

UNIVERSITY COLLEGE MANGALORE

ವಿಶ್ವವಿದ್ಯಾನಿಲಯ ಕಾಲೇಜು, ಮಂಗಳೂರು

A Constituent College of Mangalore University

(Reaccredited by NAAC with 'A' Grade and College with Potential for Excellence)

Office of the Principal,
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Mangalore 575 001



ಪ್ರಾಂಶುಪಾಲರ ಕಛೇರಿ,
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B.Sc. (BACHELOR OF SCIENCE)

(PCM/PMCs/CBZ/CMZ)

[POs, PSOs, COs]

CBCS (CHOICE BASED CREDIT SYSTEM)

(From 2019-20 Batch onwards)

Programme Outcomes (POs): Students of B.Sc. Degree Programme at the time of graduation will be able to:

PO 1	Grasp the essential ideas, fundamental principles, and the scientific theories related to various scientific phenomena and their relevance in the day-to-day life.
PO 2	Acquire the skill in taking care of scientific instruments, arranging and using in research centre.
PO 3	Understand the interdisciplinary idea of science and to incorporate information on mathematics, physical science, chemical sciences and biological sciences to a wide assortment of synthetic issues.
PO 4	Employ critical thinking and the scientific method to design, carry out, record and analyze the results of experiments.
PO 5	Construct and exhibit administration, collaboration and interactive abilities and Communicate successfully in various settings.
PO 6	Pursue higher education leading to masters and PhD degrees to work in colleges, universities as professors or as scientists in research establishments.
PO 7	Find gainful employment in scientific organizations or educational systems as educators or executives do the business in software field.
PO 8	Acquire the knowledge with facts and figures related to various subjects in Basic Science.
PO 9	Give information about material properties and its application for creating awareness about the materials in the general public.

Programme Specific Outcomes (PSOs): Upon successful completion of B.Sc. (PCM) Programme, the graduates will be able to:

PSO 1	Assimilate moral, moral and social qualities in private and public activity prompting exceptionally civilised personality.
PSO 2	Understand the quest for information is a long lasting movement and in blend with untiring endeavors and uplifting perspective and other fundamental characteristics leads towards an effective life.
PSO 3	Apply appropriate methods and concepts for solving Physical sciences challenges.
PSO 4	Explain the underlying scientific principles that govern the scientific systems.
PSO 5	Development of analytical problem solving skills in the major areas of physical and chemical science.
PSO 6	Go for higher education and advance research in the field of science.
PSO 7	Learn research oriented skills make aware and handle the scientific instruments/ equipment.
PSO 8	Find various employments available in industries, scientific organizations or school systems as instructors or administrators.

Programme Specific Outcomes (PSOs): Upon successful completion of B.Sc. (PMCs) Programme, the graduates will be able to:

PSO 1	Acquire and demonstrate resolving skills.
PSO 2	Be good programmer in any industry.
PSO 3	They become self-employer.
PSO 4	They can go for higher education.

Programme Specific Outcomes (PSOs): Upon successful completion of B.Sc. (CBZ) Programme, the graduates will be able to:

PSO 1	Figure out the utilizations of Biological sciences and Chemical sciences.
PS 2	Apply the information and comprehension of Science to one's own life and for their career opportunities.
PSO 3	Foster knowledge and work on logical, correspondence and expert abilities.
PSO 4	Acquire knowledge about science and technology.
PSO 5	Centering to plan for higher studies and advance research in frontier areas of Science.
PSO 6	Show moderate learning in different useful areas of Science.

Programme Specific Outcomes (PSOs): Upon successful completion of B.Sc. (CMZ) Programme, the graduates will be able to:

PSO 1	Understand more about the role of Microorganisms in day-today life.
PSO 2	Go for higher studies in Microbiology, Medical Microbiology and Biotechnology.
PSO 3	Work as expert in Medical pathology Laboratory, Pharmacy, and Clinical research and Dairy industry.
PSO 4	Demonstrate critical and analytical thinking, experiential learning and communicative skills.

COURSE OUTCOMES

Course	Details
Code	BSC ENL 131
Title	Compulsory Foundation Course In English
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First / First
Type	Compulsory Foundation Course
Total Credits	02
Total Contact Hours	48
Contact Hours/Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	5 Lessons+ 5 Poems + 4 Grammar Items
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations,
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam
<p>Learning Objectives : To enable the learner to communicate in real-life situations effectively and appropriately. · To use English effectively throughout the curriculum for study purposes. To develop interest in and appreciation of Literature. To develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and writing.</p>	
<p>Expected Learning Outcomes : CO 1:Read a written text, actively listen to what is spoken in English, write down grammatically correct sentences and speak clearly in English CO 2:Distinguish between a well-written text and an erroneous text CO 3:Understand and appreciate a piece of literature CO 4: Articulate his/her views confidently in English CO 5: Identify the errors of grammar in a text</p>	

Course	Details
Code	BSC ENL 181
Title	Compulsory Foundation Course In English
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/ Second
Type	Compulsory Foundation Course
Total Credits	02
Total Contact Hours	48
Contact Hours/Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	5 Lessons+ 5 Poems + 4 Grammar Items
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations,
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam

Learning Objectives :

To enable the learner to communicate in real-life situations effectively and appropriately.
 · To use English effectively throughout the curriculum for study purposes.
 To develop interest in and appreciation of Literature.
 To develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and writing.

Expected Learning Outcomes :

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

CO 1 : Display the acquired language skills such as listening, speaking, reading and writing

CO 2 : Create texts employing the acquired skills and expertise

CO 3 : Comprehend a written or verbal text and interpret it independently

CO 4 : Analyze a literary text highlighting its inherent basic features

CO 5 : Apply the knowledge of grammar and linguistic conventions in real life situations

Course	Details
Code	BSC ENL 231
Title	Compulsory Foundation Course In English

Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/ Third
Type	Compulsory Foundation Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	4 One Act Plays
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations,
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam

Learning Objectives :

To enable the learner to communicate in real-life situations effectively and appropriately. · To use English effectively throughout the curriculum for study purposes.

To develop interest in and appreciation of Literature.

To develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and writing.

Expected Learning Outcomes :

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

CO 1: Language Skills: Students will listen and read for details, and improve comprehensibility in speaking and writing, for the purpose of communicating to an audience in English.

CO 2: Critical Thinking Skills: Students will learn how to think critically in order to successfully participate in dramatic impromptu improvisations.

CO 3: Communicative skills: Students will develop the ability to communicate correctly and effectively in English.

Course	Details
Code	BSCENL281
Title	Compulsory Foundation Course In English
Programme	Bachelor of Science (B.Sc.)

Year / Semester	Second/ Fourth
Type	Compulsory Foundation Course
Total Credits	02
Total Contact Hours	48
Contact Hours/Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	4 One Act Plays
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations,
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam

Learning Objectives :

To enable the learner to communicate in real-life situations effectively and appropriately. To use English effectively throughout the curriculum for study purposes.

To develop interest in and appreciation of Literature.

To develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking

And writing.

Expected Learning Outcomes :

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

CO 1:Distinguish between different novel types

CO 2: Discuss the significance of the writers' background, the literary movements and their effect in bringing about a change in society, in novel analysis.

CO 3; Relate the novel to real life

CO 4: Read for details, and improve comprehensibility in speaking and writing, for the purpose of communicating to an audience in English.

COURSE OUTCOME OF KANNADA

Course	Details
Code	BCKAL 131
Title	Kannada ಸಡಿವಿಜ್ಞಾನ
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First / First

Type	Group III Compulsory Foundation Language – 2
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lecture with Interactive Sessions, discussions, Debate
Evaluation Method	Viva-voce, Assignments, Two Internal Exams, One end term Semester Exam

Learning Objectives :

ಜನಪದ, ನಡುಗನ್ನಡ, ದಲಿತ, ವಚನ, ಪ್ರಬಂಧ, ಆಧುನಿಕ ಕವನ, ಲಿಂಗತ್ವ ಅಲ್ಪಸಂಖ್ಯಾತರ ಬವಣೆ, ಕೃಷಿ ಕ್ಷೇತ್ರ, ಭಾಷೆ ಮತ್ತು ಅರ್ಥ, ಲೇಖನ ಚಿಹ್ನೆ-ಇವುಗಳಿಗೆ ಸಂಬಂಧಿಸಿದ ಪಠ್ಯಗಳ ಮೂಲಕ ಅರಿವನ್ನು ಹೆಚ್ಚಿಸುವುದು.

Expected Learning Outcomes :

ಪಠ್ಯವನ್ನು ಪೂರ್ಣಗೊಳಿಸಿದ ಬಳಿಕ ವಿದ್ಯಾರ್ಥಿಗಳು:

CO 1 : ಸಾಹಿತ್ಯದ ವಿವಿಧ ಪ್ರಕಾರಗಳ ಅಧ್ಯಯನ ಮಾಡುತ್ತಾರೆ.

CO 2 : ಲಿಂಗತ್ವ ಅಲ್ಪಸಂಖ್ಯಾತರ ಬಗ್ಗೆ ಮಾಹಿತಿಯನ್ನು ಪಡೆಯುತ್ತಾರೆ

CO 3 : ಅಣಕಟ್ಟು ನಿರ್ಮಾಣದ ಮೂಲಕ ಕೃಷಿ ಕ್ಷೇತ್ರ ನಾಶವಾಗುವುದನ್ನು ಅರಿಯುತ್ತಾರೆ.

