Sadakathullah Appa College

(Autonomous)

(Reaccredited by NAAC at an 'A^{++}' Grade.An ISO 9001:2015 Certified Institution)

Rahmath Nagar,Tirunelveli-11.

TamilNadu.

DEPARTMENT OF ZOOLOGY

CBCS SYLLABUS

Learning Outcome-Based Curriculum Framework For

Zoology (B.Sc.)

(Applicable for students admitted in June 2024 and onwards)

(As per the Resolutions of the Academic Council Meeting held on 01.06.2024)

CONTENTS

Sadakathullah Appa College, Rahmath Nagar, Tirunelveli – 627 011.
Programme Structure & Credits – UG (Sciences)* - 2024 – 2027
Zoology

Sem	Part	Course Type	Title of the Course	Course Code	H/W	C	Marks		
							I	E	T
I	I	Lang-I	Prose	24ULAR11	6	3	25	75	100
			பொதுத் தமிழ் 1 - தமிழ் இலக்கிய வரலாறு - 1	24ULTA11					
	II	Lang-II	General English - I	24ULEN11	6	3	25	75	100
	III	Core-I	Animal Diversity-1 (Invertebrata)	24UCZO11	5	5	25	75	100
	III	Core-P-I	Animal Diversity-Practical - I (Invertebrata Lab)	24UCZO1P	3	3	40	60	100
	III	EC-T-I (GE)	Food Science	24UAND11	4	4	25	75	100
	III	EC-P-I (GE)	Food Science Practicals	24UAND1P	2	1	20	30	50
	IV	SEC-I (NME)	Biocomposting for Entrepreneurship	24UNZO11	2	2	15	35	50
	IV	FC	Introduction to Zoology	24UFZO11	2	2	15	35	50
					30	**23**			**650**
II	I	Lang-I	Grammar	24ULAR21	6	3	25	75	100
			பொதுத் தமிழ் 2 - தமிழ் இலக்கிய வரலாறு - 2	24ULTA21					
	II	Lang-II	General English - II	24ULEN21	6	3	25	75	100
	III	Core-II	Animal Diversity-II (Chordata)	24UCZO21	5	5	25	75	100
	III	Core-P-II	Animal Diversity-Practical II	24UCZO2P	3	3	40	60	100
	III	EC-T-II (GE)	Human Nutrition	24UAND21	4	4	25	75	100
	III	EC-P-II (GE)	Human Nutrition Practicals	24UAND2P	2	1	20	30	50
	IV	SEC-II (NME)	Medical Laboratory Techniques	24UNZO21	2	2	15	35	50
	IV	SEC-III	Value Education –I	24USVE2A	2	2	15	35	50
			Value Education –II	24USVE2B					
					30	**23**			**650**

*** For B.Sc. Chemistry with Allied Botany or Zoology or Biochemistry and Physics,**
B.Sc. Zoology with Allied Chemistry or Botany and Nutrition and Dietetics,
B.Sc. Microbiology with Allied Nutrition and Dietetics,
B.Sc. Nutrition and Dietetics with Allied Chemistry and Microbiology

EC – Elective Course FC – Foundation Course
VE – Value Education SEC – Skill Enhancement Course
Discipline Specific – Core and Related Discipline
Generic – Unrelated Discipline ** Extra Credits for Part – V Extension Activities

Programme Outcomes (PO)

(Aligned with Graduate Attributes) for **B.Sc.**

PO	Upon completion of B.Sc. Degree Programme, the students will be able to:
PO 1	**Disciplinary Knowledge** Acquire scientific knowledge and an understanding of major concepts and theoretical principles.
PO 2	**Creative Thinking and Practical Skills / Problem-Solving Skills** Enrich skills of observation/research-related skills to draw logical inferences from scientific experiments/ programming and skills of creative thinking to develop novel ideas. Hone problem-solving skills in theoretical, experimental, and computational areas and apply them in research fields and real-life situations.
PO 3	**Sense of inquiry and Skilled Communicator** Develop the capability to raise appropriate questions relating to the current/emerging issues encountered in the scientific field and plan, execute, and express the results of experiments / investigations through technical writings and oral presentations
PO 4	**Ethical Awareness / Team Work / Environmental Conservation and Sustainability** Equip them for conducting work as an individual / as a member, or as a leader in diverse teams upholding values such as honesty and precision and thus preventing unethical behaviors such as fabrication, falsification, misrepresentation of data, plagiarism, etc.to ensure academic integrity. Realize that environment and humans are dependent on one another and know about the responsibe management of our ecosystem for survival and the well-being of the future generation.
PO 5	**Usage of ICT/ Lifelong Learning / Self-Directed Learning** Inculcate the habit of learning continuously through the effective adoption of ICT to update knowledge in the emerging areas in Sciences for inventions/discoveries and engage in remote/independent learning.
PO 6	**Research-related skills**: A sense of inquiry and capability for asking relevant/appropriate questions, problem arising, synthesising and articulating; Ability to recognise cause-and-effect relationships, define problems, formulate hypotheses, test hypotheses, analyse, interpret and draw conclusions from data, establish hypotheses, predict cause-and-effect relationships; ability to plan, execute and report the results of an experiment or investigation.

Programme Specific Outcomes

PSO No.	Upon completion of B.Sc. ZOOLOGY Degree Programme, the students will be able to :	POs Mapped
PSO-1	Understand the fundamental principles of Zoology which include animal diversity with animal classification, taxonomy and their diagnostic characteristics.	1
PSO-2	Apply the knowledge to understand the protection and restoration of biological diversity, ecological integrity, health, conservation, management of wildlife and their gene bank.	1,4
PSO-3	Collect, record, analyze and interpret data using appropriate ecological, genetic, and physiological techniques adopted invivoandinvitro and to express the effectively through written and oral presentations using ICT.	1,3,4,5
PSO-4	Analyse the principles, animal development, physiology, genetics animals, their evolution, and to compare the structure of Prokaryotes and Eukaryotes	1,4,6
PSO-5	Develop creative, practical and problem solving skills to pursue research and gain placements in the fields of Biochemistry, Microbiology, Sericulture, Aquaculture, Apiculture and Biotechnology.	1,2,6

Semester - I	PROSE		24ULAR11			
LANG – I			L	T	P	C
Hrs./Week: 6	Hrs./Semester : 60	Marks :100	6	-	-	3

General Objective: To make the students to understand the structure of Arabic language and impove the reading and writing skills.

Learning Objectives

LO	The learners will be able to:
LO-1	Understand basic Arabic grammar.
LO-2	Understand the structure of Arabic language.
LO-3	Employ sentence making.
LO-4	Enhance vocabulary.
LO-5	Improve reading and writing skills.

UNIT I - من الدرس الأول إلى الدرس الرابع

UNIT II - من الدرس الخامس إلى الدرس الثامن

UNIT III – من الدرس التاسع إلى الدرس الثالث عشر

UNIT IV – من الدرس الرابع عشر إلى الدرس الثامن عشر

UNIT V – من الدرس التاسع عشر إلى الدرس الثالث و العشرون

Textbooks:

1. دروس اللغة العربية لغير الناطقين بها، الجزء الأول، الدكتور ف. عبد الرحيم

Reference Books:

1. معجم الكلمات الواردة في دروس اللغة العربية لغير الناطقين بها
2. مفتاح دروس اللغة العربية لغير الناطقين بها
3. القراءة الراشدة – للشيخ أبي الحسن علي الحسني الندوي
4. القراءة المفيدة – للدكتور محمد يوسف كوكن العمري
5. منهاج العربية -السيد النبي حيدرآبادي

www.alnahw.com

Course Outcomes

CO	Upon completion of this course, students would have learned to:	PSOs Addressed	Cognitive Level
CO-1	Understand the correct pronunciation of Arabic letters	PSO 1	K2
CO-2	Apply the structure-based composition	PSO 1,2	K3
CO-3	List out the new vocabulary in Arabic	PSO 1	K4
CO-4	Evaluate and read the Arabic sentences without diacritical marks	PSO 1,2	K5
CO-5	Able to create the simple sentences in Arabic without errors.	PSO 1	K6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credits
I	24ULAR11	PROSE	90	3

Course Outcomes (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	3	1	2	1	1	3	2	2	1	1
CO-2	3	3	1	2	1	1	3	2	2	1	1
CO-3	3	3	1	2	1	1	3	2	2	1	1
CO-4	3	3	1	2	1	1	3	2	2	1	1
CO-5	3	3	1	2	1	1	3	2	2	1	1

STRONG – 3, MEDIUM – 2 , LOW – 1

Prepared by : Dr. S.A.Mohamed Rafeek Checked by: Dr. J. Ubaiyathulla

Head of the Department

Semester - I	பொதுத்தமிழ் - 1		24ULTA11			
LANG – I	தமிழ் இலக்கிய வரலாறு - 1		L	T	P	C
Hrs./Week: 6	Hrs./Semester : 90	Marks :100	6	-	-	3

General Objective:

- தமிழ் இலக்கியம் சார்ந்த போட்டித் தேர்வுகளுக்கு ஏற்ப கற்பித்தல் நடைமுறைகளை மேற்கொள்ளுதல்.

Learning Objectives:

LO	The learners will be able to:
LO - 1	தமிழ் இலக்கண, இலக்கியங்களை மாணவர்கள் அறியுமாறு செய்து அவர்களின் படைப்பாற்றலைத் தூண்டுதல்.
LO - 2	சங்க இலக்கியத்தில் காணப்பெறும் வாழ்வியல் சிந்தனைகளை அறிந்து கொள்வர்.
LO - 3	அற இலக்கியங்களை அறியச் செய்து வாழ்வின் விழுமியங்களை பயிற்றுவித்தல்.
LO - 4	காப்பியங்களை அறிமுகம் செய்து அதன் வழி வாழ்வியலை புரியச் செய்தல்.
LO - 5	பக்தி இலக்கியங்களின் மூலம் பக்தியுணர்வை ஊட்டுதல்.

அலகு 1 இலக்கணம்

1. தொல்காப்பியம், இறையனார் களவியல் உரை, நம்பியகப் பொருள், புறப்பொருள் வெண்பா மாலை, நன்னூல், தண்டியலங்காரம், யாப்பருங்கலக்காரிகை - நூல்கள்

2. மொழிப் பயிற்சி - ஒற்றுப்பிழை தவிர்த்தல்
   - வல்லினம் மிகும் இடங்கள்
   - வல்லினம் மிகா இடங்கள்
   - ஈரொற்று வரும் இடங்கள்
   - ஒரு, ஓர் வரும் இடங்கள்
   - அது, அ.ஃது வரும் இடங்கள்
   - தான், தாம் வரும் இடங்கள்

1. சங்க இலக்கியம் - எட்டுத் தொகை, பத்துப்பாட்டு.
2. அற இலக்கியம் - பதினெண்கீழ்க்கணக்கு நூல்கள்.
3. காப்பிய இலக்கியம் - ஐம்பெருங் காப்பியங்கள், ஐஞ்சிறு காப்பியங்கள், சமயக் காப்பியங்கள்.

