COURSE - VII
(For the candidates admitted from the year 2015-16 onwards)

GENETICS AND EVOLUTION

Unit - I : Transmission Genetics: Heritage from Mendel

History of Mendel's studies - Mendel's law of inheritance - Laws of dominance, segregation and independent assortment - Monohybrid and Dihybrid Crosses - Back Crosses (Dominant Recessive Back Crosses) - Genetic Terminology.

Unit - II : Transmission Genetics: Mendel's experiments in modern context

Allelic and Non-allelic interactions between genes - Allelic interaction (Incomplete Dominance); Non-allelic Interactions - Inheritance of comb shape in Fowls, Lethal Factor, Complementary Factor, Supplementary Factor, Epistasis, Inhibitory Factor, Duplicate Factors, Multiple Factor Hypothesis, Multiple Alleles and Blood groups.

Unit - III : Chromosomal Basis of Heredity

Structural and numerical variations of chromosomes. Mutation - Biochemical, Lethal, Somatic and Germinal mutations; Spontaneous and Induced Mutations - Mutagenic Agents; Point mutation, Chromosome mutation and Genomic mutation. Role of mutation in evolution. Polyploidy and its Types - Euploidy, Aneuploidy and Polyploidy - Autopolyploidy and Allopolyploidy.

Unit - IV : Gene Linkage

Linkage and Crossing Over - Coupling and Repulsion - Complete and Incomplete Linkage - Mechanism of Crossing Over - Cytological Proof of Crossing Over, Sex determination, differentiation and sex-linkage, Sex Linked Inheritance - *Drosophila* (Eye Colour) and Humans (Colour Blindness); Cytoplasmic Inheritance. Sex Determination in *Drosophila*, Humans and Plants.

Unit - V: Evolution

Origin of life - Evolution Concepts in Diversity of Life. Lamarckism, Darwinism, Neo- Darwinism and Modern Synthetic Theories.

Reference Books :

GENETICS:

1. Sambamurthy A.V. S.S. 2005. Genetics. Narosa Publishing House, New Delhi.
2. Sarin.C.2002. Genetics.Tata McGraw-Hill Publishing Co.Ltd, New Delhi.
3. Strickberger, M.W. (1976) : Genetics (2nd Edition) MacMillan Publishing Co., Inc., N.Y., London-914pp.,
4. Herskowitz, L.H. (1977) : Principles of Genetics (2nd Edition) MacMillan Publishing Co., Inc., N.Y. & Collier-Macmillan,
5. Gupta, P.K. (2000) : Genetics Rastogi Publishers, Meerut, India-611pp.,
6. Singh.B.D.2005.Genetics.Kalyani Publishers. New Delhi.

EVOLUTION:

1. Savage, J.M. (1969) : Evolution (2nd Edition) Amarind Publishing Cosec P (P) Ltd., New Delhi, Bombay, Calcutta
2. Gottlieb, L.D. & Jain, S.K. (1988) : Plant Evolutionary Biology Chapman & Hill, London, N.Y.-414pp.
3. Shukla, R.S. & P.S. Chandel (1996) : Cytogenetics, Evolution & Plant Breeding S.Chand & Co., New Delhi
4. Verma, P.S. & V.K. Agarwal (1999) : Concepts of Evolution S. Chand & Co., New Delhi-148pp.,
5. Anna Sproule (1998) : Charles Darwin Scientists who have changed the world Orient Longmans, Hyderabad-64pp.

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Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – V SEMESTER – CORE COURSE - VIII
(For the candidates admitted from the year 2015-16 onwards)

ANGIOSPERM TAXONOMY

MORPHOLOGY

UNIT - I: Leaf : Types, shape and size, venation, phyllotaxy. **Stem :** Shape, types and modifications (underground, aerial and sub aerial) **Root :** Types and modifications. **Inflorescence:** Types. Flower - Descriptive terminology of floral parts. **Fruit :** Types.

TAXONOMY

UNIT - II: ICBN - Binomial system of nomenclature - systems of angiosperms classification: Bentham and Hooker, Armen Takhtajan - Merits and Demerits. Taxonomic tools - Herbarium, Flora, Botanical Garden.

UNIT - III: A detailed study of the following families and their economic importance : Annonaceae, Capparidaceae, Malvaceae, Sterculiaceae, Tiliaceae, Anacardiaceae, Rutaceae, Leguminosae (Fabaceae, Caesalpinaceae and Mimosaceae) and Cucurbitaceae.