CO 4 : ಭಾಷೆಯ ವಿವಿಧ ಸಾಧ್ಯತೆಗಳ ಕುರಿತು ಜ್ಞಾನವನ್ನು ವಿಸ್ತರಿಸಿಕೊಳ್ಳುತ್ತಾರೆ.

CO 5 : ಕನ್ನಡ ಭಾಷೆಯನ್ನು ಸರಿಯಾಗಿ ಬಳಸಲು, ಬರೆಯಲು ಸಮರ್ಥರಾಗುತ್ತಾರೆ.

Course	Details
Code	BCKAL 181
Title	Kannada ಸುಡಿತಿಲ್ವ
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First / Second
Type	Group III Compulsory Foundation Language – 2
Total Credits	02
Total Contact Hours	48

Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lecture with Interactive Sessions, discussions, Debate, Enacting Drama
Evaluation Method	Viva-voce, Assignments, Two Internal Exams, One end term Semester Exam

Learning Objectives:

ಸಾಂಗತ್ಯ, ಆಧುನಿಕ ಕವಿತೆ, ಕೀರ್ತನೆ, ಪ್ರಬಂಧ, ಪರಿಸರಸ್ನೇಹಿ ಲೇಖನ, ಬಂಡಾಯ ಕವನ, ಕೊಡವ ಭಾಷಾ ಕವನ, ಆರ್ಥಿಕ ಸಮಸ್ಯೆ, ಸಾಮಾಜಿಕ ಸಮಸ್ಯೆಯ ಕುರಿತ ಲೇಖನ-ಇವುಗಳ ಮೂಲಕ ಜ್ಞಾನ ವಿಸ್ತರಿಸಿಕೊಳ್ಳುತ್ತಾರೆ.

Expected Learning Outcomes:

ಪಠ್ಯವನ್ನು ಪೂರ್ಣಗೊಳಿಸಿದ ಬಳಿಕ ವಿದ್ಯಾರ್ಥಿಗಳು:

CO 1 : ಭಾಷೆಗಳ ನಡುವಣ ಅಂತರ್ ಸಂಬಂಧವನ್ನು ಅರ್ಥ ಮಾಡಿಕೊಳ್ಳುತ್ತಾರೆ.

CO 2 : ಮನೋವಿಜ್ಞಾನ, ಪರಿಸರ ಕಾಳಜಿಯ ಬಗ್ಗೆ ಜ್ಞಾನ ವಿಸ್ತರಿಸಿಕೊಳ್ಳುತ್ತಾರೆ.

CO 3 : ತೆರಿಗೆ ಪದ್ಧತಿಯ ಬಗ್ಗೆ ತಿಳಿದುಕೊಳ್ಳುತ್ತಾರೆ.

CO 4 : ಬೀದಿ ಮಕ್ಕಳ ಸ್ಥಿತಿಗತಿಗಳನ್ನು ನಾಟಕ ಪ್ರಕಾರದ ಮೂಲಕ ಅರ್ಥೈಸಿಕೊಳ್ಳುತ್ತಾರೆ.

CO 5 : ಮಾನವೀಯ ಮೌಲ್ಯಗಳ ಮಹತ್ವವನ್ನು ತಿಳಿಯುತ್ತಾರೆ.

Course	Details
Code	BCKAL 231
Title	Kannada ನುಡಿಬೆಳಕು
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second / Third
Type	Group III Compulsory Foundation Language – 2
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04

Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lecture with Interactive Sessions, discussions, Debate
Evaluation Method	Viva-voce, Assignments, Two Internal Exams, One end term Semester Exam

Learning Objectives:

ಕಾವ್ಯಭಾಗದಲ್ಲಿ ಹೊಸಗನ್ನಡ ಕವಿತೆ, ಜನಪದ ಗೀತೆ, ಕೊಂಕಣಿ ಕವಿತೆ, ಅರೆಭಾಷೆ ಕನ್ನಡ ಕವಿತೆ ಹಾಗೂ ಹಳಗನ್ನಡ ಕಾವ್ಯ; ಗದ್ಯಭಾಗದಲ್ಲಿ ಸಣ್ಣಕತೆ, ಲಲಿತ ಪ್ರಬಂಧ, ವೈಚಾರಿಕ ಲೇಖನ, ವೈದ್ಯಕೀಯ ಲೇಖನ ಹಾಗೂ ಕನ್ನಡ ಪದಗಳ ಅರ್ಥ ಹಾಗೂ ದೀರ್ಘಪಠ್ಯವಾಗಿ ಮಹಿಳಾ ಸಾಹಿತಿಗಳ ಕಾದಂಬರಿಯ ಆಯ್ದ ಭಾಗವನ್ನು ಓದುವುದರ ಮೂಲಕ ಜ್ಞಾನ ವಿಸ್ತರಿಸಿಕೊಳ್ಳುತ್ತಾರೆ.

Expected Learning Outcomes:

ಪಠ್ಯವನ್ನು ಪೂರ್ಣಗೊಳಿಸಿದ ಬಳಿಕ ವಿದ್ಯಾರ್ಥಿಗಳು:

CO 1: ಕಾವ್ಯಭಾಗದಲ್ಲಿ ಹೊಸಗನ್ನಡ ಕವಿತೆ, ಜನಪದ ಗೀತೆ, ಕೊಂಕಣಿ ಕವಿತೆ, ಅರೆಭಾಷೆ ಕನ್ನಡ ಕವಿತೆ ಹಾಗೂ ಹಳಗನ್ನಡ ಕಾವ್ಯದ ಓದಿನ ಮೂಲಕ ಕನ್ನಡ ಭಾಷೆಯ ವೈವಿಧ್ಯವನ್ನು ತಿಳಿದುಕೊಳ್ಳುತ್ತಾರೆ

CO 2: ಗದ್ಯಭಾಗದಲ್ಲಿ ಸಣ್ಣಕತೆ, ಲಲಿತ ಪ್ರಬಂಧ, ವೈಚಾರಿಕ ಲೇಖನ, ವೈದ್ಯಕೀಯ ಲೇಖನ ಹಾಗೂ ಕನ್ನಡ ಪದಗಳ ಅರ್ಥದ ಕುರಿತು ತಿಳಿದುಕೊಳ್ಳುತ್ತಾರೆ.

CO 3: ಮಹಿಳಾ ಸಾಹಿತಿಗಳ ಕಾದಂಬರಿಯ ಆಯ್ದ ಭಾಗವನ್ನು ಓದುವ ಮೂಲಕ ಸಾಹಿತ್ಯದಲ್ಲಿ ಸ್ತ್ರೀಸಂವೇದನೆಯನ್ನು ಅರ್ಥಮಾಡಿಕೊಳ್ಳುತ್ತಾರೆ.

Course	Details
Code	BCKAL 281
Title	Kannada ನುಡಿವಿಷಯ
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second / Fourth
Type	Group III Compulsory Foundation Language – 2
Total Credits	02
Total Contact Hours	48

Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lecture with Interactive Sessions, discussions, Debate
Evaluation Method	Viva-voce, Assignments, Two Internal Exams, One end term Semester Exam

Learning Objectives:

ಕಾವ್ಯಭಾಗದಲ್ಲಿ ಹಳಗನ್ನಡ ಕಾವ್ಯ, ನಡುಗನ್ನಡ ಕಾವ್ಯ, ಹೊಸಗನ್ನಡ ಕವಿತೆ, ಬ್ಯಾರಿ ಭಾಷೆಯ ಕವಿತೆ ಹಾಗೂ ಹವ್ಯಕ ಕನ್ನಡ ಕವಿತೆಯ ಓದಿನ ಮೂಲಕ ಕನ್ನಡ ಭಾಷೆಯ ವೈವಿಧ್ಯವನ್ನು ತಿಳಿದುಕೊಳ್ಳುತ್ತಾರೆ.
ಗದ್ಯಭಾಗದಲ್ಲಿ ಸಣ್ಣಕತೆ, ಪ್ರಬಂಧ, ವೈಜ್ಞಾನಿಕ ಲೇಖನ ಹಾಗೂ ದೀರ್ಘಪಠ್ಯದಲ್ಲಿ ಆಧುನಿಕ ಕನ್ನಡದ ಮಹಾಕಾವ್ಯವನ್ನು ಓದುತ್ತಾರೆ.

Expected Learning Outcomes:

ಪಠ್ಯವನ್ನು ಪೂರ್ಣಗೊಳಿಸಿದ ಬಳಿಕ ವಿದ್ಯಾರ್ಥಿಗಳು:

CO 1: ಕಾವ್ಯಭಾಗದಲ್ಲಿ ಹಳಗನ್ನಡ ಕವಿತೆ, ಜನಪದ ಗೀತೆ, ಕೊಂಕಣಿ ಕವಿತೆ, ಅರೆಭಾಷೆ ಕನ್ನಡ ಕವಿತೆ ಹಾಗೂ ಹಳಗನ್ನಡ ಕಾವ್ಯದ ಓದಿನ ಮೂಲಕ ಕನ್ನಡ ಭಾಷೆಯ ವೈವಿಧ್ಯವನ್ನು ತಿಳಿದುಕೊಳ್ಳುತ್ತಾರೆ

CO 2: ಗದ್ಯಭಾಗದಲ್ಲಿ ಸಣ್ಣಕತೆ, ಪ್ರಬಂಧ, ವೈಜ್ಞಾನಿಕ ಲೇಖನದ ಓದಿನ ಮೂಲಕ ವೈಚಾರಿಕ. ವೈಜ್ಞಾನಿಕ ಮನೋಭಾವವನ್ನು ಬೆಳೆಸಿಕೊಳ್ಳುತ್ತಾರೆ.