4. பக்தி இலக்கியமும் (பன்னிரு திருமுறைகள் நாலாயிர திவ்வியப் பிரபந்தம்), பகுத்தறிவு இலக்கியமும் (சித்தர் இலக்கியங்கள், புலவர் குழந்தையின் இராவண காவியம்)

அலகு 2 சங்க இலக்கியம் - எட்டுத்தொகை, பத்துப்பாட்டு

எட்டுத்தொகை

1. நற்றிணை - முதல் பாடல் - நின்ற சொல்லர்
2. குறுந்தொகை 3 ஆம் பாடல் - நிலத்தினும் பெரிதே
3. ஐங்குறுநூறு - "நெல் பல பொலிக! பொன் பெரிது சிறக்க!"(முதல் பாடல்) வேட்கைப் பத்து.
4. கலித்தொகை - 51- சுடர்த்தொடிஇக் கேளாய் - குறிஞ்சிக் கலி.
5. புறநானூறு - 189 தெண்கடல் வளாகம் பொதுமையின்றி, நாடா கொன்றோ -187

பத்துப்பாட்டு

1. முல்லைப்பாட்டு (முழுவதும்)

அலகு 3 அற இலக்கியம் பதினெண்கீழக்கணக்கு நூல்கள்

1. திருக்குறள் - அறன் வலியுறுத்தல் அதிகாரம்
2. நாலடியார் - பாடல் : 131 (குஞ்சியழகும்)
3. நான்மணிக்கடிகை - நிலத்துக்கு அணியென்ப
4. பழமொழி நானூறு - தம் நடை நோக்கர்
5. இனியவை நாற்பது - 37 இளமையை மூப்பு என்று

அலகு 4 காப்பிய இலக்கியம் (ஐம்பெருங் காப்பியங்கள், ஐஞ்சிறு காப்பியங்கள், சமயக் காப்பியங்கள்)

1. சிலப்பதிகாரம் - வழக்குரைகாதை
2. மணிமேகலை - பாத்திரம் பெற்ற காதை
3. பெரியபுராணம் - பூசலார் நாயனார் புராணம்
4. கம்பராமாயணம் - குகப் படலம்
5. சீறாப்புராணம் - மானுக்குப் பிணை நின்ற படலம்
6. இயேசு காவியம் - ஊதாரிப்பிள்ளை

அலகு 5 பக்தி இலக்கியமும், பகுத்தறிவு இலக்கியமும் (பக்தி இலக்கியம் பன்னிரு திருமுறைகள், நாலாயிர திவ்வியப் பிரபந்தம் - பகுத்தறிவு இலக்கியம் (சித்தர் இலக்கியங்கள், புலவர் குழந்தையின் இராவண காவியம்)

பக்தி இலக்கியம்:

1. திருநாவுக்கரசர் தேவாரம் - "நாமார்க்கும் குடியல்லோம்" எனத் தொடங்கும் பாடல் மட்டும்

2. மாணிக்கவாசகர் திருவாசகம் - "நமச்சிவாய வாழ்க நாதன் தாள் வாழ்க" முதல் "சிரம்குவிவார் ஓங்குவிக்கும் சீரோன் கழல் வெல்க" வரை.
3. பொய்கையாழ்வார் - வையந் தகளியா வார்கடலே
4. பூதத்தாழ்வார் - அன்பே தகளியா
5. பேயாழ்வார் - திருக்கண்டேன் பொன்மேனி கண்டேன்
6. ஆண்டாள் - திருப்பாவை மார்கழித் திங்கள் (முதல் பாடல்)

பகுத்தறிவு இலக்கியம்

1. திருமூலர் - திருமந்திரம் (270, 271, 274, 275 285) பட்டினத்தார் திருவிடை மருதூர் (காடே திரிந்து – எனத் தொடங்கும் பாடல் பா.எண். 279, 280)
2. கடுவெளிச் சித்தர் -- பாபஞ்செய் யாதிரு மனமே (பாடல் முழுவதும்)
3. இராவண காவியம் - தாய்மொழிப் படலம் - 18, ஏடுகையில்லா ரில்லை முதல்- 22 செந்தமிழ் வளர்த்தார் வரை.

பாட நூல்:

பதிப்பாசிரியர் முனைவர் ச.மகாதேவன், பொதுத்தமிழ் 1,
சதக்கத்துல்லாஹ் அப்பா கல்லூரி வெளியீடு,2024 – 2025(முதற் பதிப்பு).

பார்வை நூல்கள் :

1. மு. வரதராசன், தமிழ் இலக்கிய வரலாறு, சாகித்ய அகாதெமி, புதுடெல்லி.
2. மது. ச. விமலானந்தன், தமிழ் இலக்கிய வரலாறு, மீனாட்சி புத்தக நிலையம், மதுரை.
3. தமிழண்ணல், புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு, மீனாட்சி புத்தக நிலையம், மதுரை.
4. தமிழ் இலக்கிய வரலாறு – முனைவர்.சிற்பி பாலசுப்ரமணியம், முனைவர்.சொ.சேதுபதி
5. புதிய தமிழ் இலக்கிய வரலாறு – முனைவர்.சிற்பி பாலசுப்ரமணியம், நீல.பத்மநாபன்
6. தமிழ் இலக்கிய வரலாறு - டாக்டர்.அ.கா.பெருமாள்
7. தமிழ் இலக்கிய வரலாறு - முனைவர். ப.ச.ஏசுதாசன்
8. தமிழ் இலக்கிய வரலாறு – ஸ்ரீகுமார்
9. வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு – பாக்கியமேரி

10. தமிழ் பயிற்றும் முறை, பேராசிரியர் ந. சுப்புரெட்டியார் - மணிவாசகர் பதிப்பகம், சிதம்பரம்

- https://www.chennailibrary.com/
- https://www.sirukathaigal.com
- https://www.tamilvirtualuniversity.org
- https://www.noolulagam.com
- https://www.katuraitamilblogspot.com

Course Outcomes

CO	Upon completion of this course, students will be able to	PSO Addressed	Cognitive Level
CO-1	மொழியறிவோடு சிந்தனைத் திறனைப் பெறுவர்.	1, 2, 3	K4
CO-2	சங்க இலக்கியத்தில் காணப்பெறும் வாழ்வியல் சிந்தனைகளை அறிந்து கொள்வர்.	1, 4	K3, K4
CO-3	அற இலக்கியம் தமிழ்க் காப்பியங்களின் வழி வாழ்வியல் சிந்தனையைப் பெறுவர்.	2.3,4	K3, K4,
CO-4	பக்தி இலக்கியங்களைக் கற்பதன் மூலம் பக்தி நெறியினை அறிவர்.	4,5	K3, K6
CO-5	பகுத்தறிவு இலக்கியங்களைக் கற்பதன் வழி சமய நல்லிணக்கத்தைப் பின்பற்றுவர்.	2,3,4	K5, K6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code	Title of the Course					Hours				Credits
I	24ULTA11	தமிழ் இலக்கிய வரலாறு - 1					90				3
Course Outcomes (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	3	2	3	3	3	2	2	2	3	2	3
CO-2	3	3	2	2	2	3	2	3	3	2	2
CO-3	3	2	3	3	2	2	2	3	2	3	2
CO-4	-	3	3	2	2	2	3	2	3	2	2
CO-5	-	3	2	2	2	3	3	2	2	2	2

3 - STRONG, 2 - MEDIUM, 1- LOW

Prepared by : Dr. A.S. Shaik Sindha

Checked by: Dr.S.Mahadevan

Head of the Department

Semester - I	General English - 1		24ULEN11			
LANG- II			L	T	P	C
Hrs./Week: 6	Hrs./Semester : 90	Marks :100	6	-	-	3

General Objective:

To train learners to communicate effectively, think critically, and express themselves creatively.

Learning Objectives (LO)

LO	The learners will be able to :
LO – 1	Acquire self-awareness and develop positive thinking which are required in various situations.
LO – 2	Develop the attribute of empathy
LO – 3	Acquire creative and critical thinking skills
LO – 4	Learn the basics of grammar
LO – 5	Develop Listening, Speaking, Reading and Writing (LSRW) skills

Unit - I

The Skill-focused: Self-Awareness and Positive Thinking

Autobiography

1. *I am Malala* (Chapter 1) by Malala Yousafzai.
2. *The Story of My Experiments with Truth* (Chapters 1, 2 and 3) by M.K.Gandhi.

Poetry

1. "Where the Mind is Without Fear" (*Gitanjali*, Verse – 35) by Rabindranath Tagore
2. "Love Cycle by Chinua Achebe"

Unit – II

The Skill Focused: Empathy

Poetry

1. "Nine Gold Medals" – David Roth
2. "Alice Fell or Poverty" – William Wordsworth

Short Story

1. The School for Sympathy – E.V. Lucas
2. Barn Burning – William Faulkner

Unit – III

The Skills Focused:Critical and Creative Thinking

Poetry

1. "The Things That Haven't Been Done Before" – Edgar Guest
2. "Stopping by the Woods on a Snowy Evening" – Robert Frost

Readers Theatre

1. The Magic Brocade – A Tale of China
2. "Three Sideway Stories from Wayside School" by Louis Sachar adapted from the book *Stories on Stage* by Aaron Shepard.

Unit – IV

Parts of Speech

1. Articles
2. Noun
3. Pronoun
4. Verb
5. Adverb
6. Adjective
7. Preposition

Unit – V

Paragraph and Essay Writing

1. Descriptive
2. Expository
3. Persuasive
4. Narrative

Reading Comprehension

Types of Reading: Extensive and Intensive Reading
Vocabulary Building
Critical text analysis
Deep reading (Pages 72 to 84 from TANSCHE Syllabus - 2022)

Textbooks

1. Malala Yousafzai. *I am Malala*, Little, Brown and Company, 2013.
2. M.K. Gandhi. *An Autobiography* or *The Story of My Experiments with Truth* (Chapter – I), Rupa Publications, 2011.
3. Rabindranath Tagore. "Gitanjali 35" from *Gitanjali* (Song Offerings): A Collection of Prose Translations made by the Author from the Original Bengali. Mac Millan, 1913.
4. N. Krishnasamy, *Modern English: A Book of Grammar, Usage and Composition*, Macmillan, 1975.
5. Aaron Shepard. *Stories on Stage*, Shepard Publications, 2017.
6. J.C. Nesfield. *English Grammar, Composition and Usage*, Macmillan, 2019.

Web Sources

1. Malala Yousafzai. I am Malala (Chapter 1) https://archive.org/details/i-am-malala.
2. M.K Gandhi. An Autobiography or The Story of My Experiments with Truth (Chapter-1)-Rupa Publication, 2011.

https://www.indiastudychannel.com/resources/146521-Book-Review-An-Autobiography-or-The-story-of-my-experiments-with-Truth.aspx
3. Rabindranath Tagore. "Gitanjali 35" from Gitanjali (Song Offerings) https://www.poetryfoundation.org/poems/45668/gitanjali-35
4. Aaron Shepard.Stories on Stage, Shepard Publications, 2017. https://amzn.eu/d/9rVzlNv
5. J C Nesfield. Manual of English Grammar and Composition.https://archive.org/details/in.ernet.dli.2015.44179

Course Outcomes

CO	Upon completion of this course, students would have learned to:	PSOs Addressed	Cognitive Level
CO-1	Understand self- awareness and positive thinking required in various life situations	1,2,3	K1, K2
CO-2	Acquire the attribute of empathy.	1,2,3,4	K2, K3
CO-3	Develop creative and critical thinking abilities.	1,2,3,4	K3, K4
CO-4	Explain basic grammar, develop and integrate the use of four language skills (LSRW)	2, 3	K4, K5
CO-5	Compose original poems and personal narratives.	1,2,3,4	K5, K6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 - Creating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credits
1	24ULEN11	General English 1	90	3

Course Outcomes (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	3	3	3	1	2	3	3	3	3	3	3
CO2	3	3	3	1	2	3	3	3	3	1	1
CO3	3	3	1	3	3	2	3	3	3	1	1
CO4	3	3	1	2	1	3	3	3	3	3	3
CO5	3	3	3	3	3	2	3	3	3	3	3

STRONG – 3, MEDIUM – 2 AND LOW - 1

Prepared by: Dr.L.Faustina Leo

Checked by
Dr.S.Mohamed Haneef
Head of the Department

Semester - I	Animal Diversity-1 (Invertebrata)		24UCZO11			
Core – I			L	T	P	C
Hrs./Week: 5	Hrs./Semester : 75	Marks :100	5	-	-	5

General Objective:

To understand Morphology, Taxonomy and general characters of Invertebrates

Learning Objectives

LO	The learners will be able to
LO-1	Understand the major invertebrate phyla and their distinguishing characteristics.
LO-2	Recognize the diversity within invertebrate groups and their evolutionary relationships.
LO-3	Describe the key anatomical structures of various invertebrate groups.
LO-4	Describe the behavioral adaptations of invertebrates to their environments.
LO-5	Understand the significance of key evolutionary innovations in invertebrates.