UNIT - IV: A detailed study of the following families and their economic importance : Rubiaceae, Asteraceae, Apocyanaceae, Asclepidaceae, Solanaceae, Convolvulaceae, Acanthaceae, Verbenaceae and Lamiaceae.

UNIT - V: A detailed study of the following families and their economic importance : Amaranthaceae, Euphorbiaceae, Loranthaceae, Lilliacae, Commelinaceae, Typhaceae and Poaceae.

Reference books:

1. Davis, P. H. and V. H. Heywood 1991. Principles of Angiosperm Taxonomy. Today and Tomorrow Publications, New Delhi
2. Cronquist, A. 1981. An Integrated system of Classifications of flowering plants. Columbia University Press, New York.
3. Gurcharan Singh. 2004. Plant Systematics : Theory and practice Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
4. Stoeckle, M.(2003). Taxonomy, DNA and the barcode of life. *bioscience* 53: 796- 797.
5. Simpson M.G.(2006). Plant systematics, Elsevier Academic Press, USA.
6. Lawrence George H. M. 1951. Taxonomy of vascular plants Oxford and IBH Publ. Co. Pvt. Ltd., New Delhi.
7. Manilal, K. S. and M. S. Muktesh Kumar (ed.) 1998. A Hand book of Taxonomy Training, DST, New Delhi.

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GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – V SEMESTER – CORE COURSE - IX
(For the candidates admitted from the year 2015-16 onwards)

PLANT ECOLOGY AND PHYTOGEOGRAPHY

Unit - I: Ecology - Definition and its Divisions - Autecology and Synecology - Plant ecology and its applications. Environmental or ecological factors - Climatic, Soil, Physiographic and Biotic factors.

Unit - II: Ecosystem,- structure and function - Producers, Consumers and Decomposers. Major Ecosystem - Forest Ecosystem, Grassland Ecosystem, Desert Ecosystem, Aquatic Ecosystem and Artificial Ecosystem. Energy and its flow in Ecosystem - Tropic level - Food chains - Food web - Ecological Pyramids - Pyramid of numbers, Pyramid of biomass and Pyramid of energy.

Unit - III: Plant succession, Plant Adaptations - Hydrophytes, Xerophytes, Mesophytes, Epiphytes, Halophytes and Mangrove vegetation - Methods of study of vegetation (Quadrant & Transect).

Unit - IV: Environmental Pollution - Soil Pollution, Water Pollution, Air Pollution, Agriculture Pollution, Radiation Pollution, Thermal Pollution, Noise Pollution, Control on environmental Pollution, Acid rain, Green House effect and Global Warming- Impact of Pollution on vegetation - Control of Pollution through vegetation.

Unit - V: Principles of Phytogeography, Climate and Climatic regions of India, Vegetation of South India, Phytogeographical regions of India and Ecological indicators. Biodiversity - Hot Spots of Biodiversity in India - threats to Indian Biodiversity, conservation of Biodiversity - *In situ* and *Ex situ* conservation, Endemic and Endangered flora.

Reference Books:

1. Puri G.S 1960- Indian Forest ecology (Vol I&II) Oxford Book Co., New Delhi & Calcutta.
2. Agarwal, K.C, 2001. Fundamentals of Environmental Biology, S.Chand, New Delhi..
3. Prof. Y.anjaneyalu - Introduction of Environmental Science - BSP - BS Publication Hydrabad.
4. Odum E.P(1971) - Fundamental of Ecology - Sounders & Co.
5. Mishra, S.P. (2006), Environmental Pollution - Pointer Publishers, Jaipur.
6. Aulay Mackenzie. Andy, S. Ball and Sonia R.Virdee, 2002. Instant notes Ecology 2nd edition, Viva books, Chennai.
7. Claude Fauric, Christiane Ferra, Paul Medori and Jean Devaux, 2001. Ecology science and practice special Indian edition, Oxford & IBH.
8. Dash, M.C, 2004. Fundamentals of Ecology, Tata McGraw, Hill,New Delhi.

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COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – V SEMESTER – ELECTIVE COURSE - I
(For the candidates admitted from the year 2015-16 onwards)
BIOSTATISTICS, COMPUTER APPLICATION AND BIOINFORMATICS

Biostatistics

UNIT - I: Definition of Biostatistics, Collection of data - Primary and secondary. Classification and tabulation of data - Parts of Table - diagrammatic representation of data.