CO 3: ಆಧುನಿಕ ಕನ್ನಡದ ಮಹಾಕಾವ್ಯದ ಆಯ್ದ ಭಾಗವನ್ನು ಓದುವ ಮೂಲಕ ಸಾಹಿತ್ಯದಲ್ಲಿ ಪ್ರಕಟವಾಗಿರುವ ಪ್ರಾದೇಶಿಕತೆಯ ಮೌಲ್ಯಗಳನ್ನು ಅರ್ಥಮಾಡಿಕೊಳ್ಳುತ್ತಾರೆ.

COURSE OUTCOME OF HINDI

Course	Details
Code	BSC HDL131
Title	HINDI
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First /First
Type	Group III Compulsory Foundation Language
Total Credits	02

Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total :100
Total Modules	04
Pedagogy	Lectures with explanation in detail for the given syllabus, PPT presentation, Audio visual classes“ debates, enacting Drama.
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam and One End Semester Exam

Learning Objectives :

To give detailed explanation about prescribed stories and grammar syllabus and the authors views on stories.

Expected Learning Outcomes :

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

CO 1 : Develop knowledge of Literary forms in Hindi Essay.

CO 2: Develop the story reading skill.

CO 3 : Obtained information about Literary Theory.

CO 4 : Introduce about Bio-data writing.

Course	Details
Code	BSC HDL181
Title	Hindi
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First / Second
Type	Group III Compulsory Foundation Language
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total :100

Total Modules	04
Pedagogy	Lectures and Audio Visual classes
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam and One End Semester Exam
<p>Learning Objectives :</p> <p>To give detailed explanation on Novel Prescribed and visualizing the characters of the Novel and giving views on poets thoughts of the given poems. Enable the students inculcate moral values in their life.</p>	
<p>Expected Learning Outcomes :</p> <p>Upon the completion of this course, the students will be able to :</p> <p>CO 1 : Develop interest in Medieval & Modern poetry. CO 2 : Learn value through literary works. CO 3 : To introduce – ‘Deekshant’ Novel written by Suryabala. CO 4: The Verbal & Non-verbal skills of communication are developed.</p>	

Course	Details
Code	BSC HDL 231
Title	Hindi
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second / Third
Type	Group III Paper III Compulsory Foundation Language
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total :100
Total Modules	04
Pedagogy	Lectures with interactive classes, Role plays from drama, Audio visual classes and Debates

Evaluation Method	Viva-Voce, Assignments, Two Internal Assessment Examination and One End Semester Exam
<p>Learning Objectives :</p> <p>To make students understand the moral values given in stories prescribed and practice script and dialogue writing by specimen writing. Enable the students inculcate the moral values in the prescribed Novel.</p>	
<p>Expected Learning Outcomes :</p> <p>Upon the completion of this course, the students will be able to :</p> <p>CO 1 : Understand the basic forms of story and Poetry. CO 2 : Develop knowledge of literary forms of Hindi Poetry. CO 3 : Develop interest in story and poetry writing. CO 4 : Hindi Idioms, Phrases and dialogue writing.</p>	

Course	Details
Code	BSC HDL281
Title	Hindi
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second / Fourth
Type	Group III Paper IV Compulsory Foundation Language
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total :100
Total Modules	04
Pedagogy	Lectures with interactive discussions, Audio Visual Classes, Role plays
Evaluation Method	Viva, Assignments, Internal Exam and Semester Exam
<p>Learning Objectives :</p> <p>To explain the Drama prescribed with enactment of characters in the play. Practice to write Translation, as well as learn the official language - Hindi.</p>	

Expected Learning Outcomes :

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

CO 1 :Develop interest in Novel

CO 2:Understand the Novel forms and their types.

CO 3: To introduce MannuBhandary Novel- “Bina DeevaronKeGhar”

CO 4 :To develop the Hindi writing skill.

Course	Details
Code	BSCSKL 131
Title	Sanskrit
Program	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Group III : Foundation Course – Language 2
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam :80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Group Discussions, Debates and Presentations
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam

Learning Objectives :

To improve the knowledge of Sanskrit Literature and Culture of Sanskrit amongst the students and make them succeed in life.

To motivate students to spread the essence of Devabhasha Sanskrit, by giving them resources required.

To make the students appreciate the immortal works of our Ancient seers and poets. To make

the students Learn good Moral values and become good citizens and promote a healthy society.

Expected Learning Outcomes :

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

CO 1 : Students get acquainted with poetic forms of Sanskrit literature

Course	Details
Code	BSCSKL181
Title	Sanskrit
Program	Bachelor of Science (B.Sc.)
Year / Semester	First/ Second
Type	Group III : Foundation Course – Language 2
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam :80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Group Discussions, Debates, and Presentations
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam

Learning Objectives :

To improve the knowledge of Sanskrit Literature and Culture of Sanskrit amongst the students and make them succeed in life.

To motivate students to spread the essence of Devabhasha Sanskrit, by giving them resources required.

To make the students appreciate the immortal works of our Ancient seers and poets. · To make the students Learn good Moral values and become good citizens and promote a healthy society.

Expected Learning Outcomes :

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

CO 1 :To enable the students to show interest in poetic forms of literature.

Course	Details
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Code	BSCSKL231
Title	Sanskrit
Program	Bachelor of Science (B.Sc.)
Year / Semester	Second / Third
Type	Group III : Foundation Course – Language 2
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam :80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Group Discussions, Debates and Presentations
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam

Learning Objectives :

- To improve the knowledge of Sanskrit Literature and Culture of Sanskrit amongst the students and make them succeed in life.
- To motivate students to spread the essence of Devabhasha Sanskrit, by giving them resources required.
- To make the students appreciate the immortal works of our Ancient seers and poets. To make the students Learn good Moral values and become good citizens and promote a healthy society.

Expected Learning Outcomes :

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

CO 1 :The students would able to understand the dramatic compositions.

Course	Details
Code	BSCSKL281
Title	Sanskrit
Program	Bachelor of Science (B.Sc.)
Year / Semester	Second / Fourth

Type	Group III : Foundation Course – Language 2
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam :80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Group Discussions, Debates and Presentations
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam
<p>Learning Objectives :</p> <p>To improve the knowledge of Sanskrit literature and culture of Sanskrit amongst the students and enable them succeed in life.</p> <p>To motivate students to spread the essence of Devabhasha Sanskrit.</p>	
<p>Expected Learning Outcomes :</p> <p>Upon the completion of this course, the students will be able to :</p> <p>CO 1 : This creates an awareness of scientific advancement of our ancestors.</p>	

COURSE OUTCOME PHYSICS

COURSE	DETAILS
Code	BSCPHC131
Title	General Physics I
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Use of charts and models.
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam.
EXPECTED LEARNING OUTCOME	

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

CO 1:-Understanding of basic concepts of mechanics such as Derivative of a vector, conservation of linear momentum, central forces.

CO 2:-Knowledge on Rotational dynamics of a rigid body, Theory of compound pendulum, Conservation of energy and Simple Harmonic Motion.

CO 3:-Familiarized with Physics of Low Temperature.

CO 4:-Familiarized with Thermal emf.

CO 5:-Elaborate on Types of thermal processes, Carnot's engine, Entropy.

CO 6:-Ability to solve problems on Mechanics and Thermal Physics.

COURSE	DETAILS
Code	BSCPHP 132
Title	Practical's I
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	14 experiments
Pedagogy	Electrical connections, setting the instruments, taking readings.
Evaluation Method	Viva-Voce, one Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

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

CO 1:-Acquiring the skills in doing the experiments in Mechanics and Thermal Physics.

CO 2:-Describe techniques of studying rigidity modulus of material using torsion pendulum, Static Torsion pendulum, Conservation of energy and Simple Harmonic Motion.

CO 3:-Evaluate Specific heat by cooling, Viscosity by Poiseuille's methods.

CO 4:-Demonstrate Thermocouple, Fly Wheel, Searle's double bar.

CO 5:-Determine Surface tension by drop weight method, Linear density & Material density by sonometer, Fermi Energy of a metal.

CO 6:-Demonstrate Oswald Viscometer, Bar pendulum – 2 hole method, Melds Experiment, LDR.