UNIT I

Protozoa: Introduction to Classification, taxonomy and nomenclature. General characters and classification of Phylum Protozoa up to classes. Type study: Paramecium and Plasmodium - Parasitic protozoans (Entamoeba, Trypanasoma&Leishmania) - Economic importance Nutrition in protozoa - Host-parasitic interactions in Entamoeba and Plasmodium- Locomotion in protozoa

Porifera: General characters and classification up to Classes. Type study: Sycon-Economic importance Canal system in sponges. Reproduction in sponges

UNIT I

Coelenterata : General characters and classification up to classes – Type study: Obelia - Corals and coral reefs - Economic importance of corals and coral reefs - Polymorphism in Hydrozoa.

Platyhelminthes: General characters and classification of up to classes. Type study: Fasciola hepatica. Parasitic adaptations. Host-parasitic interactions of Helminthine parasites

UNIT III

Aschelminthes: General characters and classification of up to classes - Type study:

Ascarislumbricoides. Nematode Parasites and diseases - *Wuchereriabancrofti, Enterobiusvermicularis, Ancylostomaduodenale.* Parasitic adaptations.

Annelida: General characters and classification up to Classes. Type study: Nereis Metamerism-Nephridium and Coelomoducts - Modes of life in Annelids.

UNIT IV

Arthropoda: General characters and classification of Phylum Arthropoda up to Classes. Type study: *Penaeusindicus*. Affinities of Peripatus – Larval forms in Crustacea. Economic importance of Insects. Insects associated with human diseases: Mosquito, housefly, bedbug, human head louse .

Insect pests - Pest of rice: Rice stem borer (*Scirpophagaincertulas*) – Pest of Sugarcane: The shoot borer (*Chiloinfuscatellus*) – Pest of coconut: The rhinoceros beetle (*Oryctes rhinoceros*). Pest of stored Products: The Rice Weevil (*SitophilusOryzae*) Principles of Integrated Pest Management.

UNIT V

Mollusca: General characters and classification of Phylum Mollusca up to Classes. Type study: *Pilaglobosa.* Foot and torsion in Mollusca. Economic importance- Cephalopoda as the most advanced invertebrate.

Echinodermata: General characters and classification of Phylum Echinodermata up to Classes. Type study: Asterias. Water Vascular system in Echinodermata – Larval forms of Echinoderms.

Text Books

1. EkambaranathaIyer, 2000. A Manual of Zoology, 10th edition, Viswanathan, S., Printers & Publishers Pvt Ltd
2. EkambaranathaAyyar, and T. N. Ananthakrishnan, 2000. A Manual of Zoology. Vol 1 (Invertebrata). Part II – Viswanathan Pvt. Ltd, 842pp
3. Jordan, E.L. and Verma P.S, 1995. Invertebrate Zoology, 12th edn. S. Chand& Co.
4. Kotpal, R.L, 1992. Protozoa, Porifera, Coelenterata, Annelida, Arthropoda.
5. Kotpal R.L. 2019. Modern Text Book of Zoology, Invertebrtes 9th Ed., Rastogi Publications, Gangotri, Shivaji Road, Meerut, 1004 pp
6. Vasantharaj David, B. 2001. Elements of Economic Entomology, Popular Book Depot, Chennai. 400pp
7. Ruppert and Barnes, R.D. 2006. Invertebrate Zoology, VIII Edition. Holt Saunders International Edition, Belmont, CA : Thomson-Brooks/Cole, 928pp.

References Books

1. Ruppert and Barnes, R.D. (2006). Invertebrate Zoology, VIII Edition. Holt Saunders International Edition.
2. Barnes, R.S.K., Calow, P., Olive, P.J.W., Golding, D.W. and Spicer, J.I. (2002). The Invertebrates: A New Synthesis, III Edition, Blackwell Science
3. Barrington, E.J.W. (1979). Invertebrate Structure and Functions. II Edition, E.L.B.S. and Nelson
4. Hyman L.H, 1955. The invertebrates - Vol. I to Vol. VII – McGraw Hill Book Co.
5. Parker, J. and Haswell , 1978. A text book of Zoology Vol. I - Williams and Williams.
6. Barrington, E.J.W., 2012, Invertebrate structure and function. Boston – Houghton. Miffin and ELBS, London.
7. Bhamrah,H.S. and KavithaJunea, 2002. A text book of Invertebrates. Alilnol Publications Private Limited, 4374/4B.Ansari Road, Dayaganj, New Delhi.
8. Hyman L.H, 1955. The invertebrates – Vol. I to Vol. VII – McGraw Hill Book Co.
9. Kotpal, 1992. Protozoa, Porifera, Coelenterata, Annelida, Arthropoda, Mollusca, Echinodermata, R.L- Rastogi Publication.
10. Parker, J. and Haswell , 1978. A text book of Zoology Vol. I - Williams and Williams.
11. Srivastava, M.D.L and Srivastava, 1969. A text book of Invertebrate Zoology, U.S-Central Book Depot, Allahabad.
12. Verma, A. Invertebrates: Protozoa to Echinodermata. Narosa Publishing House Private Limited.35-36 Greams Road, Thousand Lights, Chennai.

Web Resources

1. https://www.nationalgeographic.com/animals/invertebrates/
2. https://bit.ly/3kABzKa
3. https://www.nio.org/
4. https://greatbarrierreef.org

Course Outcomes

CO No.	Upon completion of the course, the Students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Study the various forms of invertebrate animal present on earth.	1,3	K1,K2,K3 & K4
CO-2	Learn about general characteristics of invertebrates.	1,2,3	K2,K3,K4& K5
CO-3	Discuss the systematics and classification of invertebrates.	1,3,5	K2,K3,K4& K5
CO-4	Understand the structural and functional aspects of invertebrates.	1,2,3	K2,K3,K4& K5
CO-5	Acquire knowledge regarding the economic values and affinities of invertebrates.	1,2,3,5	K2,K4,K5 & K6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credits
I	24UCZO11	Animal diversity-I (Invertebrata)	75	5

Course Outcomes (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	3	3	2	2	3	2	3	2	3	2	1
CO-2	3	3	2	3	2	3	3	3	3	2	2
CO-3	2	3	2	2	3	3	3	2	3	1	3
CO-4	3	3	3	2	3	3	3	3	3	2	1
CO-5	3	2	3	2	3	1	3	3	3	1	3

Strong-3 Medium-2 Low-1

Prepared by:Dr.S.Mohamed Ramlath Sabura Checked by: Dr. M. Sithi Jameela

Head of the Department

Semester - I	Animal Diversity-Practical -I (Invertebrata Lab)		24UCZO1P			
Core – IP			L	T	P	C
Hrs./Week: 3	Hrs./Semester : 45	Marks :100	-	-	3	3

General Objective:

To impart knowledge on specific characteristics of invertebrates.

Learning Objectives:

LO	The learners will be able to:
LO-1	Understand the major invertebrate phyla and their distinguishing characteristics.
LO-2	Recognize the diversity within invertebrate groups and the evolutionary relationships among them.
LO-3	Describe the key anatomical structures of various invertebrate groups.
LO-4	Explain the physiological processes and systems (e.g., respiration, circulation, digestion) in invertebrates.
LO-5	Describe the behavioral adaptations of invertebrates to their environments.

I. **Major Dissection**: Cockroach: Nervous system, Reproductive system**.**

II. **Minor Dissection**: Cockroach: Digestive system

III. **Mounting**: Cockroach: Mouth parts - Honey Bee/ House fly/ Mosquitu. Prawn: Appendages .Record / Observation Note (SUBMISSION IS MANDATORY)

IV. **Spotters** :

a) Protozoa: Amoeba, Paramoecium, Paramoecium Binary fission and Conjugation, Entamoebahistolytica, Plasmodium vivax

b) Porifera: Sycon,Gemmule

c) Coelenterata: Obelia – Colony & Medusa, Aurelia, Physalia, Gorgonia,

d) (iv). Platyhelminthes: Planaria, Fasciola hepatica, Fasciola larval forms – Miracidium, Redia, Cercaria, Taeniasolium,

e) Nemathelminthes: Ascaris (Male & Female)

f) Annelida: Nereis, Chaetopteurs, Hirudinaria, Trochophore larva

g) Arthropoda: Cancer, Palaemon, Scorpion, Scolopendra, Sacculina, Limulus, Peripatus, Larvae - Nauplius, Mysis, Zoea,.

h) Mollusca: Chiton, Pila, Unio, Pteredo, Murex, Sepia, Loligo, Octopus,

i) Echinodermata: Asterias, Ophiothrix, Cucumaria, Antedon, Bipinnaria larva

Text Books

1. EkambaranathaIyyar and T. N. Ananthakrishnan, 1995 A manual of Zoology Vol.I (Part 1, 2) S. Viswanathan, Chennai
2. Ganguly, Sinha an d A dhikari , 2 0 11 . Biology of Animals: Volume I, New Central Book Agency; 3rd revised edition. 1008 pp.
3. Sinha, Chatterjee and Chattopadhyay, 2 0 1 4. Advanced Practical Zoology, Books & Allied Ltd; 3rd Revised edition, 1 07 0 pp.
4. Lal ,S. S, 2016 . Practical Zoology Invertebrate, Rastogi Publications.
5. Verma, P. S. 2010. A Manual of Practical Zoology: Invertebates, S Chand, 4 97pp.

References Books

1. Barnes, R.S.K., Calow, P., Olive, P.J.W., Golding, D.W. and Spicer, J.I. (2002). *The Invertebrates: A New Synthesis*, III Edition, Blackwell Science.
2. Barnes, R.D. (1982). *Invertebrate Zoology*, V Edition. Holt Saunders International Edition.
3. Barrington, E.J.W. (1979). Invertebrate *Structure and Functions*. II Edition, E.L.B.S. and Nelson
4. Boradale, L.A. and Potts, E.A. (1961). *Invertebrates: A Manual for the use of Students*. Asia Publishing Home.
5. Lal, S.S. 2005. A text Book of Practical Zoology: Invertebrate, Rastogi, Meerut

Web Resources

1. https://nbb.gov.in/
2. http://www.agshoney.com/training.htm
3. https://icar.org.in/
4. http://www.csrtimys.res.in/
5. http://csb.gov.in/
6. https://iinrg.icar.gov.in/
7. https://www.nationalgeographic.com/animals/invertebrates

Course Outcomes

CONo.	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Identify major invertebrate phyla and recognize characteristic features of representative species.	1,2,3	K1,K2,K3 & K4
CO-2	Will develop proficiency in using microscopes to observe and identify invertebrate structures.	1,2,3,4	K2,K3,K4& K5
CO-3	Perform dissections on representative invertebrate species to study their internal anatomy.	1,2,3	K2,K3,K4& K5
CO-4	learn various field collection techniques for invertebrates and understand the ethical considerations involved	1,2,3,4	K2,K3,K4& K5
CO-5	Will comprehend the evolutionary relationships among invertebrate groups and the phylogenetic trees that represent these relationships..	1,2,3,5	K3,K4,K5 & K6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credits
I	24UCZO1P	Animal Diversity Practical - I (Invertebrata Lab)	45	3

Course Outcomes (COS)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	3	3	2	1	3	3	3	3	3	1	1
CO-2	3	3	3	1	3	3	3	3	3	3	1
CO-3	3	3	3	2	3	3	3	3	3	2	1
CO-4	3	3	3	2	3	3	3	3	3	3	2
CO-5	3	3	3	1	3	2	3	3	3	2	3
Strong-3 Medium-2 Low-1											

Prepared by:Dr.S.Mohamed Ramlath Sabura Checked by: Dr. M. Sithi Jameela

Head of the Department

Semester - I	FOOD SCIENCE		24UAND11			
EC – I (ALLIED)			L	T	P	C
Hrs./Week: 4	Hrs./Semester : 60	Marks :100	4	-	-	4

General Objective

To provide students with a comprehensive understanding of the principles of Food Science their real life applications.