UNIT - II: Skewness and Kurtosis, Correlation of analysis - types, methods of studying correlation. Measures of central tendency - Mean, Median and Mode - Standard Deviation, Standard Error, Analysis of variance - One way and Two way ANOVA.

Computer applications

UNIT - III: History of Computers, Types of Computers, Basic Computer Concepts, parts of a Computer - Input and Output Devices, Computer Memory, Storage Devices, Central Processing Unit, Software, Hardware, Computer Peripherals - Mouse, Modem.

UNIT - IV: Web Browsing: Computer Network (LAN, WAN, Wi-Fi and Li-Fi), Word Processing Software MS-office - MS Word, Excel, Power point, and Desk Top Publishing. Internet and Intranet.

Bioinformatics

UNIT - V: Introduction to bioinformatics, Application of bioinformatics in various fields. Biological databases - Nucleic acid databases - Gen Bank, DDBJ and EMBL. Protein data bases : SWISS PROT and PDB - Biological data formats (FASTA and BLAST).

Reference Books:

1. P.K. Gupta ,Statistical methods -Chand & Co, New Delhi.
2. Satguru Prasad (2013), Elements of Biosatistics - Rastogi Publications, Meerut.
3. Sharma, K.L.A.P., Pullaiah, T. & Reddy, B. Ravindra - Biosatistics - ASTRAL International (P) Ltd, New Delhi.
4. Computer fundamentals windows and Internet- Ramaiha publication
5. Bioinformatics - S.C. Rastogi, Namita Mendiratta and Parag Rastogi.
6. Harisha S (2007). Fundamentals of Bioinformatics. IK International Publishing house Pvt. Ltd. New Delhi
7. Bryan Bergeron, M.D. (2006). Bioinformatics Computing, Prentice – Hall of India. New Delhi.
8. Attwood T K and Parry Smith D J, (1999).Introduction to Bioinformatics Addison Wesley Longman Limited, England.
- 9.Windows and MS-OFFICE 2000 with database Concepts, by Krishnan, Scitech Publication (India) Pvt. Ltd, Chennai.

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – VSEMESTER – SKILL BASED ELECTIVE - II
(For the candidates admitted from the year 2015-16 onwards)

HERBAL TECHNOLOGY

Unit - I: Introduction, history, scope, classification of drugs in Medicinal Plants. Individual drug adulterants and adulterations.

Unit - II: Ethnobotany: Definition, Areas and recent studies, Methodologies of ethnobotanical research- field work, literature, herbaria and museum. Importance of ethnobotany, Indian systems of medicine - Siddha, Ayurveda, Unani and Aromatherapy.

Unit - III: Conservation and cultivation of herbal plants. Medicinal gardening - gardens in the hills and plains, house garden. Tribal (South India) medicines and its role in Health Care. Intellectual Property Rights (IPR), Patent Rights.

Unit - IV: Detailed organoleptic study of *Adathoda vasica*, *Andrographis paniculata*, *Gymnema sylvestris*, *Azadiracta indica*, *Datura metel*, *Eclipta alba*, *Emblica officinalis*, *Ocimum sanctum*, *Phyllanthus niruri*, *Catheranthus roseus* and *Zingiber officinalis*.

Unit - V: Herbal preparations- Collection of wild herbs, capsules and compresses. Glycerites, Hydrotherapy or Herbal oils- Liquid extracts of Tincture and Herbal teas. Extraction of phytopharmaceuticals: Alkaloids, Volatile oils, Resins and Tannins.

Reference Books:

1. Jain S. K. 1989 Methods and approaches in Ethnobotany, Society of Ethnobotanists in Lucknow.
2. Bhattacharjee, S.K. 2004. Hand Book of Medicinal plants. Pointer Publishers, Jaipur.
3. Gokhale, S.B., Kokate, C.K. and Purohit, A.P. (2003). Pharmacognosy. NiraliPrakashan.
4. Pune. Pal D. C and Jain S. K. 1998 Tribal medicine, Naya prakash publishers, Calcutta.
5. Jain, (2001). Medicinal plants. National Book Trust, New Delhi.
6. John Jothi Prakash, E. (2003). Medicinal Botany and Pharmacognosy. JPR Publication, Vallioor, Tirunelveli.
7. Joshi, S.G. (2001). Medicinal plants. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
8. Medicinal Plants Source Book India, (1996). International Library Association, Switzerland.
9. Prajapathi, Purohit, Sharma and Kumar. (2003). A Hand book of Medicinal plants. Agrobios Publications, Jodhpur.
10. Purohit and Vyas, (2004). Medicinal Plants Cultivation. Agrobios Publications, Jodhpur.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – V SEMESTER – SKILL BASED ELECTIVE - III
(For the candidates admitted from the year 2015-16 onwards)