COURSE	DETAILS
Code	BSCPHC181
Title	General Physics II
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04

Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Use of charts and models.
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam.
EXPECTED LEARNING OUTCOME	
<p>Upon the completion of this course, the students will be able to :</p> <p>CO 1:-Understanding on Elasticity and Bending moment. CO 2:-To be able to explain Fluid dynamics and Viscosity. CO 3:-Describe basic concepts of Special theory of relativity. CO 3:-Proficient in basic concepts of Astrophysics. CO 4:-Discuss Free and forced oscillations, Progressive waves and Fourier's theorem. CO 5:-Solve problems on Properties of Matter, Relativity, Astrophysics, Waves & Oscillations.</p>	

COURSE	DETAILS
Code	BSCPHP 182
Title	Practical's II
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/second
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	14 experiments
Pedagogy	Electrical connections, setting the instruments, taking readings.
Evaluation Method	Viva-Voce, one Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>Upon the completion of this course, the students will be able to :</p> <p>CO 1:-Understanding of mechanics of Spiral spring, Damped oscillations, Monte Carlo experiment. CO 2:-Knowledge to analyze BAR Pendulum-h-T graph and calculation of time period. CO 3:-Understanding of Platinum resistance thermometer CO 4:-Understanding of Theorem of M I –parallel & perpendicular axes, Interfacial tension, Maxwell's distribution of velocities, Joules heating effect. CO 5:-Expertise to determine q by cantilever, η Stokes method, Energy gap of p-n diode, q by Koenig's Method. CO 6:-Knowledge on Law of conservation of liner momentum.</p>	

COURSE	DETAILS
Code	BSCPHC231
Title	OPTICS
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Third
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours

Max. Marks	CIA : 20	End Semester Exam : 80	Total : 100
Total Modules	04		
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Use of charts and models.		
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam.		
EXPECTED LEARNING OUTCOME			
Upon the completion of this course, the students will be able to :			
CO 1:- Gaining the knowledge about interference of light.			
CO 2:- Awareness about the design, working and application of Michelson's interferometer.			
CO 3:- Obtaining the clear understanding about Polarization and diffraction of light.			
CO 4:- Derive and analyze Maxwell equations of electromagnetism and Pointing vector.			
CO 5:- Gaining the knowledge about the principles of Blackbody radiation.			
CO 6:- Understanding of the working principles of LASER and holography			

COURSE	DETAILS		
Code	BSCPHP 232		
Title	Practical's III		
Programme	Bachelor of Science (B.Sc.)		
Year / Semester	Second/third		
Type	Core Course		
Total Credits	01		
Total Contact Hours	36		
Contact Hours per Week	03		
Examination Duration	03 Hours		
Max. Marks	CIA : 10	End Semester Exam : 40	Total : 50
Total Modules	14 experiments		
Pedagogy	Electrical connections, setting the instruments, taking readings.		
Evaluation Method	Viva-Voce, one Internal Assessment Exam, One End Semester Exam		

EXPECTED LEARNING OUTCOME			
Upon the completion of this course, the students will be able to :			
CO 1:- Obtaining the skill of using the spectrometer in measuring the wavelength of spectral lines using diffraction grating in minimum deviation			
CO 2:- Knowledge about the measurement of resistance by Carey-foster bridge			
CO 3:- The method of measurement of evaluating the wavelength of laser light using diffraction.			
CO 4:- The knowledge about the determination of thickness of blade using Air wedge			
CO 5:- Knowledge about the determination of the frequency of tuning fork using Helmholtz's Resonator.			
CO 6:- Analyse Dispersive power of prism.			

COURSE	DETAILS
Code	BSCPHC281
Title	Electricity and X-ray Crystallography
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Fourth
Type	Core Course
Total Credits	02
Total Contact Hours	48

Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Use of charts and models.
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam.

EXPECTED LEARNING OUTCOME

- CO 1:-**Explain Norton and The venin theorem.
CO 2:-Construct and describe the working high and low pass filters circuit.
CO 3:-Discuss the effects of a magnetic field on a current carrying conductor.
CO 4:-Describe the working of Andersons Bridge and De Sauty Bridge.
CO 6:-Explain Characteristic X-ray spectra and Moseley law.
CO 7:-Discuss Superconductivity its response to magnetic field.

COURSE	DETAILS
Code	BSCPHP 282
Title	Practical's IV
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/fourth
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	14 experiments
Pedagogy	Electrical connections, setting the instruments, taking readings.
Evaluation Method	Viva-Voce, one Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

- Upon the completion of this course, the students will be able to :
- CO 1:-**Knowledge on Double coil T G, R. I. Prism By Brwester's law.
CO 2:-Demonstrate Newton's rings, Grating normal incidence, Polarimeter, Phasor diagram.
CO 3:-Knowledge on Charge sensitivity using BG, E C E of copper
CO 4:-Ability to determine Low resistance by potentiometer
CO 5:-Knowledge to verify Max. Power transfer theorem, Low & high pass filter, High resistance by leakage.
CO 6:-Ability to find capacitance using De-Sauty's Bridge

COURSE	DETAILS
Code	BSCPHC331
Title	Modren Physics
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth
Type	Core Course
Total Credits	02

Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Use of charts and models.
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam.

EXPECTED LEARNING OUTCOME

- CO 1:-**Understanding to explain Dual Nature of Matter & elementary concepts of Quantum Mechanics.
CO 2:-Derive Uncertainty principle and time dependent Schrodinger wave equation.
CO 3:-Apply Schrodinger equation in different systems.
CO 4:-Explain various atomic models, atomic spectra and molecular spectra.
CO 5:-Discuss elementary concepts of scattering.
CO 6:-Solve problems on Quantum mechanics, Atomic and molecular spectra, and scattering.

COURSE	DETAILS
Code	BSCPHC332
Title	Condensed Matter Of Physics
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Use of charts and models.
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam.

EXPECTED LEARNING OUTCOME

- CO 1:** Differentiate the classical and quantum statistics.
CO 2: Get the concepts and limitations of Einstein and Debye's theory of specific heat of solids.
CO 3: Differentiate classical and quantum free electron theory.
CO 4: Understand the formations of energy bands in solids.
CO 5: Identify the different regions of Transistor characteristics.
CO 6: Apply the applications of Transistors and FET

COURSE	DETAILS
Code	BSCPHP 333
Title	Practical's V
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third /fifth

Type	Core Course
Total Credits	01
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	04 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	14 experiments
Pedagogy	Electrical connections, setting the instruments, taking readings.
Evaluation Method	Viva-Voce, one Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

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

CO 1:-Understanding of Series resonance and Andersons bridge..

CO 2:-Demonstrate Thermistor, Earth inductor, Hysteresis, OR, AND, NOT, NOR & NOT gates using discrete components), Zener voltage regulator

CO 3:-Understanding of Resolving power of grating, Intensity of a spectral line

CO 4:-Knowledge to Determine Cauchy's constant, Specific charge of an electron, Planks constant using LED

CO 5:-To know the method to Verify Transistor characteristics.

CO 6:-Knowledge on the working of Biprism.

COURSE	DETAILS
Code	BSCPHC381
Title	Nuclear Physics
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Use of charts and models.
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam.

EXPECTED LEARNING OUTCOME

CO 1:-Understanding on radioactive equilibrium, Geiger-Natal law and interaction of radiation with matter.

CO 2:-Describe nuclear forces, model of nucleus and meson theory.

CO 3:-Explain nuclear fusion and its application.

CO 4:-Knowledge on the working of various types of particles accelerators and Detectors.

CO 5:-Understanding of basic concepts of cosmic rays and fundamental particles.

CO 6:-Ability to solve problems of nuclear physics.

COURSE	DETAILS
Code	BSCPHC382
Title	Electronics
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth

Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Use of charts and models.
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam.

EXPECTED LEARNING OUTCOME

CO 1:-Understanding on the concept and applications of OP-AMP.

CO 2:-Knowledge on Regulated Power Supply & Oscillators.

CO 3:-Understanding on the concepts in Boolean algebra.

CO 4:-To be able to construct flip flops.

CO 5:-Knowledge on basic communication electronics and the role of ionosphere.

CO 6:-Ability to solve problems of electronics.

COURSE	DETAILS
Code	BSCPHP 383
Title	Practical's VI
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third / sixth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	04 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	14 experiments
Pedagogy	Electrical connections, setting the instruments, taking readings.
Evaluation Method	Viva-Voce, one Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

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

CO 1:-Understanding on Parallel resonance, OP-amp, G M counter.

CO 2:-Demonstrate Bridge rectifier, CE amplifier, Wein bridge oscillator, M & C by Carey –foster bridge, Basics Logic gates Using NAND gates.

CO 3:-Understanding on the significance of Rydberg Constant

CO 4:-Expertise to determine Capacity of C using B G.

CO 5:-Ability to Verify Mutual inductance –BG, Stefan's law, Half adder & full adder.

CO 6:-Knowledge on Square wave.