Learning Objectives

LO	The learners will be able to:
LO-1	Summarize and critically discuss and understand both fundamental and applied Aspects of Food Science.
LO-2	Identifying nutrient specific force and apply the principles from the various factors of foods and related disciplines to solve practicalas well as real world problems.
LO-3	Understand the food groups and their functions, acquire knowledge on different methods of cooking and apply process of different foods.
LO-4	Use combination of foods in the development of food products.
LO-5	Identify and control adulterants in various foods and evaluate food quality.

Unit-I

Food: Definition, functional classification, groups (4, 5, and 7), food pyramid.

Cooking: Definition and objectives; Methods-Moist heat methods, dry heat methods, combination of both and microwave cooking; Effect of cooking on nutrients.

Unit-II

Cereals: Structure, composition and nutritive value of rice, wheat and oat.

Pulses:Composition, nutritive value, toxic constituents; Pulse cookery-Effect of cooking, factors affecting cooking quality, role of pulses in cookery, germination and its advantages.

Unit-III

Milk and milk products: Composition and nutritive value of milk; Milk products- Non fermented and fermented products (does not include preparation); Role of milk in cookery.

Egg:Structure, composition, nutritive value; Role of egg in cookery; Home scale method for detecting egg quality.

Meat: Classification, composition, nutritive value, rigor mortis, ageing and tenderizing Fish:

Classification, composition, nutritive value, selection and principles of fish cookery.

Unit-IV

Vegetables: Classification (nutritional), composition, nutritive value; Pigments in vegetables-Water soluble and water insoluble; Vegetable cookery- changes during cooking, loss of nutrients during cooking, effect of cooking on pigments.

Fruits: Classification, composition, nutritive value, ripening of fruits; Browning- Types and preventive measures.

Unit-V

Fats and oils: Composition and nutritive value, basic knowledge about commonly used fats and oils (lard, butter, margarine, cotton seed oil, ground nut oil and coconut oil); Spoilage of fat- Types and prevention.

Stages of sugar cookery; Role of sugar in cookery.

References:

1. Manay, S. and Shadaksharaswamy, M.(1987) Foods Facts and Principles. New Age International Publishers, New Delhi.
2. Peckham, G.C. and Free land-Graves, J.H. (1979) Foundations of Food Preparation, 4th edition, Macmillan Publishing Co. Inc., NewYork.
3. Shewfelt R.L. (2015) Introducing Food Science. CRC Press, Taylor and Francis Group. Boca Raton
4. Srilakshmi B(2019) Food Science,(7thEd.) New Age International Publishers
5. Thangam E.Philip, Modern Cookery for Teaching and the Trade Volume-1&2 (6th Revised Edition), Orient Black
6. Vaclavik,V.A. and Elizabeth, W.C.(2013) Essentials of Food Science. 2nded. Springer Publication, New Delhi

e-Learning resources

- https://ia801408.us.archive.org/20/items/textbookoffoodsc0000khad/textbookoffoodsc0000khad.pdf
- https://egyankosh.ac.in/handle/123456789/32947
- https://unacademy.com/content/kerala-psc/study-material/basic-food-science/

Course Outcomes

CO	Upon completion of the course, the Students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Summarize and critically discuss & understand both fundamental and applied aspects of Food Science.	1,2,4,5	K2
CO-2	Identifying nutrient specific force and apply the principles from the various factors of foods and related disciplines to solve practical as well as real world problems.	1,2,3,5	K3
CO-3	Understand the food groups and their functions, acquire knowledge on different methods of cooking and apply process of different foods.	1,2,3,4,5	K3
CO-4	Use combination of foods in the development of food products. Identify and control adulterants in various foods and evaluate food quality.	1,2,3,4,5	K5
CO-5	Use current information Technologies to locate and apply evidence- based guidelines and protocol and get imported with critical thinking to take leadership roles in the field of health, diet and special nutritional needs.	2,3,4,5	K6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code			Title of the Course					Hours		Credits
II	24UAND11			Food Science					60		4
Course Outcome (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	-	-	3	3	-	3	3	-	3	2
CO-2	3	3	3	3	3	-	3	3	3	-	3
CO-3	3	3	3	3	3	2	3	3	3	3	1
CO-4	3	3	3	3	3	2	2	3	3	3	1
CO-5	3	3	3	3	3	3	-	3	3	3	2

Strong-3 Medium-2 Low-1

Prepared by: Dr. P.S.Bensi Checked by: Dr. M. Sithi Jameela

Head of the Department

Semester - I	FOOD SCIENCE PRACTICALS		24UAND1P			
EC – I P (ALLIED-IP)			L	T	P	C
Hrs./Week: 2	Hrs./Semester : 30	Marks :50	-	-	2	1

General Objectives

To help students understand the basics of food preparation techniques

Learning Objectives

LO	The learners will be able to:
LO-1	Demonstrate skills on determination of edible portion, effect of cooking on volume and weight.
LO-2	Choose appropriate cooking method to conserve nutrients.
LO-3	Acquire skills on different methods of cooking
LO-4	Understand experimental cookery.
LO-5	Develop recipes by applying knowledge on cooking methods and properties of Food

UNIT :1 INTRODUCTION TO FOOD SCIENCE

1. Grouping of foods according to ICMR classification.
2. Measurement of food materials using standard measuring cups, spoons and weighing.
3. Preparation of anyone beverage under the following types-refreshing, nourishing, stimulating, soothing and appetizing.

UNIT :2 CEREALS MILLETS AND PULSES

1. Observe the microscopic structure of different starches before and after gelatinization (rice).
2. Demonstrate the best method of cooking rice.
3. Demonstrate the effect of soaking, hard water, sodium bicarbon ate and papaya on cooking quality of pulses.
4. Prepare recipes using who legram, dhal, pulse flours, sprouted pulses and cereal pulse combination.

UNIT :3 MILK, EGG, MEAT AND POULTRY

1. Demonstrate the factors affecting coagulation of milk protein.
2. Prepare recipes using milk and its products.
3. Prepare recipes where egg acts as–thickening agent, binding agent, emulsifying agent and enriching agent.

UNIT :4 VEGETABLES AND FRUITS

1. Demonstrate enzymatic browning in vegetables and fruits and any four methods of preventing it.
2. Prepare the following using fruits and vegetables-salads, soups and curries.

UNIT :5 FATS OILS AND SUGARS

1. Determine the smoking point of any 4 cooking oils.
2. Prepare recipes using shallow fat and deep fat frying methods.
3. Demonstrate the stages of sugar cookery

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3. Raina U, Kashyap S, Narula V, Thomas S, Suvira, Vir S, Chopra S (2010).Basic Food Preparation: A Complete Manual, Fourth Edition. Orient Black Swan Ltd.
4. Srilakshmi.B. Food Science, New Age International (P) Ltd. Publishers, Sixth edition. 2016.

Course Outcomes

CO	Upon completion of the course, the Students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Demonstrate skills on determination of edible portion, effect of cooking on volume and weight.	1,2,3, 4	K2
CO-2	Choose appropriate cooking method to conserve nutrients.	2,3	K3&4
CO-3	Acquire skills on different methods of cooking	2,3,4	K5&6
CO-4	Understand experimental cookery.	3,4,5	K5&6
CO-5	Develop recipes by applying knowledge on cooking methods and properties of food	3,4,5	K5&6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credit
I	24UAND1P	FOOD SCIENCE PRACTICALS	3	1

Course Outcome (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	3	3	2	-	-	3	3	3	3	-
CO-2	-	3	3	3	-	1	-	3	3	-	-
CO-3	-	3	3	2	-	3	-	3	3	3	-
CO-4	-	3	3	3	3	3	-	-	3	3	3
CO-5	-	3	3	1	2	3	-	-	3	3	3

Strong-3 Medium-2 Low-1

Prepared by: Dr. P.S.Bensi

Checked by: Dr. M. Sithi Jameela
Head of the Department

Semester - I	Biocomposting for Entrepreneurship		24UNZO11			
SEC – I (NME)			L	T	P	C
Hrs./Week: 2	Hrs./Semester : 30	Marks :50	2	-	-	2

General Objective

To provide students with a comprehensive understanding of Biocomposting and its applications.

Learning Objectives

LO	The learners will be able to:
LO-1	Understand the significance and history of biocomposting in sustainable agriculture and waste management.
LO-2	Study the microbiological and biochemical processes involved in the decomposition of organic materials.
LO-3	Understand the advantages and disadvantages of different composting methods.
LO-4	Acquire knowledge related to Applications biocomposting
LO-5	Learn about sustainable biocomposting practices that promote environmental conservation.

Unit – I

Biocomposting – Definition, types and ecological importance.

Unit – II

Types of Biocomposting technology – Field pits/ground heaps/ tank/large-scale/batch and continuous methods.

Unit – III

Preparation of Biocompost pit and bed using different amendments.

Unit – IV

Applications of Biocompost in soil fertility maintenance, promotion of plant growth, value added products, waste reduction, etc.

Unit – V

Economics of establishment of a small biocompost unit – project report proposal for Self Help Group (Income and employment generation).

Practical

- Preparation procedures for Biocompost pit.
- Selection of Biocompost material, separation of Compostable and Non-compostablematerials.
- Packing and marketing of Biocompost.
- Field visit to Biocomposting unit.

References

1. Bikas R. Pati&Santi M. Mandal (2016). Recent trends in composting technology.
2. Van der Wurff, A.W.G., Fuchs, J.G., Raviv, M., Termorshuizen, A.J. (Editors) 2016. Handbookfor Composting and Compost Use in Organic Horticulture. Bio-Greenhouse COST Action FA1105, www.biogreenhouse.org.

Course Outcomes

CO	Upon completion of this course, students would have learned to:	PSOs Addressed	Cognitive Level
CO-1	Gained knowledge on the process of biocomposting	**1,2,3,4,5**	K1,K2,K3 & K4
CO-2	Ability to evaluate the different methods of biocomposting	**1,2,4,5**	K2,K3,K4& K5
CO-3	Gained knowledge in handling the materials utilized in biocomposting methods	**1,3,4,5**	K2,K3,K4& K5
CO-4	The ability to demonstrate biocompostingtechniquesfor various end applications.	**1,2,3,4**	K2,K3,K4& K5
CO-5	Knowledge, gain on the economic cost of establishing small biocompost units in the cottage industry.	**1,2,4,5**	K3,K4,K5 & K6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credits
I	24UNZO11	Biocomposting for Entrepreneurship	30	2

Course Outcomes (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	3	3	3	3	2	3	3	3	3	3	3
CO-2	3	3	2	3	3	3	3	3	1	3	3
CO-3	2	3	3	2	3	3	3	2	3	3	3
CO-4	3	1	2	2	3	2	3	3	3	3	1
CO-5	3	3	2	3	1	1	3	3	1	3	3

Strong-3 Medium-2 Low-1

Prepared by: Dr.M.I. Zahir Hussain

Checked by: Dr. M. Sithi Jameela
Head of the Department

Semester - I	Introduction to Zoology		24UFZO11			
FC – I			L	T	P	C
Hrs./Week: 2	Hrs./Semester : 30	Marks :50	2	-	-	2

General Objective:

To provide students with a comprehensive understanding of the basic principles and concepts of zoology.

Learning Objectives

LO	The learners will be able to:
LO-1	Explore fundamental concepts and principles of zoology, including animal classification, taxonomy, and evolution.
LO-2	Acquire knowledge of the anatomical structures and physiological processes of various animal groups.
LO-3	Explore the diversity of the animal kingdom, focusing on the characteristics and evolutionary relationships of major animal phyla.
LO-4	Develop essential laboratory and fieldwork skills, including techniques for observing, dissecting, and analyzing animals.
LO-5	Examine the behavioral patterns of animals and their ecological interactions within ecosystems.

UNIT 1: Animal Biodiversity and Systematics: Taxonomic hierarchy: Classification of animal kingdom-Two kingdom and five kingdom classification- Binomial nomenclatureDifferent phyla of animal kingdom – Salient features of Invertebrates and Chordates with examples.

UNIT 2: Cell Biology & Genetics: Cell theory- Ultra structure of a typical Prokaryotic and Eukaryotic cell- importance of cell organelles. General Account on Mendelism and inheritanceDNAand RNA- Modern concept of gene- Central dogma of Molecular Biology.