PLANT TISSUE CULTURE

Unit - I: Plant Tissue Culture: Introduction - Laboratory organization - Tools and Techniques - pH meter, Autoclave, Laminar Air Flow Chamber - Glassware Cleaning and Sterilization methods - Lab Safety.

Unit - II: Culture media: Composition - Preparation of MS Medium, B5 medium and White's Medium. Moist heat sterilization - Explant sterilization. Carbon Source and Solidifying agent.

Unit - III: Concept of Totipotency - Explants Sources - Callus Culture - Suspension Culture - Meristem Culture - Direct and Indirect Plant Regeneration.

Unit - IV: Haploid Production - Anther Culture - Pollen Culture - Androgenic Haploids - Ovary Culture - Gynogenic Haploids - Diploidization of Haploids.

Unit - V : Somatic Embryogenesis - Artificial Seeds - Encapsulating Agents - Application of Somatic Embryogenesis and Synthetic Seeds; Somaclonal Variations; Application of Plant Tissue Culture in Agriculture and Forestry.

Reference Books :

1. Razdan, M.K, 1993. An Introduction to Plant Tissue Culture - Oxford and IBH publishing co, New Delhi.
2. Kalyankumar 1992, Cell culture and Somatic Cell genetics of plant. 3 volumes. Academic press inc.
3. London Timir Baran Jha and Biswajit Ghost, Plant tissue culture (Basic and Applied). University Press, Hyderabad. 2005
4. Pullaiah, T. (2013), Plant Tissue Culture: Emerging Trends - ASTRAL International (P) Ltd, New Delhi.
5. Dodds T.H and Roberts I.W, 1985. Experiments in Plant Tissue Culture. Cambridge University Press.
6. Bhojwani, S.S. & Razdan, M.K. (2004). Plant Tissue Culture, Read Elsevier India Pvt.Ltd.
7. Kalyankumar De,(2008). Plant tissue culture. New Central Book Agency, Calcutta.
8. Purohit, S.S. 2010. Plant Tissue Culture. Agrobios (India) Revised Edition.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS) KARUR-05
ALL UG COURSES – V SEMESTER – PART - IV
(For the candidates admitted from the year 2015 - 2016 onwards)

SOFT SKILLS DEVELOPMENT

Learning Objective

Today's world is all about relationship, communication and presenting oneself, one's ideas and the company in the most positive and impactful way. This course intends to enable students to achieve excellence in both personal and professional life.

- UNIT-I** Know Thyself/Understanding Self
Introduction to Soft Skills-Self discovery-Developing positive attitude-Improving perceptions-Forming values.
- UNIT- II** Interpersonal Skills/Understanding Others
Developing interpersonal relationship-Team building-group dynamics-Net working-Improved work relationship.
- UNIT-III** Communication Skills / Communication with others
Art of listening-Art of reading-Art of speaking-Art of writing-Art of writing e-mails-e mail etiquette.
- UNIT-IV** Corporate Skills / Working with Others
Developing body language-Practicing etiquette and mannerism-Time management-Stress management.
- UNIT-V** Selling Self / Job Hunting
Writing resume/cv-interview skills-Group discussion-Mock interview-Mock GD-Goal setting-Career planning.

Text Book:

Meena.K and V.Ayothi (2013) A Book on Development of Soft Skills (Soft Skills : A Road Map to Success), P.R.Publishers & Distributors, No, B-20 & 21, V.M.M. Complex, Chatiram Bus Stand, Thiruchirappalli - 620 002.
(Phone No:0431 - 2702824: Mobile No: 94433 70597, 98430 74472)

Alex. K (2012) Soft Skills - Know Yourself & Know the World, S.Chand & Company LTD, Ram Nagar, New Delhi - 110 055.
Mobile No: 94425 14814 (Dr.K. Alex)

Reference Books

- (i) Developing the leader within you John c Maxwell
- (ii) Good to Great by Jim Collins
- (iii) The seven habits of highly effective people Stephen Covey
- (iv) Emotional Intelligence Daniel Goleman
- (v) You can win Shive Khera
- (vi) Principle centred leadership Stephen Covey.