COURSE	DETAILS
Code	BSCPHCE 133
Title	Basics of Radiation and Environment
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Elective Paper

Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations
Evaluation Method	Two Internal Assessment Exam, One End Semester Exam.
EXPECTED LEARNING OUTCOMES	
<p>CO 1:-Basic knowledge on Biophysics. CO 2:-Understanding on the concepts of Geophysics. CO 3:-Describe the concepts of medical physics. CO 4:-Understand the importance of environmental studies.</p>	

COURSE	DETAILS
Code	BSCPHCE 183
Title	Physics of Nano Science and Smart materials
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations
Evaluation Method	Two Internal Assessment Exam, One End Semester Exam.
EXPECTED LEARNING OUTCOMES	
<p>CO 1:- Explain the concepts of Nano Science. CO 2:-Describe Visualization and manipulation tools used in Nano Science. CO 3:-Knowledge on various smart materials. CO 4:-Understanding on the applications of various smart materials.</p>	

COURSE	DETAILS
Code	BSCPHCE 233
Title	Electrical Appliances
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Third
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50

Total Modules	02
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations
Evaluation Method	Two Internal Assessment Exam, One End Semester Exam.
EXPECTED LEARNING OUTCOMES	
<p>CO 1:-Understanding on the basic concepts of current electricity.</p> <p>CO 2:-Knowledge on various current and voltage measuring instruments.</p> <p>CO 3:-Knowledge on the working principle of different home appliances.</p> <p>CO 4:-Understand on the working of switches, regulators, chokes and fuses.</p>	

COURSE OUTCOME OF CHEMISTRY

COURSE	DETAILS
Code	BSCCHC-131
Title	Chemistry Paper 1
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of Models, Use of PPT Presentations, Brainstorming, Seminars and Presentations, Use of Charts, Model Making Activity
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>CO 1:-Explain Crystal systems, Crystal lattice, Bravais lattice and applications of liquid crystals.</p> <p>CO 2:-Explain critical phenomenon of gases.</p> <p>CO 3:-Understand the concept of bonding in substances.</p> <p>CO 4:-Explain different types of chromatographic techniques and its applications</p> <p>CO 5:-Relate the elemental properties to its atomic structure and location in the periodic table</p> <p>CO 6:-Compare the qualitative and quantitative analysis</p>	

COURSE	DETAILS
Code	BSCCHP 132
Title	Practicals I
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course
Total Credits	01
Total Contact Hours	36

Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	14 experiments
Pedagogy	Lectures with interactive sessions, Use of equipment's, Demonstration of the experiments, Brainstorming, Use of Charts.
Evaluation Method	One Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to :	
CO 1: Learn different types of acid base titration, redox titration, complex metric titration and iodometric titration.	
CO 2: They learn the estimation of acetic acid and alkali content in the commercial product.	

COURSE	DETAILS
Code	BSC CHC-181
Title	Chemistry Paper II
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of Models, Use of PPT Presentations, Brainstorming, Seminars and Presentations, Use of Charts, Model Making Activity
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
CO 1:- Understand the concept of rates of reactions,	
CO 2:- Interpret adsorption phenomenon and characteristics of solvents	
CO 3:- Understand the general trends in the chemistry behind s & p block elements	
CO 4:- Describe the role of intermediates in reactions mechanism & explain the mechanism of nucleophilic substitution reactions	
CO 5:- Explain the industrial production of chemical products and fertilizers.	

COURSE	DETAILS
Code	BSCCHP 182
Title	Practicals II
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Core Course

Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	14 experiments
Pedagogy	Lectures with interactive sessions, Use of equipment's, Demonstration of the experiments, Brainstorming, Use of Charts.
Evaluation Method	One Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to :	
CO 1: The students have hands on experience and skill in analyzing qualitatively an organic compound having mono and bi functional groups by doing a series of tests.	
CO 2: They also learn the separating techniques like PC, TLC and CC.	

COURSE	DETAILS
Code	BSC CHC-231
Title	Chemistry Paper III
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Third
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of Models, Use of PPT Presentations, Brainstorming, Seminars and Presentations, Use of Charts, Model Making Activity
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
CO 1:- Thermodynamic terms. Thermodynamics laws, entropy, free energy.	
CO 2:- Stability of Oxidation states and calculation of magnetic moments of d and f- block elements. Causes for Lanthanide Contraction. Separation of Neptunium, Plutonium, Uranium from Nuclear fuels.	
CO 3:- Preparation of Nanoparticles.	
CO 4:- Can identify the class of organic compounds based on functional group. Able to write mechanism of simple reactions.	
CO 5:- Modern concepts of Acids and Bases. Miscibility temperatures of Binary Mixtures.	
CO 6:- Fundamentals of Food processing and Food Analysis. Types of Corrosion.	

COURSE	DETAILS
Code	BSCCHP 232
Title	Practical's III
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Third
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	14 experiments
Pedagogy	Lectures with interactive sessions, Use of equipment's, Demonstration of the experiments, Brainstorming, Use of Charts.
Evaluation Method	One Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to :	
CO 1: They have hands on experience and skill in systematic qualitative analysis of inorganic salt mixture containing two cations and two anions.	

COURSE	DETAILS
Code	BSC CHC-281
Title	Chemistry Paper IV
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Fourth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of Models, Use of PPT Presentations, Brainstorming, Seminars and Presentations, Use of Charts, Model Making Activity
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
CO 1:- colligative properties of Solutions in different methods.	
CO 2:- Instrumentation of Refractometer and applications of Refractometer.	
CO 3:- Different Isomerism in Coordination compounds. Geometry of coordination compounds with respect to different hybridization based on VBT. Stability and magnetic moment of different complexes based on Crystal field theory.	
CO 4:- Synthesis of simple organic compounds from readily available starting materials. Methods of conversion of Carboxyl group into other Functional group.	

CO 5:-Synthesis of different types of carboxylic acids and Heterocyclic compounds from Reactive methylene compounds.

CO 6: Relationship between Equilibrium Constant and Free energy. Calculation of degree of freedom of different component system in Phase equilibria.

CO 7:-Constituents of Freezing mixtures.

CO 8:-Products obtained after Water exposed to Radiation dose. Medical, industrial applications of Radioisotopes.

COURSE	DETAILS
Code	BSCCHP 282
Title	Practical's IV
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Fourth
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	14 experiments
Pedagogy	Lectures with interactive sessions, Use of equipment's, Demonstration of the experiments, Brainstorming, Use of Charts.
Evaluation Method	One Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

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

CO 1: The kinetics of different chemical reactions.

CO 2: They learn distribution law and learn how to find out density, viscosity and surface tension of different chemicals.

CO 3: They also learn ppm of colloidal particles, refractometry, effect of impurity on phenol water system and colligative properties- Elevation in boiling point.

COURSE	DETAILS
Code	BSC CHC-331
Title	Chemistry Paper V
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04

Pedagogy	Lectures with interactive sessions, Use of Models, Use of PPT Presentations, Brainstorming, Seminars and Presentations, Use of Charts, Model Making Activity
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>CO 1:-Students will study the important theoretical concepts of electrochemistry and photochemistry and their application to energy transfer..</p> <p>CO 2:-Students will be exposed to Frontier topics in chemistry like supra molecular chemistry magneto chemistry and its significances .</p> <p>CO 3:-The application of complex formation in the separation of metals and metallic compounds from minerals and ores are discussed.</p> <p>CO 4:-Students will learn the stereochemistry of organic compounds and mechanisms of electrophilic reactions are focussed.</p> <p>CO 5:-The fundamental applications of rotational and vibrational spectroscopy are studied as a tool to interpret and characterize the organic compounds</p>	

COURSE	DETAILS
Code	BSC CHC-332
Title	Chemistry Paper VI
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of Models, Use of PPT Presentations, Brainstorming, Seminars and Presentations, Use of Charts, Model Making Activity
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>CO 1:-Students will grasp the elementary quantum mechanics in addition to the Raman spectroscopy and electronic spectra of transition metal complexes.</p> <p>CO 2:-Students will learn Industrial applications of organometallic compounds are discussed to synthesise the polymers and catalysts.</p> <p>CO 3:-Students will get the knowledge in important name reactions of organic chemistry and their mechanisms .</p> <p>CO 4:-Students will study role of different analytical tools to characterize the chemical compounds .</p>	

COURSE	DETAILS
Code	BSCCHP 333
Title	Practical's V
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth

Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	04 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	14 experiments
Pedagogy	Lectures with interactive sessions, Use of equipment's, Demonstration of the experiments, Brainstorming, Use of Charts.
Evaluation Method	One Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to :	
<p>CO 1: Learn gravimetric estimation of different metals.</p> <p>CO 2: They also learn colorimetry, determination of adulterants in food stuff, effluent analysis, steam distillation.</p> <p>CO 3: In this practical students learn stereochemistry of organic compound through models.</p>	

COURSE	DETAILS
Code	BSC CHC-381
Title	Chemistry Paper VII
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of Models, Use of PPT Presentations, Brainstorming, Seminars and Presentations, Use of Charts, Model Making Activity
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>CO 1:-Students will study the construction and working of electrodes and fuel cells in addition determination of conductivity and pH measurements.</p> <p>CO 2:-Students will gain knowledge in preparation, properties and uses of inorganic and synthetic polymers.</p> <p>CO 3:-Students will know the function of composites in diversified applications.</p> <p>CO 4:-Students will learn classification, preparation, structure and uses of different alkaloids, Terpenes, pesticides, herbicides and fungicides.</p> <p>CO 5:-Students will know the importance and advantages of Green chemistry where lot of innovations are in going on.</p> <p>CO 6:-Students will know the principle, instrumentation and significances of mass spectrometry.</p> <p>CO 7:-Students will learn fractional distillation of petrochemicals and properties.</p>	

COURSE	DETAILS
Code	BSC CHC-382
Title	Chemistry Paper VIII
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of Models, Use of PPT Presentations, Brainstorming, Seminars and Presentations, Use of Charts, Model Making Activity
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

CO 1:-Students will be exposed to the instrumentation and uses of colorimeter and spectrophotometers.