UNIT 3: Biochemistry and Physiology: Introduction to role of essential biological Compounds- Proteins, Carbohydrates, Lipids, Water and Vitamins. Introduction to organ systems of vital physiological functions.

UNIT 4: **Environmental Biology**: Basics of atmosphere and its strata- habitats- concept and components of ecosystem- ecological balance. Developmental Biology: General account on gametogenesis- fertilization and developmental stages. Evolution: Importance of Paelaeontology - Origin of life - Darwinism- Modern synthetic theory.

UNIT 5: **Entrepreneurial Courses in Zoology**: General introduction and applications: Aquaculture - Aquarium keeping - Apiculture - Sericulture - Lac culture - Vermiculture - Poultry keeping- Dairy farming- Biotechnology-Ecotourism.

References:

1. EkambaranathaIyer, 2000. A Manual of Zoology, 10th edition, Viswanathan, S., Printers & Publishers Pvt Ltd Jordan, E.L. and Verma P.S, 1995. Invertebrate Zoology, 12th edn. S. Chand& Co.
2. Kotpal, R.L.2019 Modern text book of Zoology: Invertebrates. RastogiPublication,New Delhi.
3. Kotpal (2015). Modern Textbook of Zoology Vertebrates, Rastogi publishers, New Delhi.
4. H.C, Nigam. 2010., Biology of Chordates., Vishal Publications, New Delhi
5. Gupta. P.K., 2017, Cell and Molecular Biology, Fifth Revised Edition, RastogiPublication, Meerut, India.
6. Singh. H.R, &Neeraj Kumar (2017) Animal Physiology and Biochemistry, Vishal Publishing Co.
7. ErachBharucha. 2005. Text book of Environmental Studies for undergraduate courses, University Grants Commission, New Delhi.
8. Shukla, G.S. &Upadhyay, V.B. (2014). Applied and Economic Zoology, Rastogi Publications.
9. Bee keeping in South India – Cherian M.C. & Ramachandran, Govt.Press,Chennai.
10. Apiculture – J. Johnson and Jeyachandra, Marthandam, TamilNadu.
11. VermicologyVermiculture Biotechnology – U.S. Bhawalkar BERI, PUNE
12. Kesary, M and M.Johnson, Sericulture, Department of Zoology, N.M.. Christian College, Marthandam.
13. G. Ganga., Introduction to Sericulture, Oxford and IBH Publishingm 2019 1995- ISBN 1853393317
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15. Poultry farm manual: A reference guide for Central and State Poultry Farms, 2014- www.dadf.gov.in and www.dadh.nic.inDelhi.

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17. Santhanakumar, G &A.M. Selvaraj. Concepts of Aquaculture. Meenam Publications. NagercoilLekshmi Papers, Thirumal Complex, Opp. Chakkaravarthi theatre. Chettikulam Jn., Nagercoil – 629 002.
18. Sundararaj, V. &B. Srikrishnadhas, Cultivable Aquatic Organisms, Narendra Publishing House,1417, KishanDutt street, Maliwara, Delhi – 110 006
19. Livestock and Poultry Production: Singh, Herbans and Earl Moore; Prentice Hallin India. 14. Klaus, A. J. (2015). Dairy Farming: The Beautiful Way
20. Seethaleksmy, M and Dr.Samthi, R.Vermitechnology, SarasPublications ,Nagercoil. 2012.

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Course Outcomes

CO	Upon completion of this course, students would have learned to:	PSOs Addressed	Cognitive Level
CO-1	Demonstrate knowledge of fundamental zoological concepts and principles.	**1,2,3,4,5**	K1,K2,K3 & K4
CO-2	Identify and classify major animal groups based on their characteristics.	**1,2,4,5**	K2,K3,K4& K5
CO-3	Explain the physiological and anatomical adaptations of animals to their environments.	**1,3,4,5**	K2,K3,K4& K5
CO-4	Describe the processes of evolution and the role of genetics in animal diversity.	**1,2,3,4**	K2,K3,K4& K5
CO-5	Analyze animal behavior from an evolutionary and ecological perspective.	**1,2,4,5**	K3,K4,K5 & K6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code			Title of the Course			Hours				Credits
I	24UFZO11			Introduction to Zoology			30				2
Course Outcomes (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	3	3	3	3	2	3	3	3	3	3	3
CO-2	3	3	2	3	3	3	3	3	1	3	3
CO-3	2	3	3	2	3	3	3	1	3	3	3
CO-4	3	2	2	2	3	2	3	3	3	3	1
CO-5	3	3	2	3	1	2	3	3	1	3	3
Strong-3 Medium-2 Low-1											

Prepared by: Dr.M.I. Zahir Hussain

Checked by: Dr. M. Sithi Jameela
Head of the Department

Semester – II	GRAMMAR		24ULAR21			
LANG – I			L	T	P	C
Hrs./Week: 6	Hrs./Semester : 90	Marks :100	6	-	-	3

General Objective: To make the students to develop the skill of basic Arabic Grammar and Translation skills from Arabic to English vice-versa.

Learning Objectives

LO	The learners will be able to:
LO 1	Understand basic Arabic grammar.
LO 2	Understand the correct usage of Arabic grammar.
LO 3	Employ sentence making.
LO 4	Enhance vocabulary.
LO 5	Improve reading and writing skills.

UNIT I - Lessons 1 to 4 (Text Book – 1) من الدرس الأول إلى الدرس الرابع

UNIT II - Lessons 5 to 8 (Text Book – 1) من الدرس الخامس إلى الدرس الثامن

UNIT III – Lessons 9 to 12 (Text Book – 1) من الدرس التاسع إلى الدرس الثاني عشر

UNIT IV – Lessons 13 to 16 (Text Book – 1) من الدرس الثالث عشر إلى الدرس السادس عشر

UNIT V – Lessons 17 to 20 (Text Book – 1) من الدرس السابع عشر إلى الدرس العشرون

Textbooks:

1. قواعد اللغة العربية الأساسية، الدكتور سيد رحمة الله، رئيس سابق لقسم اللغة العربية، الكلية الجديدة، شنائي

Basic Arabic Grammar, By Dr. Syed Rahmathullah

Reference Books:

النحو الواضح – علي الجارم ومصطفى أمين
دليل النحو الواضح – الدكتور بشير أحمد جمالي
سهل العوامل _ الدكتور تاج الدين المناني
النحو الميسر للكبار والصغار – علي محمود عقيلي
القواعد التطبيقية في اللغة العربية – الدكتور نديم دعكور

www.alnahw.com

Course Outcomes

CO	Upon completion of this course, students would have learned to:	PSOs Addressed	Cognitive Level
CO-1	Able to use basic grammatical structure.	PSO-1,2,4	K2
CO-2	Develop reading skills and reading speed	PSO-1,2	K2
CO-3	Acquire new vocabulary in Arabic	PSO-1,2,3	K3
CO-4	Understand the different types of sentences.	PSO-1,2,3	K4
CO-5	Able to construct simple sentences in Arabic	PSO-1,2,5	K5

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credits
II	24ULAR21	GRAMMAR	90	3

Course Outcomes (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	2	2	2	2	2	3	2	2	2	1
CO-2	2	2	2	3	1	3	2	2	2	3	1
CO-3	3	3	3	2	2	1	3	3	3	2	2
CO-4	3	3	2	3	3	2	3	3	2	3	3
CO-5	2	2	1	2	3	2	2	2	1	2	3

STRONG – 3, MEDIUM – 2 , LOW – 1

Prepared by : Dr. J. Ubaiyathulla

Checked by: Dr. J. Ubaiyathulla
Head of the Department

Semester - II	பொதுத்தமிழ் - 2		24ULTA21			
LANG – I	தமிழ் இலக்கிய வரலாறு - 2		L	T	P	C
Hrs./Week: 6	Hrs./Semester : 90	Marks :100	6	-	-	3

General Objective:

- தமிழ் இலக்கியப் போக்குகளையும் இலக்கணங்களையும் மாணவர் .
- அறியுமாறு செய்து அவர்களின் படைப்பாற்றலைத் தூண்டுதல்
- தமிழ் இலக்கியம் சார்ந்த போட்டித் தேர்வுகளுக்கு ஏற்ப கற்பித்தல்.
- நடைமுறைகளை மேற்கொள்ளுதல்

Learning Objectives:

LO	The Learners will be able to:
LO - 1	சிற்றிலக்கியங்களின் வழி இலக்கியச் சுவையினையும் பண்பாட்டு அறிவினையும் பெறுதல்
LO - 2	புதுக்கவிதை வரலாற்றினை அறிந்து கொள்வர்
LO - 3	திராவிட இயக்க இலக்கியங்களைக் கற்பதன் மூலம் மொழி உணர்வு , இன உணர்வு, சமத்துவம் சார்ந்த சிந்தனைகளை ஊட்டுதல்
LO - 4	தமிழ்மொழியைப் பிழையின்றி எழுதவும், புதிய கலைச்சொற்களை உருவாக்கவும் அறிந்து கொள்ளுதல்
LO - 5	போட்டித் தேர்வுகளில் வெற்றி பெறுவதற்குத் தமிழ்ப் பாடத்தினைப் பயன்கொள்ளும் வகையில் மேடைப்பேச்சு மற்றும் கட்டுரை, கதை எழுதுவதற்கு பயிற்சி பெறுதல்.

அலகு 1 தமிழ் இலக்கிய வரலாறு அறிமுகம்

1. சிற்றிலக்கியம் குறவஞ்சி, கலம்பகம், உலா, பரணி, பள்ளு, பிள்ளைத்தமிழ், தூது, அந்தாதி.
2. தனிப்பாடல் அறிமுகம்.
3. இக்கால இலக்கியம், கவிதை, சிறுகதை, நாடகம், உரைநடை , திராவிட இயக்கம் வளர்த்த தமிழ்

அலகு 2 சிற்றிலக்கியமும் தனிப்பாடலும்

சிற்றிலக்கியம்

1. கலிங்கத்துப் பரணி- விருந்தினரும் வறியவரு நெருங்கி யுண்ணரும் - முதல் - கேட்பாரைக் காண்மின் காண்மின் வரை.
2. திருக்குற்றாலக் குறவஞ்சி - வானரங்கள் கனிகொடுத்து.
3. முக்கூடற் பள்ளு - ஆற்று வெள்ளம் நாளை வரத்.

4. அபிராமி அந்தாதி- கலையாத கல்வியும் குறையாத வயதும் (பதினாறு செல்வங்கள்).

5. திருவரங்கக் கலம்பகம் – மறம் -பிள்ளைப் பெருமாள் ஐயங்கார்- பேசவந்த தூத செல்லரித்த ஓலை செல்லுமோ.