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COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05

B.Sc., BOTANY – VISEMESTER – CORE COURSE - X

(For the candidates admitted from the year 2015-16 onwards)

PRACTICAL - III (Covering CC-VII & CC-VIII)

(GENETICS, EVOLUTION AND ANGIOSPERM TAXONOMY)

Genetics

1. Problems on simple, monohybrid and dihybrid ratio
2. Simple problem of interaction on various factors are included in the theory

Morphology

Study of special types of inflorescences - Cyathium, Hypanthodium, Verticillaster and Thirsus - Study of fruits - Hesperidium, pome, pepo, Aggregate (custard apple) and multiple fruits (Pine apple and Jack fruits)

Taxonomy

1. Detailed study of any 15 families

Annonaceae, Capparidaceae, Malvaceae, Sterculiaceae, Tiliaceae, Anacardiaceae, Rutaceae, Leguminosae (Fabaceae, Ceasalpinaceae and Mimosaceae), Cucurbitaceae, Rubiaceae, Asteraceae, Apocyanaceae, Asclepidaceae, Acanthaceae, Solanaceae, Convolvulaceae, Lamiaceae, Verbenaceae, Amaranthaceae, Euphorbiaceae, Lilliacae, Poaceae and Typhaceae.

Submission of atleast 25 numbers of herbarium of plant materials as per theory syllabus.

2. Field trips

Botanical Tour (2 - 3 days) to any botanically rich location in and around Tamilnadu / other states.

Plant Ecology and Phytogeography:

1. Study of Morphological and anatomical features of hydrophytes, xerophytes and mesophytes.
2. Study of morphological features of epiphytes, parasites and halophytes.
3. Study of vegetation by quadrat, line transect and estimation of frequency, density and dominance cover.
4. Determination of soil and water pH.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – VI SEMESTER – CORE COURSE - XI
(For the candidates admitted from the year 2015-16 onwards)

PRACTICAL - IV (Covering CC-XII & CC-XIII)

(MICROBIOLOGY, PLANT PHYSIOLOGY, BIO-CHEMISTRY AND BIO-PHYSICS)

Microbiology:

1. Media Preparation - Sterilization Procedure
2. Isolation of Microbes from Water and Soil samples.
3. Gram Staining of Bacteria.
4. Histochemical localization of VAM fungi.

Physiology and Biochemistry Experiments:

1. Determination of Osmotic Pressure in potato cells.
2. Effect of Light Intensity on Transpiration Using Ganong's Potometer.
3. Comparison of Stomatal and Cuticular Transpiration by Cobalt Chloride Test.
4. Measurement of Oxygen Evolution Under Different Colored Light Using Wilmott's Bubbler.
5. Determination of Photosynthetic Rate Under Different CO₂ Concentration.
6. Measurement of Respiration Rate using Germinating Seeds and Flower Buds with Simple Respiroscope.
7. Separation of Plant Pigments by Paper chromatography.
8. Estimation of total chlorophyll contents in leaves.
9. Extraction and Estimation of total Sugar.
10. Estimation of lipids.

Demonstration :

1. Osmosis.
2. Ganong's Light Screen.
3. Anaerobic Respiration.
4. Fermentation.
5. Lever Auxanometer.
6. Clinostat.

Bio Physics : Demonstration

1. pH Meter.
2. Centrifuge.
3. Spectrophotometer.
4. Electrophoretic Apparatus.

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – VI SEMESTER – CORE COURSE - XII
(For the candidates admitted from the year 2015-16 onwards)

GENERAL MICROBIOLOGY

Unit - I: Introduction, History, development and scope of microbiology. Distinguishing features of Archaea, Eubacteria, Actinobacteria and Mycoplasma. Microbial taxonomy and its modern trends (Wittaker's and Bergey's). Staining methods - Simple, negative, differential, acid fast and Gram's staining.

Unit - II: Bacteria- Morphology - size, shape, structure, ultra structure: cell wall, capsule, flagella, pili, endospore, plasmid, locomotion. Reproduction - binary fission, genetic recombination - conjugation, transformation and transduction. Economic importance of bacteria.

Unit - III: Viruses – Introduction, Classification, characteristic feature, structure, types, isolation and cultivation of viruses. Plant viruses. Replication of viruses - lytic and lysogenic cycles. Economic importance of viruses.