CO 2:-Students will understand the principle and uses of Nuclear Magnetic spectroscopy and photoelectron spectroscopy for the characterization of organic compounds.

CO 3:-Students will know the inter conversion and configuration of various carbohydrates.

CO 4:-Students will know the distinction between different classes of Amino acids, Proteins, vitamins and Hormones.

CO 5:-Student will be exposed to Retro synthesis which is new method of synthesis of organic compound containing large molecules.

CO 6:-Students will gain in depth knowledge of Lipids, drugs, chemotherapeutic agents and organo sulphur compounds.

COURSE	DETAILS
Code	BSCCHP 383
Title	Practical's VI
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth
Type	Core Course
Total Credits	01
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	14 experiments

Pedagogy	Lectures with interactive sessions, Use of equipment's, Demonstration of the experiments, Brainstorming, Use of Charts.
Evaluation Method	One Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>CO 1: Learn different types of organic reactions like acetylation, nitration, bromination, diazotization, oxidation and hydrolysis.</p> <p>CO 2: The students also learn the use of different instruments like conductometer (conductometric titration), potentiometer(potentiometric titration), colorimeter(colorimetric titration) and polarimeter.</p> <p>CO 3: The students also learn the preparation of different complexes.</p>	

COURSE	DETAILS
Code	BSC CHCE 133
Title	Food Chemistry & Biomolecules
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive sessions
Evaluation Method	Two Internal Assessment Exam, One End Semester Exam .
EXPECTED LEARNING OUTCOMES	
<p>CO 1:-Student will have the knowledge of common laboratory hazards, cause of occurrence of these hazards, healthy practices to minimize them and preparedness for the emergencies.</p> <p>CO 2:-Student will acquaint with the knowledge of preparation of laboratory reagents for the purpose of qualitative and quantitative analysis.</p> <p>CO 3:-Importance of open mind while working in the laboratory is highlighted to the student through some of historical accidental discoveries (Serendipity) that made extreme impact on life style.</p> <p>CO 4:-Student will have the knowledge of important domestic chemicals used in day today life like cleansing agents, safety matches, mosquito coils, germicides etc with examples and chemical composition.</p> <p>CO 5:-Student is imparted with the knowledge of cosmetics and their chemical composition.</p> <p>CO 6:-Student will have the knowledge of application of colloids in natural phenomenon and industry.</p>	

COURSE	DETAILS
Code	BSc CHCE-183

Title	Computer for Chemists & Laboratory Safety Techniques		
Programme	Bachelor of Science (B.Sc.)		
Year / Semester	First/Second		
Type	Elective Paper		
Total Credits	01		
Total Contact Hours	24		
Contact Hours per Week	02		
Examination Duration	02 Hours		
Max. Marks	CIA : 10 50	End Semester Exam : 40	Total :
Total Modules	02		
Pedagogy	Lectures with interactive sessions		
Evaluation Method	Two Internal Assessment Exam, One End Semester Exam .		
EXPECTED LEARNING OUTCOMES			
<p>CO 1:-Student is imparted with basic knowledge of computer & computer languages, computer programs and packages.</p> <p>CO 2:-Student will have an understanding of Chemistry Sketch for drawing chemical formulae, structures and graphs.</p> <p>CO 3:-Student will acquaint with the knowledge of principle of buffer solution, their preparations and applications.</p> <p>CO 4:-Student will have the knowledge of importance of solubility product principle in inorganic qualitative analysis.</p> <p>CO 5:-Student is imparted with basic knowledge of importance of biomolecules like vitamins, carbohydrates, proteins and lipids in human health through some examples.</p> <p>CO 6:-Student will have the knowledge of different types of chemotherapeutic agents or drugs and their uses in treatment of different diseases</p>			

COURSE	DETAILS		
Code	BSCCHCE-233		
Title	Corrosion and Green Techniques		
Programme	Bachelor of Science (B.Sc.)		
Year / Semester	Second/Third		
Type	Elective Paper		
Total Credits	01		
Total Contact Hours	24		
Contact Hours per Week	02		
Examination Duration	02 Hours		
Max. Marks	CIA : 10 50	End Semester Exam : 40	Total :
Total Modules	02		
Pedagogy	Lectures with interactive sessions		
Evaluation Method	Two Internal Assessment Exam, One End Semester Exam .		
EXPECTED LEARNING OUTCOMES			

CO 1:-Student will have the basic knowledge of chemical principle behind corrosion, environmental factors affecting corrosion and methods of preventing.

CO 2:-Student will have an awareness of pure water through the study of sources of water contamination, analysis of water purity and purification methods of contaminated water.

CO 3:-Students will have the basic knowledge of principles of environmental friendly green chemistry, some examples of green synthesis and limitations of green techniques.

COURSE	DETAILS
Code	BSC CHOE-283
Title	Chemistry in everyday life
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Third
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive sessions
Evaluation Method	Two Internal Assessment Exam, One End Semester Exam .

EXPECTED LEARNING OUTCOMES

CO 1:-Students will have the knowledge of importance of food, preparation of food, food processing and food safety.

CO 2:-Student will have an awareness of food adulteration, its detection and prevention and food adulteration act.

CO 3:-Student will have the knowledge of important domestic chemicals used in day today life like cleansing agents, safety matches, mosquito coils, wax candles, germicides etc. with examples and chemical composition.

CO 4:-Student is imparted with the knowledge of different cosmetics like talcum powder, nail polish, lipsticks, perfumes and deodorants with examples and chemical composition.

CO 5:-Students study the possibility of using alternative sources of energy through the study of solar energy, wind energy and hydropower

COURSE OUTCOME OF MATHEMATICS

COURSE	DETAILS
Code	BSCMTC131
Title	Calculus and Analytical Geometry
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course

Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Brainstorming, Seminars and Presentations
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

- CO 1:-**Solve real life problems using optimization problems.
- CO 2:-**Learn the technique of sketching the graph of the function using its properties.
- CO 3:-**Differentiate integrable and non-integrable functions.
- CO 4:-**Solve problems related to Mean Value Theorem and Fundamental theorem of calculus.
- CO 5:-**Find domain, range, level curve sand level surfaces for a given function.
- CO 6:-**Transform the general quadratic equation in to another without xy term by rotation of axes.
- CO 7:-**Sketch the graph, level curves, level surfaces, find the area bounded by two curves and rotation of conic using maxima software.

COURSE	DETAILS
Code	BSCMTP132
Title	Practical's I
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	14 experiments
Pedagogy	Lectures with interactive sessions, Program writing
Evaluation Method	Record book, One Internal Assessment Practical Exam, One End Semester Practical Exam

EXPECTED LEARNING OUTCOME

- Upon the completion of this course, the students will be able to :
- CO 1:-**Students will have the knowledge and skills to implement the programs listed below in the Scilab/Maxima programming language. They can be expected to apply these programming skills of computation in science and Engineering.

COURSE	DETAILS
Code	BSCMTC181
Title	Number Theory and Calculus
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Core Course

Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Brainstorming, Seminars and Presentations
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>CO 1:-Classify the divergent and convergent sequence and find its limit, if exists.</p> <p>CO 2:-Apply all varieties of tests to determine the nature of a given in finite series.</p> <p>CO 3:-Classify the given differential equation and apply the appropriate for solving it.</p> <p>CO 4:-Apply the solving techniques of differential equations in mathematics, physics ,chemistry and biology.</p> <p>CO 5:-Write systematic programs to solve O.D.E. and to check the convergence of series and sequence using maxima.</p>	

COURSE	DETAILS
Code	BSCMTP232
Title	Practical's III
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/third
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	14 experiments
Pedagogy	Lectures with interactive sessions, Program writing
Evaluation Method	Record book, One Internal Assessment Practical Exam, One End Semester Practical Exam
EXPECTED LEARNING OUTCOME	
<p>Upon the completion of this course, the students will be able to :</p> <p>CO 1:-Students will have the knowledge and skills to implement the programs listed below in the Scilab/Maxima programming language. They can be expected to apply these programming skills of computation in science and Engineering.</p>	

COURSE	DETAILS
Code	BSCMTC281
Title	Algebra and Complex Analysis
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Fourth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Brainstorming, Seminars and Presentations

Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>CO 1:-Define, identify and give example for group, Subgroup, Coset, Normal subgroup, Quotient group, Normalizer and Centralizer.</p> <p>CO 2:-Use and apply homomorphism between groups.</p> <p>CO 3:-Use theorem so the course to analyse the structure of groups.</p> <p>CO 4:-Evaluate a contour integral using parameterization</p> <p>CO 5:-Use Wx-maxim as of are to identify cyclic groups and to find number of subgroups</p> <p>CO 6:-Perform basic mathematical operations (Arithmetic, power, roots) with complex numbers in Cartesian and polar forms.</p> <p>CO 7:-Evaluate limits and apply it to determine continuity and to determine continuity and to deduce necessary and sufficient conditions for a function of complex variable to be differentiable.</p> <p>CO8:-Work with the elementary (polynomials, reciprocals, exponential, trigonometric ,hyperbolic etc) of single complex variable and describe mappings in the complex plane.</p> <p>CO 9:-Find real and imaginary part of analytic function and to find roots and complex numbers through programs.</p>	