6. தமிழ்விடு தூது முதல் பத்து கண்ணிகள்

தனிப்பாடல்

1. வான்குருவியின் கூடு - ஔவையார்

2. ஆமணக்குக்கும் யானைக்கும் சிலேடை - முத்திருக்கும் கொம்பசைக்கும் மூரித்தண்டே - காளமேகப் புலவர்

3. இம்பர் வான் எல்லை இராமனையே பாடி - வீரராகவர்

4. நாராய் நாராய் - சத்தி முத்தப் புலவர்

அலகு 3 இக்கால இலக்கியம் - 1

1. பாரதியார் - பாரத சமுதாயம் வாழ்கவே
2. பாரதிதாசன் - சிறுத்தையே வெளியில் வா
3. நாமக்கல் கவிஞர்- கத்தியின்றி
4. தமிழ் ஒளி – மீன்கள் (அந்தி நிலா பார்க்க வா)
5. ஈரோடு தமிழன்பன் – எட்டாவது சீர் (வணக்கம் வள்ளுவ)

சிறுகதைகள்

1. புதுமைப்பித்தன் - கடிதம்
2. ஜெயகாந்தன் - வாய்ச் சொற்கள் (மாலை மயக்கம் - தொகுப்பு)
3. ஆர். சூடாமணி - அந்நியர்கள்

உரைநடை

1. மு வ கடிதங்கள் - தம்பிக்கு நூலில் முதல் இரண்டு கடிதங்கள்

அலகு 4 இக்கால இலக்கியம் - 2

1. தந்தை பெரியார் – திருக்குறள்(மாநாட்டு) உரை
2. பேரறிஞர் அண்ணா – இரண்டாம் உலகத் தமிழ் மாநாட்டு உரை
3. கலைஞர் மு. கருணாநிதி – தொல்காப்பிய பூங்கா –எழுத்து -முதல் நூற்பா கட்டுரை

நாடகம் - திரைத்தமிழ்

1. வேலைக்காரி –திரைப்படம்
2. ராஜா ராணி -சாக்ரடீஸ் -ஓரங்க நாடகம்

இதழியல் தமிழ்:

முரசொலி கடிதம்

1. செம்மொழி வரலாற்றில் சில செப்பேடுகள்

அலகு 5 மொழிப் பயிற்சி

சொல் வேறுபாடு / பிழை தவிர்த்தல்

ரகர – றகர வேறுபாடுகள்

நகர – ணகர – னகர வேறுபாடுகள்

லகர – ளகர – ழகர வேறுபாடுகள்

பாட நூல்:

பதிப்பாசிரியர் முனைவர் ச.மகாதேவன், பொதுத்தமிழ் 2,
சதக்கத்துல்லாஹ் அப்பா கல்லூரி வெளியீடு 2024 – 2025(முதற் பதிப்பு).

பார்வை நூல்கள் :

1. மு. வரதராசன், தமிழ் இலக்கிய வரலாறு, சாகித்ய அகாதெமி, புதுடெல்லி.
2. மது. ச. விமலானந்தன், தமிழ் இலக்கிய வரலாறு, மீனாட்சி புத்தக நிலையம், மதுரை.
3. தமிழண்ணல், புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு, மீனாட்சி புத்தக நிலையம், மதுரை.
4. தமிழ் இலக்கிய வரலாறு – முனைவர்.சிற்பி பாலசுப்ரமணியம், முனைவர்.சொ.சேதுபதி
5. புதிய தமிழ் இலக்கிய வரலாறு – முனைவர்.சிற்பி பாலசுப்ரமணியம், நீல.பத்மநாபன்
6. தமிழ் இலக்கிய வரலாறு - டாக்டர்.அ.கா.பெருமாள்
7. தமிழ் இலக்கிய வரலாறு - முனைவர். ப.ச.ஏசுதாசன்
8. தமிழ் இலக்கிய வரலாறு – ஸ்ரீகுமார்
9. வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு – பாக்கியமேரி.
10. தமிழ் பயிற்றும் முறை, பேராசிரியர் ந. சுப்புரெட்டியார் - மணிவாசகர் பதிப்பகம், சிதம்பரம்

- https://www.chennailibrary.com/
- https://www.sirukathaigal.com
- https://www.tamilvirtualuniversity.org
- https://www.noolulagam.com
- https://www.katuraitamilblogspot.com

Course Outcomes

CO	Upon completion of this course, students will be able to	PSO Addressed	Cognitive Level
CO-1	சிற்றிலக்கியங்களின்வழி இலக்கியச் சுவையினையும் பண்பாட்டு அறிவினையும் பெறுவர்	2,4	K2, K3
CO-2	புதுக்கவிதை வரலாற்றினை அறிந்து கொள்வர்	1,4	K2
CO-3	திராவிட இயக்க இலக்கியங்களைக் கற்பதன் மூலம் மொழி உணர்வு, இன உணர்வு, சமத்துவம் சார்ந்த சிந்தனைகளைப் பெறுவர்	2,4,5	K4,K5
CO-4	தமிழ்மொழியைப் பிழையின்றி எழுதவும், புதிய கலைச்சொற்களை உருவாக்கவும் அறிந்து கொள்வர்	1,3	K3,K6
CO-5	போட்டித் தேர்வுகளில் வெற்றி பெறுவதற்குத் தமிழ்ப் பாடத்தினைப் பயன்கொள்ளும் வகையில் மேடைப்பேச்சு மற்றும் கட்டுரை, கதை எழுதுவதற்கு பயிற்சி பெறுவர் பயிற்சி பெறுவர்.	1,2,3,4	K4, K6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credits
II	24ULTA21	தமிழ் இலக்கிய வரலாறு - 2	90	3

Course Outcomes (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	3	2	3	3	3	2	2	2	3	2	3
CO-2	3	3	2	2	2	3	2	3	3	2	2
CO-3	3	2	3	3	2	2	2	3	2	3	3
CO-4	3	3	3	2	2	2	3	2	3	2	2
CO-5	3	3	2	2	2	3	3	2	2	2	2

3 - STRONG, 2 - MEDIUM, 1- LOW

Prepared by : Dr. A.S. Shaik Sindha

Checked by: Dr.S.Mahadevan
Head of the Department

Semester - II	General English-II		24ULEN21			
LANG – II			L	T	P	C
Hrs./Week: 6	Hrs./Semester : 90	Marks :100	6	-	-	3

General Objective:

To teach the four skills viz. Listening, Speaking, Reading and Writing to train the students the skills necessary for social and academic interactions.

Learning Objectives (LO)

LO	The learners will be able to:
LO-1	To make students realize the importance of resilience
LO-2	To enable them to become good decision makers
LO-3	To enable them to develop problem-solving skills
LO-4	To enable them to use tenses appropriately
LO-5	To help them use English effectively at workplace.

Unit – I

The Skill Focussed: Resilience

Poetry

1. "Don't Quit" – Edgar A. Guest
2. "Still Here" – Langston Hughes

Short Story

3 Engine Trouble – R.K. Narayan

4 Rip Van Winkle – Washington Irving

Unit – II

The Skill Focussed: Decision Making

Short Story

1. The Scribe – Kristin Hunter
2. The Lady or the Tiger - Frank Stockton

Poetry

3. "The Road not Taken" – Robert Frost
4. "Snake" – D. H Lawrence

Unit – III

The Skill Focussed: Problem Solving

Autobiography

1. How I taught My Grandmother to Read – Sudha Murthy
2. How Frog Went to Heaven – A Tale of Angolo
3. Wings of Fire (Chapters 1,2,3) by A.P.J Abdul Kalam

Unit – IV

Grammar

Tenses

1. Present
2. Past
3. Future
4. Concord

Unit - V

English in the Workplace

1.e-mail – Invitation, Enquiry, Seeking Clarification

2. Circular
3. Memo
4. Minutes of the Meeting

Textbook:

1. Board of Editors. General English – II. Tamil Nadu State Council for Higher Education (TANSCHE). Chennai: 2024.

Reference Books:

1. Martin Hewings, *Advanced English Grammar*, Cambridge University Press, 2000.
2. SP Bakshi, Richa Sharma, *Descriptive English,* Arihant Publications (India) Ltd., 2019.
3. Sheena Cameron, Louise Dempsey, *The Reading Book: A Complete Guide to Teaching Reading*, S&L. Publishing, 2019.
4. Barbara Sherman, *Skimming and Scanning Techniques*, Liberty University Press, 2014.
5. ShaikhMoula, *Communication Skills: A Practical Approached*.
6. Ramendra Kumar, *Stories of Resilience*, Blue Rose Publications, 2020.

Course Outcomes

CO	Upon completion of this course, students will be able to	PSO Addressed	Cognitive Level
CO-1	Understand the importance of resilience	1, 2, 4	K1, K2
CO-2	Acquire knowledge to make good decisions	1, 2, 3, 4	K2, K3
CO-3	Develop problem-solving skills	1, 2, 3, 4	K3, K4
CO-4	Evaluate the uses of tenses in English	1, 2, 3	K4, K5
CO-5	Use English effectively at the workplace.	2, 4, 5	K5, K6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code			Title of the Course			Hours		Credits		
II	24ULEN21			General English - II			90		3		
Course Outcomes (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	3	3	1	3	1		1	3	3	3	1
CO-2	3	3	3	3	2		3	3	3	3	2
CO-3	3	3	3	3	1		3	3	3	3	1
CO-4	3	3	3	2	1		3	3	3	1	2
CO-5	1	3	2	3	3		3	3	3	3	3
	STRONG – 3, MEDIUM – 2 , LOW – 1										

Prepared by : Dr.L.Faustina Leo Checked by: Dr. S. Mohamed Haneef

Head of the Department

Semester - II	Animal Diversity-II (Chordata)		24UCZO21			
Core-II			L	T	P	C
Hrs./Week: 5	Hrs./Semester : 75	Marks :100	5	-	-	5

General Objective:

To study the structure functional organization adaptations and the economic importance of lower and higher chordates

Learning Objectives:

LO	Thelearnerswillbeableto:
LO-1	Understand the major groups within the phylum Chordata and their distinguishing characteristics.
LO-2	Recognize the diversity within chordate subphyla (Vertebrata, Cephalochordata, Urochordata) and their evolutionary relationships.
LO-3	Describe the key anatomical structures of chordates, including the notochord, dorsal hollow nerve cord, pharyngeal slits, endostyle, and post-anal tail.
LO-4	Explain the physiological processes and systems (e.g., respiration, circulation, digestion, nervous system) in chordates.
LO-5	Describe the behavioral adaptations of chordates to their environments.

Unit I: General Characters and Classification of Phylum Chordata: Origin of Chordata, Differences between non-chordates and chordates, General characters, Affinities and Systematic position of Hemichordata (*Balanoglossus*), Urochordata (*Ascidia*), Cephalochordata (*Amphioxus*).

Unit II: Prochordates and Agnatha: Characteristics of subphylum vertebrata, Classification of Vertebrata upto Class level, Agnatha (*Petromyzon*), - Pisces (*Scoliodonsorrakowah*) General characters and classification, Origin of fishes, Affinities of Dipnoi - Types of scales and fins - Accessory respiratory organs - Air bladder - Parental care - Migration - Economic importance.

Unit III: Amphibia : General characters and classification - Origin of Amphibia - Type study - *Ranahexadactyla* - Adaptive features of Anura, Urodela and Apoda - Neoteny in Urodela - Parental care in Amphibia.

Unit IV: Reptilia: General characters and classification - Type study – (*Calotesversicolor (endoskeleton of Varanus*) - Origin of reptiles and effects of terrestrialisation, Extinct reptiles. Snakes of India. Poison apparatus and biting mechanism of poisonous snakes - Skull in reptiles as basis of classification

Unit V: Aves and Mammalia: Ayes: General characters and classification – Type study - *Columba livia* - Origin of birds, Flight adaptations, Migration. Mammalia: General characters and classification - Type study - Rabbit - Adaptive radiation in mammals - Egg laying mammals, Marsupials, Flying mammals, Aquatic mammals, Dentition in mammals.

Text Books

1. Ayyar, E.K. and T.N. Ananthakrishnan, 1992. Manual of Zoology Vol. II (Chordata), S. Viswanathan (Printers and Publishers) Pvt Ltd., Madras, 891p.
2. Jordan, E.K. and P.S. Verma, 1995. Chordate Zoology and Elements of AnimalPhysiology, 10th edition, S. Chand & Co Ltd., Ram Nagar, New Delhi, 1151 pp.
3. Nigam, H.C., 1983. Zoology of Chordates, Vishal Publications, Jalandhar - 144008, 942.
4. Ganguly, Sinha,.Bharati Goswami and Adhikari, 2004. Biology of animals Vol.II - New central book Agency (p) Ltd.
5. Kotpal. R.L. A, Modern text book of Zoology Vertebrates- Rastogi publications. 2009

References Books

1. Darlington P.J. The Geographical Distribution of Animals, R.E. Krieger Pub. Co.
2. Hall B.K. and Hallgrimsson B. (2008). Strickberger's Evolution. IV Edition. Jones and Bartlett Publishers Inc.
3. Hickman, C.P. Jr., F.M.Hickman and L.S. Roberts, 1984. Integrated Principles of Zoology, 7th Edition, Times Merror/Mosby College Publication. St. Louis. 1065 pp.
4. Newman, H.H., 1981. The Phylum Chordata, Satish Book Enterprise, Agra – 282 003, 477 pp.
5. Parker and Haswell, 1964. Text Book of Zoology, Vol II (Chordata), A.Z.T,B.S. Publishers and Distributors, New Delhi - 110 051, 952 pp.
6. Pough H. Vertebrate life, VIII Edition, Pearson International.
7. Waterman, Allyn J. et al., 1971. Chordate Structure and Function, Mac Millan &Co., New York, 587 pp.
8. Young, J. Z. (2004). The Life of Vertebrates. III Edition. Oxford university press.