Unit - IV: Culture of Microorganisms - Types of culture media, methods of sterilization - disinfectant, antiseptic, sanitizer, germicide, moist heat and dry heat (incineration, hot air oven), fractional sterilization, Pasteurization, Tyndallization, filtration. Methods of growing and maintenance of culture. Isolation and pure culture techniques of bacteria and fungi.

Unit - V: Agricultural and Environmental microbiology – soil microbes. Nitrogen fixers, phosphate solubilizers, mycorrhizae (Ecto, Endo and Ectendo) . Conversion of waste into organic compost, vermicompost – process of vermicomposting, Sewage treatment – sewage microbes, BOD, COD, small and large scale sewage treatment - Primary and Secondary and Tertiary treatments.

Reference Books:

1. Pelczar, M.J., Chan, E.C.S., (1986): Microbiology, Tata McGraw Hill Publishing Co., Ltd., New Delhi - 918p
2. Sharma, P.D. (1993), Microbiology, Rastogi Publications, Merut, India-359p.
3. Agrawal , A.K, parihar ,P. (2006). Industrial microbiology , Student Edition , Jodhpur
4. Dubey. R.C. & Maheswari, D.K. (1999) : A Text Bok of Microbiology, S. Chand & Co., New Delhi-682.
5. Prescott, Harley and Klein' S.(2008). Microbiology 7th edition, McGraw hill International Edition, NewYork.
6. Ananthanarayanan, R. and CKJ. Paniker, 2004. Textbook of Microbiology. Orient Longman Pvt. Ltd.,
7. Arora, D.R., 2004. Text book of Microbiology, CBS.
8. Dubey, R.C. and D.K. Maheswari, 2007. A Textbook of Microbiology, S. Chand & Company, New Delhi.
9. Michael, J. Pelczar, JR. E.C. Channoel, R.Krieg, 2005. Microbiology, Mc. Graw-Hill.
10. Powar, C.B and Daginawala 1991.General Microbiology Vol-I and Vol-II Himalaya publishing house, Bombay.
11. Sullia, S.B and S. Shantharam, 2005. General Microbiology, Oxford & IBH

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – VI SEMESTER – CORE COURSE - XIII
(For the candidates admitted from the year 2015-16 onwards)
BIOPHYSICS, BIOCHEMISTRY AND PLANT PHYSIOLOGY

Biophysics :

UNIT - I : Laws of thermodynamics, Redox potential, Entropy, Enthalpy. ATP in bioenergetics chemical bonds - Biological effect of ionizing radiation.

Biochemistry :

UNIT -II: Classification, Structure and Function of Carbohydrates - Mono, Di, Oligo and Polysaccharide. Lipids - Saturated , Unsaturated and Saponification. Protein- Primary, Secondary and Tertiary Structures. Enzymes and Vitamins.

Physiology :

UNIT- III : Water Relations : Physical and Chemical Properties of water, Absorption of water. SPAC - Transpiration - types, mechanism of transpiration - Guttation - Factors affecting transpiration. Translocation of Solutes. Mineral nutrition and mineral uptake - Role of Macro and Micro elements.

UNIT - IV: Role of light and Pigments in Photosynthesis - Enhancement Effect ; Photosystem I & II, Photophosphorylation, Light Reaction. Carbon Assimilation - Calvin Cycle, Hatch & Slack Pathway, CAM Pathway - Photorespiration. Factors affecting photosynthesis.

Respiration: Respiratory Substrates. Aerobic and Anaerobic. Glycolysis, Kreb's Cycle and Oxidative Phosphorylation, Energetics of Respiration, Pentose Phosphate Pathway. Factors affecting Respiration.

UNIT-V: Plant Growth - Growth curve - Factors affecting growth. Plant Growth Regulators - Auxins, Gibberellins, Cytokinins, Ethylene and their Functions. Flowering - Role of hormones in Flowering, Photoperiodism, Vernalization. Senescence and Abscission, Phytochrome. Dormancy and Seed germination - Causes and breaking of seed and bud dormancy - Advantages of dormancy.