COURSE	DETAILS
Code	BSCMTP282
Title	Practical's IV
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/fourth
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	14 experiments
Pedagogy	Lectures with interactive sessions, Program writing
Evaluation Method	Record book, One Internal Assessment Practical Exam, One End Semester Practical Exam

EXPECTED LEARNING OUTCOME	
<p>Upon the completion of this course, the students will be able to :</p> <p>CO 1:-Students will have the knowledge and skills to implement the programs listed below in the Scilab/Maxima programming language. They can be expected to apply these programming skills of computation in science and Engineering.</p>	

COURSE	DETAILS
Code	BSCMTC331
Title	Algebra and Laplace Transforms
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth
Type	Core Course
Total Credits	02
Total Contact Hours	48

Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Brainstorming, Seminars and Presentations
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

- CO 1:-**Understand the actual theories behind the solving technique so problems in algebra.
- CO 2:-**Classify the linearly independent and dependent vectors.
- CO 3:-**Extract basis from generating sets of vectors space and find bases and dimension so fits subspaces.
- CO 4:-**Determine Laplace transforms and inverse Laplace transform so various functions.
- CO 4:-**Solve initial value problem sand problem on vibration of spring using the concepts of Laplace transforms

COURSE	DETAILS
Code	BSCMTC332/BSCMTC333
Title	Graph Theory/Discrete Mathematics
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth
Type	Core Course
Total Credits	02
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Brainstorming, Seminars and Presentations
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

- CO 1:-**Find chromatic number and chromatic polynomial.
- CO 2:-**Identify the properties of tree
- CO 3:-**Differentiate planar, non-planar, Hamiltonian and Euler graphs.
- CO 5:-**Identify matrices related to graphs.
- CO 6:-**Construct examples and to distinguish examples from non-examples for basic concepts in graph theory.
- Discrete Mathematics**
- CO 1:-**Perform basic operations on graphs ,identify paths ,circuits ,graph colouring ,construct both Eulerian and Hamiltonian Paths and circuits
- CO 2:-**Construct examples with related figures on types of trees, spanning trees, the learn shortest path algorithms and to construct prefix code.
- CO 3:-**Find homogeneous and particular solutions of line accordance lotions with constant coefficients.

COURSE	DETAILS
Code	BSCMTP334
Title	Practical's V
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third / fifth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	04 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	14 experiments
Pedagogy	Lectures with interactive sessions, Program writing
Evaluation Method	Record book, One Internal Assessment Practical Exam, One End Semester Practical Exam

EXPECTED LEARNING OUTCOME

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

CO 1:-Students will have the knowledge and skills to implement the programs listed below in the Scilab/Maxima programming language. They can be expected to apply these programming skills of computation in science and Engineering..

COURSE	DETAILS
Code	BSCMTC381
Title	Numerical Analysis
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth
Type	Core Course
Total Credits	02
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Brainstorming, Seminars and Presentations
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

CO 1:-To demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions to otherwise intractable mathematical problems.

CO 2:-To derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and non-linear equations and the solution of differential equations.

CO 3:-To analyse and evaluate the accuracy of common numerical methods.

CO 4:-To implement numerical methods in Wx Maxima software.

CO 5:-To write efficient, well-documented Wx Maxima code and present numerical results in an informative way

COURSE	DETAILS
Code	BSCMTC382/BSCMTC383/BSCMTC384

Title	Linear Algebra/Linear Programming/Partial Differential Equations		
Programme	Bachelor of Science (B.Sc.)		
Year / Semester	Third/Sixth		
Type	Core Course		
Total Credits	02		
Total Contact Hours	36		
Contact Hours per Week	03		
Examination Duration	03 Hours		
Max. Marks	CIA : 20	End Semester Exam : 80	Total : 100
Total Modules	04		
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Brainstorming, Seminars and Presentations		
Evaluation Method	Assignments, Two Internal Assessment Exam, One End Semester Exam		

EXPECTED LEARNING OUTCOME

Linear Algebra

CO 1:-Kernel of transformation, dimension of vector space.

CO 2:-Different types of matrices like idempotent, nilpotent, triangular, singular and non-singular matrices.

CO 3:-Write the matrix as product of elementary matrices.

CO 4:-Rank, inverse, minimal polynomial of matrix and linear transformation.

Linear Programming

CO 1:-Write algorithms for various types of Linear programming problems

CO 2:-Uses to solve Linear programming problems.

Partial Differential Equations (BSCMTC384)

CO 1:-Determine the solution of total differential equation.

CO 2:-Classify the given PDE into different types and apply the appropriate method for solving it.

CO 3:-Develop computational skills in students.

COURSE	DETAILS
Code	BSCMTP385
Title	Practical's VI
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third / sixth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	04 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	14 experiments
Pedagogy	Lectures with interactive sessions, Program writing
Evaluation Method	Record book, One Internal Assessment Practical Exam, One End Semester Practical Exam

EXPECTED LEARNING OUTCOME

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

CO 1:-Students will have the knowledge and skills to implement the programs listed below in the Scilab/Maxima programming language. They can be expected to apply these programming skills of computation in science and Engineering.

COURSE	DETAILS
Code	BSCMTCE183
Title	Vector Calculus
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Core Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive sessions
Evaluation Method	Two Internal Assessment Exam, One End Semester Exam.
EXPECTED LEARNING OUTCOMES	
<p>CO 1:-Manipulate vectors to perform geometrical calculations in three dimensions.</p> <p>CO 2:-Calculate and interpret derivatives in up to three dimensions.</p> <p>CO 3:-Use Green's theorem and divergence theorem to compute integrals.</p> <p>CO 4:-Understand physical meaning of vector field, force ,velocity ,acceleration ,arc length ,Curl ,divergence ,Circulation, flux etc</p>	

COURSE OUTCOME OF COMPUTER SCIENCE

COURSE	DETAILS
Code	BSCCSC131
Title	Digital Computer Fundamentals
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions and practical's, Group Discussions and Presentations
Evaluation Method	Viva-Voce, Internal Assessment Exam both theory and practical's, University Semester Exam
EXPECTED LEARNING OUTCOME	

CO 1:-Know the concept of computer and peripherals.

CO 2:-Understand the usage of number system and Boolean algebra in computers

COURSE	DETAILS
Code	BSCCSP 132
Title	Digital and MS OFFICE Lab
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Hands session for MS OFFICE, Implementation of hardware experiments
Evaluation Method	Viva-Voce, Internal Assessment Exam both theory and practical's, University Semester Exam
EXPECTED LEARNING OUTCOME	
CO 1:- Understand the creation of documents using MS Word, Creation of worksheet using MS Excel and prepaation slides using MS PowerPoint.	
CO 2:- Understand the implementation of hardware experiments using the related ICs	

COURSE	DETAILS
Code	BSCCSC181
Title	Problem Solving using C Language
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions and practical's, Group Discussions and Presentations
Evaluation Method	Viva-Voce, Internal Assessment Exam both theory and practical's, University Semester Exam
EXPECTED LEARNING OUTCOME	
CO 1:- Write the algorithm and flowcharts to solve a problem.	
CO 2:- Write the C programs for a particular problem	

COURSE	DETAILS
Code	BSCCSP182
Title	C Programming Lab

Programme	Bachelor of Science (B.Sc.)		
Year / Semester	First/Second		
Type	Core Course		
Total Credits	01		
Total Contact Hours	36		
Contact Hours per Week	03		
Examination Duration	03 Hours		
Max. Marks	CIA : 10	End Semester Exam : 40	Total : 50
Total Modules	02		
Pedagogy	Hands on session to solve the problems using C language.		
Evaluation Method	Viva-Voce, Internal Assessment Exam both theory and practical's, University Semester Exam		
EXPECTED LEARNING OUTCOME			
CO 1:- Know the concept of programming languages.			
CO 2:- Understand the usage C language to solve the problems.			

COURSE	DETAILS		
Code	BSCCSC231		
Title	Data Structures		
Programme	Bachelor of Science (B.Sc.)		
Year / Semester	Second/Third		
Type	Core Course		
Total Credits	02		
Total Contact Hours	48		
Contact Hours per Week	04		
Examination Duration	03 Hours		
Max. Marks	CIA : 20	End Semester Exam : 80	Total : 100
Total Modules	04		
Pedagogy	Lectures with interactive sessions and practical's, Group Discussions and Presentations		
Evaluation Method	Viva-Voce, Internal Assessment Exam both theory and practical's, University Semester Exam		
EXPECTED LEARNING OUTCOME			
CO 1:- To solve the problems using data structures such as stacks, queues, trees, linked lists and graphs and writing of programs using C.			

COURSE	DETAILS		
Code	BSCCSP232		
Title	Data Structures Lab		
Programme	Bachelor of Science (B.Sc.)		
Year / Semester	Second/Third		
Type	Core Course		
Total Credits	01		
Total Contact Hours	36		
Contact Hours per Week	03		
Examination Duration	03 Hours		
Max. Marks	CIA : 10	End Semester Exam : 40	Total : 50
Total Modules	02		

Pedagogy	Hands on session to solve the problems of data structures using C language.
Evaluation Method	Viva-Voce, Internal Assessment Exam both theory and practical's, University Semester Exam
EXPECTED LEARNING OUTCOME	
CO 1:- To write the C programs to solve the problems of data structures such as stacks, queues, trees, linked lists.	