Web Resources

1. http://tolweb.org/Chordata/2499
2. https://www.nhm.ac.uk/
3. https://bit.ly/3Av1Ejg
4. https://bit.ly/3kqTfYz
5. https://biologyeducare.com/aves/
6. https://www.vedantu.com/biology/mammalia

Course Outcomes

CO	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Classify and differentiate between the major groups within the phylum Chordata, understanding their evolutionary relationships.	1,2,3	K1,K2,K3 & K4
CO-2	Understand the key anatomical structures and physiological functions that characterize chordates, including the notochord, dorsal hollow nerve cord, pharyngeal slits, endostyle, and post-anal tail.	1,2,3,5	K2,K3,K4& K5
CO-3	Learn about the various adaptations that allow chordates to thrive in different environments.	1,2,3,5	K2,K3,K4& K5
CO-4	Conduct comparative analyses of chordate groups to understand evolutionary trends and functional adaptations.	1,2,3,5	K2,K3,K4& K5
CO-5	Develop a curiosity and appreciation for the diversity and complexity of chordate life forms.	1,2,3,5	K3,K4,K5 & K6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	CourseCode			Title of the Course			Hours		Credits	
II	24UCZO21			Animal Diversity-II (Chordata)			75		5	
Course Outcomes (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)			
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	3	2	3	1	3	1	3	3	3	2	1
CO-2	3	3	3	3	2	3	3	3	3	1	3
CO-3	3	3	3	2	3	3	3	3	3	1	3
CO-4	3	3	3	1	2	3	3	3	3	1	3
CO-5	3	3	3	3	1	1	3	3	3	1	3
Strong-3 Medium-2 Low-1											

Prepared by:Dr.S.Mohamed Ramlath Sabura Checked by: Dr. M. Sithi Jameela

Head of the Department

Semester - II	Animal Diversity-Practical II (Chordata)		24UCZO2P			
Core-II P			L	T	P	C
Hrs./Week: 3	Hrs./Semester : 45	Marks :100	-	-	3	3

General Objective:

To provide students with hands-on experience and practical skills in studying the anatomy, physiology, and diversity of chordates.

Learning Objectives

LO	The learners will be able to:
LO-1	Explore the major classes of chordates, including fish, amphibians, reptiles, birds, and mammals.
LO-2	Study the anatomical structures of representative chordate specimens.
LO-3	Develop proficiency in dissection techniques to examine internal and external structures.
LO-4	Learn to use microscopes and other lab equipment to observe finer anatomical details.
LO-5	Compare the anatomical features of different chordates to understand evolutionary adaptations.

I. **Dissections**: Frog (Demo)/Fish: External features, Digestive system, Arterial system,Venous system,5thCranial nerve,9thand10thcranial nerves, Male and female urinogenital system.

II. **Mounting**: Fish: Placoid and Ctenoid scales, Frog: Hyoid apparatus and Brain (Demo).

III. **Osteology**: Frog: Skull and lower jaw, Vertebral column, Pectoral girdle, Pelvicgirdle, Forelimb, Hindlimb. Chelonia-Anapsid skull, Pigeon - skull and lower jaw, synsacrum.

IV. **Specimen and Slides**:

a) **Hemichordata:**Balanoglossus, Tornaria larva

b) **Protochordata:** Amphioxus, Amphioxus T.S. through pharynx

c) **Cyclostomata:**Petromyzon, Myxine, Ammocoetus larva

d) **Pisces:**SphyrnaPristis, Torpedo, Channa, Pleuronectes, Hippocampus, Exocoetus, Echieneis, Labeo, Catla, Clarius, Auguilla, Protopterus, Scales: Placoid, Cycloid, Ctenoid

e) **Amphibia:**Ichthyophis, Amblystoma, Siren, Hyla, Rachophous, Bufo, Rana, Axolotal larva **(vi). Reptilia :** Draco, Chemaeleon, Gecko, Uromastix, Viperarusselli, Naja, Bungarus, Enhydrina, Typhlops, Testudo, Trionyx, Crocodilus, Ptyas.

f) **Aves:** Archaeopteryx, Passer, Psittacula, Bubo, Alcedo, Columba, Corvus, Pavo; Collection and study of different types of feathers: Quill, Contour, Filoplume, Down

g) **Mammalia:**Ornithorhynchus, Tachyglossus, Pteropus, Funambulus, Manis, Loris, Hedgehog

h) **Embryology**:Stages in the development of Amphioxus, Frog and Chick-Placentain shark and mammals.

Text Books

1. Lal S S, 2009. Practical Zoology Vertebrate, Rajpal and Sons Publishing, 484pp.
2. VermaP.S,2000.AManualofPracticalZoology:Chordates,S.ChandLimited, 627pp.

References Books

1. Robert William Hegner, 2015. Practical Zoology, BiblioLife, 522pp.
2. Young, J,Z., 1972. The life of vertebrates. OxfordUni. London.

Web Resources

1. https://www.youtube.com/watch?v=b04hc_kOY10
2. https://bit.ly/3CzTEy8
3. http://tolweb.org/Chordata/2499
4. https://www.nhm.ac.uk/ 5. https://bit.ly/3Av1Ejg

Course Outcomes

CO	Upon completion of this course, students would have learned to:	PSOs Addressed	Cognitive Level
CO-1	Recognize and describe the distinguishing features of the major classes of chordates.	1,2,3	K1,K2,K3 & K4
CO-2	Conduct dissections of various chordate specimens with precision.	1,2,3,5	K2,K3,K4& K5
CO-3	Describe the anatomy and physiology of key organ systems in chordates.	1,2,3,5	K2,K3,K4& K5
CO-4	Compare and contrast the anatomical structures and physiological functions across different chordate groups.	1,2,3,5	K2,K3,K4& K5
CO-5	Identify evolutionary trends and adaptations in the chordate lineage.	1,2,3,5	K3,K4,K5 & K6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code			Title of the Course			Hours	Credits			
II	24UCZO2P			Animal Diversity-Practical – II (Chordata Lab)			45	3			
Course Outcomes (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	3	1	3	2	3	2	3	3	3	1	2
CO-2	3	3	3	3	2	3	3	3	3	1	3
CO-3	2	3	2	2	3	3	3	3	3	2	3
CO-4	1	3	3	2	1	3	3	3	3	2	3
CO-5	3	3	3	3	2	1	3	3	3	1	3
Strong-3 Medium-2 Low-1											

Prepared by:Dr.S.Mohamed Ramlath Sabura Checked by: Dr. M. Sithi Jameela
Head of the Department

Semester - II	HUMAN NUTRITION		24UAND21			
EC – II (Allied-I)			L	T	P	C
Hrs./Week: 4	Hrs./Semester : 60	Marks :100	4	-	-	4

General Objective

To provide students with a comprehensive understanding of the principles of nutrition and their application to human health.

Learning Objectives

LO	The learners will be able to:
LO-1	Understand the history and development of nutrition as a science.
LO-2	Identify and describe the various nutrients and their roles in the body.
LO-3	Assess nutritional status using an thropometric, biochemical, clinical, and dietary methods.
LO-4	Analyze the physiological significance and health impacts of carbohydrates, proteins, lipids, vitamins, and minerals.
LO-5	Develop dietary plans that meet nutritional guidelines and promote health.

UNIT-I Introduction to nutrition

History of Nutrition – Development of Nutrition as a Science Food as a source of nutrients, definition of nutrients, Balanced diets and dietary guidelines- current concepts Assessment of Nutritional status-Anthropometric, Biochemical, Clinical and Dietary guidelines aspects.

UNIT –II Carbohydrates

Classification, Food Sources, Requirements and Functions of carbohydrates in the body. Physiological significance of Monosaccharides, Disaccharides and Polysaccharides Glycemic Index, Glycemic load of Foods Role of fibre in prevention of non-communicable diseases.

Proteins

Aminoacids-Classification, Sources, Requirements and functions of protein. Protein deficiency-Protein Energy Malnutrition-Kwashiorkor and Marasmus –etiology, clinical features, treatment and prevention.

UNIT-III

Lipids-Classification, Sources, Requirements and functions, Essential fatty acids-deficiency

food sources and functions.

Energy- Determination of energy value of foods using Bomb calorimeter, Physiological value of foods, relation between oxygen used and calorific value. Direct and Indirect calorimetry-Basalmetabolism, factors affecting BMR.

UNIT-IV

Fat Soluble Vitamins

Food sources, Requirements, Functions, Effects of deficiency or Toxicity (wherever applicable).

Water Soluble Vitamins

Food sources, Requirements, Functions, Effects of deficiency. Antioxidant role of certain Vitamins in Health promotion

UNIT-V

Macrominerals

Calcium, Phosphorous, Magnesium, Potassium- Distribution in the body, functions, foods sources, requirements, effects of deficiency and toxicity.

Micro/Trace minerals

Iron, Zinc, Iodine, *Selenium, Manganese, Chromium, Fluoride*-Distribution in the body; functions, effects of deficiency, food sources and requirements,

Water- As a nutrient, functions, sources. Water balance, factors regulating it, dehydration, water in toxication.

Reference:

1. Anderson J.J.B., Root M.M.,Garner S.C. (2015) Human Nutrition: Healthy Options for Life. Jones & Bartlett Learning, Massachusetts, USA.
2. Guthrie, H.A. (1989) Introductory Nutrition. 7th ed. Times Mirror/Mosby College Publishing, St. Louis
3. Insel P.,Ross D., McMahon K.,Bernstein M.(2016) Discovering Nutrition. 5thEd., Jones & Bartlett Learning, Massachusetts,USA.
4. Mahan K and Sylvia E.Stump (2000) Krause's Food Nutrition and Diet Therapy, Saunders, USA
5. Medeiros D.M., and Wildman R.E.C. (2019) Advanced Human Nutrition.4thEd., Jones & Bartlett Learning, Massachusetts, USA.

6. Ross A.C.,Caballero B.,Cousins R.J., Tucker K.L., Ziegler T.R. (2014) Modern Nutrition in Health and Disease. 11thEd., Wolters Kluwer| Lippincott Williams & Wilkins, Philadelphia, USA.
7. Sizer F. S. and Whitney E. (2014) Nutrition: Concepts & Controversies. 13thEd., Wadsworth, Cengage Learning,USA.
8. Whitney, E.R. and Rolfes S.R.(1996) Understanding nutrition. 7th Ed., West Publishing Company, USA

e-Learning Resources:

- http://www.merck.com/mmhe/seciz/ch155/ch155a.html
- http://www.whereincity/medical/vitamins

Course Outcomes

CO	Upon completion of the course, the Students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Define nutrients and terms related to nutrition.	1,2,4	K2
CO-2	Describe the sources, recommended allowances of macronutrients, micronutrients, and water.	2,4,5	K3
CO-3	Interpret the significance of macro and micronutrients, and water for maintenance of optimum health.	2,3,4,5	K4
CO-4	Explain the functions, deficiency or toxicity of macro and micronutrients, and water.	1,2,3,4	K5
CO-5	Evaluate the role of macronutrients, micronutrients, and water in health and disease.	2,3,5	K4, K5

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

RELATIONSHIP MATRIX

Semester	Course Code			Title of the Course			Hours				Credits
II	24UAND21			Human Nutrition			60				4
Course Outcome (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	3	2	3	2	2	3	3	2	3	2
CO-2	3	3	2	3	3	3	2	3	2	3	3
CO-3	3	2	3	3	2	3	2	3	3	3	3
CO-4	3	2	2	2	2	3	3	3	3	3	2
CO-5	3	2	2	2	2	3		3	3	2	3

Strong-3 Medium-2 Low-1

PEDAGOGY	Lecture, Case study, journal reviewing, Assignments, Group Discussion, Powerpoint presentation.