Reference Books:

1. Lincoln Taiz and Eduardo Zeiger, 2005. Plant Physiology Sinauer Associates Inc. Sublishers, Sunderland, Massachusetts.
2. Panda, S.K, 2005. Advances in Strees Physiology of plants, Scientific publishers India, Jodhpur.
3. Salisbury, F.B and Cleon Ross, 2007. Plant physiology, Wadsworth publishing company, Belimont.
4. William G. Hopkins, 1999. Introduction to Plany Physiology, John Wiley and sons, INC, New York.
5. Jain, J.L., Sunjay Jain and Nitin Jain, 2007. Fundamentals of Biochemistry, S.Chand & co New Delhi.
6. Hans-Walter. Headt, 1997. Plant Biochemistry and Molecular Biology. Oxford University press, New York.
7. Rajeshwari, M.R. (2012)- Biophysics, Rastogi Publications, Meerut.

CHAIRMAN – BOS

COE

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – VI SEMESTER – ELECTIVE COURSE - II
(For the candidates admitted from the year 2015-16 onwards)

BIOFERTILIZERS AND BIOPESTICIDES

Unit - I:

Biofertilizers - Definition, kinds, microbes as biofertilizers, Symbiotic association - *Rhizobium* inoculants - Classification, Physiology, Host - *Rhizobium* interactions and mass cultivation.

Unit - II:

Organic farming Carrier materials, general outline of microbes as fertilizers, Rhizosphere effect - microbial products influencing plant growth.

Unit - III:

Mycorrhizae - VAM association, occurrence, types, Collection, isolation, inoculum production and mass cultivation.

Unit - IV:

Frankia, Actinorrhizae and Host plants, characteristics, identification, cultural method and maintenance of *Anabaena*, *Azospirillum*, *Azotobacter* and *Azolla*.

Unit - V:

Biopesticides - Definition, Bacterial, Viral and Fungal Pesticides. Biological control of weeds - Mycoherbicides - insect as bio control agents - Biological control of plant pathogens.

Reference Books:

1. Dubey, R.C., 2005 A Text book of Biotechnology S.Chand & Co, New Delhi.
2. Kumaresan, V. 2005, Biotechnology, Saras Publications, New Delhi.
3. John Jothi Prakash, E. 2004. Outlines of Plant Biotechnology. Emkay Publication, New Delhi.
4. Sathe, T.V. 2004 Vermiculture and Organic Farming. Daya publishers.
5. Subha Rao, N.S. 2000, Soil Microbiology, Oxford & IBH Publishers, New Delhi.
6. Vayas,S.C, Vayas, S. and Modi, H.A. 1998 Bio-fertilizers and organic Farming Akta Prakashan, Nadiad.

Sl. No.:

Subject Code:

GOVERNMENT ARTS COLLEGE (AUTONOMOUS): KARUR-05
B.Sc., BOTANY – VI SEMESTER – ELECTIVE COURSE - III
(For the candidates admitted from the year 2015-16 onwards)

PLANT BIOTECHNOLOGY

Unit-I:

Biotechnology- Definition, Scope, Importance and interdisciplinary areas of Biotechnology - Global impact of biotechnology - Biotechnology in India - Commercial potential of biotechnology - Need for future development.

Unit - II:

Plasmids- General account, Plasmid as a vector – pBR 322, Ti and Ri plasmids. Cosmids and phagemids. Gene Cloning - PCR technique - Blotting techniques - Southern, Northern and Western blotting.

Unit - III:

Improvement of hybrids - Production of encapsulated seeds - molecular farming from transgenic plants, nutritional quality (cyclodextrins, Vit A, and quality of seed protein) Immunotherapeutic drugs - edible vaccines, antibodies and interferons.

Unit - IV:

Gene Transfer in Plants : *Agrobacterium* mediated transformation, Direct DNA Transformation - Biolistics, Lipofection, Electroporation, Microinjection and Protoplast Transformation.

Unit - V:

Agriculture biotechnology - Transgenic crops. Crop improvement - Production of resistance - viral, insect and microbial. Cryopreservation. Production of *flavr - savr* tomato.

Reference Books :

1. Ignacimuthu, S.J.(2003). Plant Biotechnology. Oxford & IBH Publishing, New Delhi.
2. John Jothi Prakash, E. (2005). Outlines of Plant Biotechnology. Emkay Publishers, New Delhi.
3. Dubey, R.C., (2001). A text book of biotechnology. S. Chand & Co., New Delhi.
4. Kumaresan.V. 2001 – Biotechnology, Saras Publications, Nagercoil.
5. Trivedi, P.C. 2000 – Plant Biotechnology, Panima Publishing Corporation, New Delhi.
6. Lewin, B. 2003 – Genes VI, Allied Publishers, Chennai.
7. Gupta P. K. 2005 Elements of Biotechnology. Rastogi Publications Meerut.
8. Singh B. D. 2003 Biotechnology Expanding Horizons. Kalyani publishers Ludhiana.