Prepared by: Dr. P.S.Bensi

Checked by: Dr. M. Sithi Jameela
Head of the Department

Semester - II	HUMAN NUTRITION PRACTICALS		24UAND2P			
EC – II P (Allied-II P)			L	T	P	C
Hrs./Week: 2	Hrs./Semester : 30	Marks :50	-	-	2	1

General Objective

To provide students with a comprehensive understanding of the principles of nutrition and the skills related to the human health measures.

Learning Objectives

LO	The learners will be able to:
LO-1	Perform an thropometric measurements (e.g.,height, weight, BMI, skin fold thickness) to assess body composition
LO-2	Use dietary assessment tools (e.g.,food diaries, 24-hour recalls, food frequency questionnaires) to assess dietary in take.
LO-3	Interpretanthropometric, biochemical, and clinical data to identify nutritional deficiencies and excesses.
LO-4	Create individualized dietary plans based on nutritional assessments and specific health needs.
LO-5	Use food composition tables and data bases to calculate the nutrient content of meals and diets.

1. Planning and preparation of diets for the following age groups.
    a. Pre-school child
    b. School going children
    c. Adolescents
    d. Adult
    e. Expectant mother
    f. Nursing mother
2. Qualitative estimation of Carbohydrates
3. Qualitative estimation of protein
4. Estimation of Iron in food
5. Estimation of Vitamin C by Titrimetric method

6. Estimation of moisture content of food.
7. Visit to a food analytical lab or milk factory.

References:

1. Srilakshmi,B. (2011), Dietetics, Sixth Edition, New age Publishing Press, New Delhi.
2. Gopalan, C, Ramanathan, P.V., Balasubramanian, S.C. 2001, Nutritive Value of Indian Foods, NIN, Hyderabad.
3. Sharma, B.K.(1999).8th Ed. Instrumental Methods of Chemical Analysis. Gel Publishing House.
4. Srivastava, A.K and Jain, P.C.(1986). 2nd, Ed. Chemical Analysis: An Instrumental Approach. S Chand and Company Ltd.
5. Varley, H.; Gowenlock, A.H. and Bell, M.(1980).5th ed. Practical Clinical Biochemistry. Heinemann Medical Books Ltd.
6. Winton, A.L. and Winton, K.B. (1999). Techniques

e-Learning Resources:

ohttp://www.merck.com/mmhe/seciz/ch155/ch155a.html

ohttp://www.whereincity/medical/vitamins

CO	Upon completion of the course, the students will be able to:	PSOs Addressed	Cognitive Level
CO-1	Plan a menu for different age groups based on the nutritive value.	1,3,5	K2
CO-2	Identify appropriate laboratory procedures suited for estimation of select nutrients in food and body fluids.	2,3,4,5	K3
CO-3	Analyse the nutrients qualitative and quantitative.	1,3,4,5	K4
CO-4	Compare the results with standard values and interpret the findings.	1,2,3,4	K5
CO-5	Develop skills to assess nutritional status of Individuals	1,2,3,5	K4, K5

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code	Title of the Course	Hours	Credit
II	24UAND2P	Human Nutrition Practicals	30	1

Course Outcome (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	3	3	3	-	3	3	-	3	3	3
CO-2	3	3	3	3	3	3	-	3	-	3	3
CO-3	3	3	-	3	-	3	3	-	3	3	3
CO-4	3	-	-	3	3	3	3	3	3	3	-
CO-5	-	3	3	-	-	3	3	3	3	-	3

Strong-3 Medium-2 Low-1

Prepared by: Dr. P.S.Bensi

Checked by: Dr. M. Sithi Jameela
Head of the Department

Semester - II	Medical Laboratory Techniques		24UNZO21			
SEC-II (NME)			L	T	P	C
Hrs./Week: 2	Hrs./Semester : 30	Marks :50	2	-	-	2

General Objective:

To equip students with the theoretical knowledge and practical skills necessary to perform a wide range of diagnostic tests and procedures in a clinical laboratory setting.

Learning Objectives

LO	The learners will be able to:
LO-1	Understand the different protocols and procedures to collect clinical samples.
LO-2	Explain the characteristics of clinical samples.
LO-3	demonstrate skill in handling clinical equipment
LO-4	Evaluate the safety precautions while handling clinical samples.
LO-5	Summarize the control measures to avoid contamination of clinical samples.

Unit I: Laboratory Safety and Human Health and Hygiene : Laboratory safety –toxic chemicals and biohazards waste- biosafety level- good laboratory practice – hygiene and health issue – physiology effect of alcohol, tobacco, smoking & junk food & its treatment - biomedical waste management.

Unit II: Haematology: Composition of blood and their function- collection of blood & lab procedure-haemopoiesis- types of anaemia- mechanism of blood coagulation- bleeding time-clotting time- determination of hemoglobin-erythrocyte sedimentations rate- packed cell volume- Total count of RBC & WBC- Differential count WBC- blood grouping and typing-haemostasis- bleeding disorder of man - Haemolytic disease of newborn, Platelet count, reticulocytes count, Absolute Eosinophil count.

Unit III: Medical Microbiology and Instrumentation Techniques : Definition and scope of microbiology- structure and function of cells - parasites - Entamoeba- Plasmodium-Leishmania and Trypanosome- Computer tomography (CT scan) – Magnetic Resonance imaging – flowcytometry – treadmill test – PET.

Unit IV: Medical Physiology: Cardiovascular system- Blood pressure - Pulse – regulation of heart rate, cardiac shock. Heart sounds, Electrocardiogram (ECG) – significance – ultra sonography- Electroencephalography (EEG).

Unit V: Diagnostic Pathology: Handling and labelling of histology specimens - Tissue processing - processing of histological tissues for paraffin embedding, block preparation. Microtomes – types of microtome- sectioning, staining –staining methods- vital staining - mounting- problems encountered during section cutting and remedies - Frozen section techniques- freezing microtome.

Text Books

1. Godker, P. B. and Darshan, P, Godker, 2011. Text book of medical Laboratory
2. Technology, Mumbai.
3. Guyton and Hall, 2000. Text Book of medical Physiology, 10^{th} edition, Elseiner, New Delhi.
4. Mukerjee, K.L, 1999. Medical Laboratory Technology- Vol,I,II,III. Tata MC GrawHill, New Delhi.
5. Sood, R, 2009. Medical Laboratory technology, Methods and interpretation.

Suggested Readings

1. Manoharan,A, and Sethuraman, 2003. Essential of Clinical Heamatology, Jeypee brothers, New Delhi.
2. Richard, A, McPherson, Mathew, R, Pincus, 2007. Clinical and management by laboratory methods, Elsevier, Philadelphia. Published by Tata McGraw-Hill Education Pvt. Ltd.,
3. Ochei. J., A. Kolhatkar (2000). Medical Laboratory science: Theory and practice, Published by Tata McGraw-Hill Education Pvt. Ltd, First edition.

Course Outcomes

CO	Upon completion of this course, students would have learned to:	PSOs Addressed	Cognitive Level
CO-1	Explain the principles and applications of various laboratory techniques used in clinical diagnostics.	1,2,3	K1,K2,K3 & K4
CO-2	Conduct a wide range of laboratory tests, including blood tests, urine analysis, microbial cultures, and molecular diagnostics.	1,2,3,5	K2,K3,K4& K5
CO-3	Operate laboratory instruments such as microscopes, spectrophotometers, and automated analyzers proficiently.	1,2,3,5	K2,K3,K4& K5
CO-4	Perform and interpret hematological tests, such as complete blood counts and blood smears.	1,2,3,5	K2,K3,K4& K5
CO-5	Implement safety protocols to minimize risks and ensure a safe working environment.	1,2,3,5	K3,K4,K5 & K6

K1-Remembering; K2 – Understanding; K3 - Applying; K4 - Analyzing; K5 – Evaluating; K6 – Creating

Relationship Matrix

Semester	Course Code			Title of the Course					Hours	Credits
II	24UNZO21			Medical Laboratory Techniques					30	2
Course Outcomes (COs)	Programme Outcomes (POs)						Programme Specific Outcomes (PSOs)				
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO-1	3	2	2	2	3	1	3	3	3	1	2
CO-2	3	3	3	3	1	3	3	3	3	2	3
CO-3	1	3	2	2	3	3	3	3	3	1	3
CO-4	3	3	3	1	2	3	3	3	3	2	3
CO-5	3	3	3	3	3	2	3	3	3	1	3
Strong-3 Medium-2 Low-1											

Prepared by: Dr.M.I. Zahir Hussain

Checked by: Dr. M. Sithi Jameela
Head of the Department

Semester – II	Value Education-I		24USVE2A			
SEC-III			L	T	P	C
Hrs./Week: 2	Hrs./Semester : 30	Marks :50	2	-	-	2

General Objective: To make students inculcate moral values, leading to faith and righteous action in their life.

Unit – I: Islam – Meaning – Importance – A complete Religion – The religion accepted by God – Five Pillars of Islam – Kalima – Prayers – Fasting – Zakat – Haj.

Iman – Monotheism – Angels – Books – Prophets – Dooms Day – Life after death – Heaven and Hell.

Unit – II: Quran – The Book of Allah – Wahi – Revelation to Prophet Muhammad(sal) – Compilation – Preservance – Structure – Content – Purpose – Source of Islamic Law– SuraFathiha, Kafirun, Iqlas, Falakh and Nas.

Unit – III: Hadith – Siha Sitha – Buhari – Muslim – Tirmithi – Abu Dawood – Nasai – Ibn Maja – Collection of Hadith – Meaning of 40 Hadith.

Unit – IV: Life History of Prophet Muhammad (sal) – AiamulJahiliya – Prophet's Childhood and Marriage – Prophethood – Life at Mecca – Life at Medinah – Farewell Address – Seal of Prophethood.

Unit – V: Good character – Etiquettes – Halal and Haram – Duties towards Allah – Duties towards fellow beings – MasnoonDuas.

Textbooks:

Publication of SadakathullahAppa College

Reference Books:

1. V.A. Moahmed Ashrof – Islamic Dimensions – Reflection and Review on Quranic Themes.
2. The Presidency of Islamic Researchers – Revised & Edited – The Holy Quran.
3. M. ManzoorNomani – Islamic Faith & Practice.
4. Ali Nadawi, Abul Hasan– Muhammad Rasulullah.,Muassasathus Sahafawa Nashr publication Lucknow, India,1999.
5. K. Ali – A Study of Islamic History.
6. Abdul Rahuman Abdulla
   h – Islamic Dress code for Women.
7. Dr. MunirAhamed Mughal – Code For Believers.
8. Abdul Malik Mujahid – Gems and Jewels.

Semester – II	Value Education-II		24USVE2B			
SEC-III			L	T	P	C
Hrs./Week: 2	Hrs./Semester : 30	Marks :50	2	-	-	2

UNIT I

Individual Morality – Objective of Moral life – Living in accordance with the code of Morality – the goodness of Morality – Morality and *Thirukural*- The need for faith.

UNIT II

Adherence to higher code of Morality – Fear of God – Good Moral Values – Duty to Parents – Teacher, respecting elders – Moral Etiquettes – Right-minded Principle – High Principles for Proper conduct.

UNIT III

Inculcating good attitudes – Open mindedness – Morale – analysing the pros and cons of good and bad – Service to others – Mind Power, tolerance, respecting others, showing love to others, patience – tranquility – Modesty, kindness and forgiveness.

UNIT IV

Quotations and moral Stories expressing Good characters of Great personalities – Life History of Great people: Mahatma Gandhi, Abraham Lincoln, Dr. A.P.J. Abdul Kalam.

UNIT V

Truth, the importance of uprightness, integrity, friendship – Health awareness on Alcohol and drug abuse – inculcating reading habit – reading good books – Hygiene – Dowry – Corruption.

Textbooks:

Publication of Sadakathullah Appa College.