Sl. No.:

Subject Code:

U15EA4

அரசு கலைக் கல்லூரி (தன்னாட்சி), ஈரூர் - 639005
அனைத்து இளநிலை - ஆறாம் பருவம் - பகுதி - 5
(2015 - 2016 கல்வியாண்டு முதல் பயிலும் மாணவர்களுக்கு
உரியது)

பாலின சமத்துவம்

அலகு 1

பாலினம்தொடர்பான கோட்பாடுகள் : பாலியல் - பாலினம் - உடற்கூறு ரீதியில் நிருணயித்தல் - ஆணாதிக்கம் - பெண்ணியம் - பாலின பாகுபாடு - பாலின வேலைப் பாகுபாடு - பாலின ஒருபடித்தானவர்கள் - பாலின உணர்வூட்டல் - பாலின சமவாய்ப்பு - பாலின சமத்துவம் - பாலின மையநீரோட்டமாக்கல் - அதிகாரப்படுத்துதல்.

அலகு 2

மகளிரியல் : பாலினசமத்துவக்கல்வி - பல்கலைக்கழக மானியக்குழுவின் வழிகாட்டுதல்கள் - ஏழாவது ஐந்தாண்டு திட்டம் முதல் பதினோராவது ஐந்தாண்டுத்திட்டம் வரை - பெய்ஜிங் மாநாடு - பெண்களுக்கு எதிரான அனைத்தவகையான பாகுபாடுகளையும் நீக்கும் ஒப்பந்தம் - 1979 (CEDAW) - சட்டத்தில் பெண்களுக்கு ஆதரவானவற்றை இணைத்தல் அல்லது உட்படுத்துதல் - பெண்களுக்கு எதிரானவற்றை ஒதுக்குதல்.

அலகு 3

பாலியல் பாகுபாட்டிற்கான தளங்கள் : குடும்பம் - பாலின விகிதாச்சாரம் - கல்வி - ஆரோக்கியம் - ஆளுமை - மதம் - வேலைவாய்ப்பு - ஊடகங்கள் - அரசியல் - சட்டம் - பாலியல் துன்புறுத்தல்கள்.

அலகு 4

பெண்கள் மேம்பாடு மற்றும் பாலின சமத்துவ மேம்பாடு : பெண்களுக்கான சமத்துவ முயற்சிகள் - சர்வதேச பெண்களுக்கான சகாப்தம் - சர்வதேச பெண்களுக்கான ஆண்டு - பெண்களின் மேம்பாட்டிற்கான தேசியக் கொள்கைகள் - பெண்கள் அதிகார ஆண்டு 2001 - சர்வதேசக் கொள்கைகளை மையநீரோட்டமாக்கல்.

அலகு 5

பெண்கள் இயக்கங்கள் மற்றும் பாதுகாப்பு நிறுவன ஏற்பாடுகள் : தேசிய மகளிர் ஆணையம் - மாநில மகளிர் ஆணையம் - அனைத்து மகளிர் காவல் நிலையங்கள் - குடும்ப நீதிமன்றங்கள் - குடும்ப வன்முறையிலிருந்து பெண்களைப் பாதுகாக்கும் சட்டம் 2005 - பணியிடங்களில் பெண்கள் மீதான பாலியல் துன்புறுத்தல்களைத் தடுப்பதற்கான உச்சநீதிமன்ற வழிகாட்டுதல்கள் - விசாகா தீர்ப்பு - தாய் சேய் சேம நலச்சட்டம் - பெண் சிசுவை கருவில் கண்டறிவதைத் தடை செய்யும் சட்டம் 1994 - ஈவ்ஊசிங் - பெண்களைத் தொல்லை செய்தல் தடுப்புச் சட்டம் - மகளிர் சுயஉதவிக்குழுக்கள் - பஞ்சாயத்து அமைப்புகளுக்கான 73வது மற்றும் 74வது சட்டத்திருத்தம்.

Text Book:

1. பாலின சமத்துவம் - முனைவர். ஆ. ஜெகதீசன் - ராஜா பதிப்பகம், திருச்சி.