COURSE	DETAILS
Code	BSCCSC281
Title	Operating Systems and LINUX
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Fourth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions and practical's, Group Discussions and Presentations
Evaluation Method	Viva-Voce, Internal Assessment Exam both theory and practical's, University Semester Exam
EXPECTED LEARNING OUTCOME	
CO 1: understand the concepts of operating system, resources of operating system	
CO 2:- Understand the management of memory, processor and devices and files.	
CO 3:- Understand Linux environment, commands and shell programming-.	

COURSE	DETAILS
Code	BSCCSP282
Title	LINUX Lab
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Fourth
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Hands on session to understand the LINUX environment and solve the problems using Shell programs.
Evaluation Method	Viva-Voce, Internal Assessment Exam both theory and practical's, University Semester Exam
EXPECTED LEARNING OUTCOME	
CO 1: Practical usage of Linux environment, commands and writing the shell programs to solve the problems.	

COURSE	DETAILS
Code	BSCCSC331
Title	DATABASE CONCEPTS AND ORACLE
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth
Type	Core Course
Total Credits	02
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions and practical's, Group Discussions and Presentations
Evaluation Method	Viva-Voce, Internal Assessment Exam both theory and practical's, University Semester Exam
EXPECTED LEARNING OUTCOME	
CO 1:- Understand the concepts of database, its models, relational model, relational algebra and design theory of relational database.	
CO 2:- Create tables, joining the tables, writing SQL queries and writing PL/SQL programs.	

COURSE	DETAILS
Code	BSCCSC332
Title	MICROPROCESSOR ARCHITECTURE AND 8086 PROGRAMMING
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth
Type	Elective Paper
Total Credits	02
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	02
Pedagogy	Lectures with interactive sessions
Evaluation Method	Viva-Voce, Internal Assessment Exam both theory and practical's, University Semester Exam
EXPECTED LEARNING OUTCOMES	
CO 1:- Understand the architecture of 8086 processor, addressing modes.	
CO 2:- Understand the directives and instructions of 8086, interrupts and its services.	
CO 3:- Write the 8086 programs.	

COURSE	DETAILS
Code	BSCCSP333
Title	8086 and Oracle Programming Lab
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth
Type	Core Paper
Total Credits	02
Total Contact Hours	36

Contact Hours per Week	03
Examination Duration	04 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Hands on session to implement the 8086 programs and Oracle programs
Evaluation Method	Viva-Voce, Internal Assessment Exam both theory and practical's, University Semester Exam
EXPECTED LEARNING OUTCOME	
CO 1:- Understand the concepts of 8086 microprocessor and assembly level programming using 8086.	
CO 2:- Create tables, joining the tables, writing SQL queries and writing PL/SQL programs.	

COURSE	DETAILS
Code	BSCCSC381
Title	Object Oriented Programming with JAVA
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth
Type	Core Paper
Total Credits	02
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions and practical's, Group Discussions and Presentations
Evaluation Method	Viva-Voce, Internal Assessment Exam both theory and practical's, University Semester Exam
EXPECTED LEARNING OUTCOME	
CO 1:- Understand the concepts of OOP and Java fundamentals.	
CO 2:- Write the Java programs using the concepts of inheritance, interfaces, packages, multithreading and applets	

COURSE	DETAILS
Code	BSCCSC382
Title	VISUAL BASIC.NET PROGRAMMING
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth
Type	Elective Paper
Total Credits	02
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions

Evaluation Method	Two Internal Assessment Exam, One End Semester Exam.
EXPECTED LEARNING OUTCOMES	
CO 1:- Develop skill in VB.NET framework, tools, programming and connectivity with databases	

COURSE	DETAILS
Code	BSCCSP383
Title	Java Programming and Visual Basic Lab
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	04 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Hands on session to implement the Java programs and VB.Net programs
Evaluation Method	Viva-Voce, Internal Assessment Exam both theory and practical's, University Semester Exam
EXPECTED LEARNING OUTCOMES	
CO 1:- Understand the concepts of Object Oriented Programming with Java and Implementation of Java programs to solve the programs.	
CO 2:- Understand the concepts of .Net frame work and Implementation of VB.Net programs to solve the programs	

COURSE	DETAILS
Code	BSCCSCE233
Title	System Administration and Maintenance
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Third
Type	Core Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive sessions
Evaluation Method	Two Internal Assessment Exam, One End Semester Exam.
EXPECTED LEARNING OUTCOMES	
CO 1:- Install the windows operating systems, to setup network and to use the tools of control pan	
CO 2:- be able to install and manage the Linux operating systems	

COURSE	DETAILS
Code	BSCCSOE283
Title	Fundamentals of Information Technology

Programme	Bachelor of Science (B.Sc.)		
Year / Semester	Second/Fourth		
Type	Open Elective Paper		
Total Credits	01		
Total Contact Hours	24		
Contact Hours per Week	02		
Examination Duration	02 Hours		
Max. Marks	CIA : 10	End Semester Exam : 40	Total : 50
Total Modules	02		
Pedagogy	Lectures with interactive sessions		
Evaluation Method	Two Internal Assessment Exam, One End Semester Exam.		
EXPECTED LEARNING OUTCOMES			
CO 1:- Know the functional units of computer, Input/output devices, and storage devices.			
CO 2:- know the computer software, network, Internet usage and cyber security issues.			

COURSE OUTCOME OF BOTANY

COURSE	DETAILS
Code	BSCBOC131
Title	Microbes and Algae
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning, study field visit, experimental learning, and project-based learning.
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments, field visit report
EXPECTED LEARNING OUTCOME	
CO 1 :- Understanding the scope and contributions of Indian Scientists to Botany	
CO 2:- Understanding the basis of classification of organisms into kingdoms	
CO 3 :- Understanding of diversity of microbes and algae	
CO 4 :- Understanding the economic importance of microbes and algae	

COURSE	DETAILS
Code	BSCBOP132
Title	Practical's I
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50

Total Modules	10 experiments
Pedagogy	Use of plant specimen, charts, Use of power point presentation, use of over headed projector, Study field visit, experimental learning, and experiment demonstration
Evaluation Method	Records, one Preparatory practical Exam, One End Semester Exam, Algal specimen and field note submission

EXPECTED LEARNING OUTCOME

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

CO 1:-Ability to properly handle and use dissection and compound microscopes and related laboratory skills like slide preparation, staining, laboratory safety, etc.

CO 2:-Ability to identify common microbes and algae based on their morphological features using microscopes. Acquiring the skills in doing the experiments in Mechanics and Thermal Physics.

COURSE	DETAILS
Code	BSCBOC181
Title	Fungi, Bryophytes, Histology and Anatomy
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning, study field visit, experimental learning, and project-based learning.
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments, field visit report
EXPECTED LEARNING OUTCOME	
CO 1 :- Understanding of Diversity of fungi, and bryophytes	
CO 2:- Understanding the economic importance of fungi	
CO 3 :- Understanding the different plant tissues and internal structure of plants	

COURSE	DETAILS
Code	BSCBOP182
Title	Practical's II
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/second
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	10 experiments

Pedagogy	Use of plant specimen, charts, Use of power point presentation, use of over headed projector, Study field visit, experimental learning, and experiment demonstration
Evaluation Method	Records, one Preparatory practical Exam, One End Semester Exam, Algal specimen and field note submission
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to : CO 1:- Ability to identify common fungi and bryophytes based on their morphological and anatomical features using microscopes. CO 2:- Ability to cut histological sections of plant tissues, prepare microscopic slides and identify the tissues	

COURSE	DETAILS
Code	BSCBOC231
Title	Pteridophytes, Gymnosperms and Angiosperm Embryology
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Third
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning, study field visit, experimental learning, and project-based learning.
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments, field visit report
EXPECTED LEARNING OUTCOME	
CO 1 :- Understanding of Diversity of Pteridophytes and Gymnosperms CO 2:- Understanding the importance of pollination and pollinators in nature CO 3 :- Ability to identify the pollination mechanisms based on floral morphology	

COURSE	DETAILS
Title	Practical's III
Code	BSCBOP232
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/third
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	10 experiments

Pedagogy	Use of plant specimen, charts, Use of power point presentation, use of over headed projector, Study field visit, experimental learning, and experiment demonstration
Evaluation Method	Records, one Preparatory practical Exam, One End Semester Exam, Algal specimen and field note submission
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to : CO 1:- Ability to identify common Pteridophytes and Gymnosperms based on their morphological and anatomical features. CO 2:- Ability to identify plant embryological slides using microscopic features.	

COURSE	DETAILS
Code	BSCBOC281
Title	Taxonomy and Economic Botany
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Fourth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning, study field visit, experimental learning, and project-based learning.
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments, field visit report
EXPECTED LEARNING OUTCOME	
CO 1 :- Understanding of the importance and history of plant taxonomy and nomenclature CO 2:- Understanding the outlines of Bentham and Hookers system of Angiosperm classification CO 3:- Understanding of vegetative and floral characters of selected plant families CO 4:- Understanding of economic importance of plants	

COURSE	DETAILS
Code	BSCBOP282
Title	Practical's IV
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/fourth
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	10 experiments

Pedagogy	Use of plant specimen, charts, Use of power point presentation, use of over headed projector, Study field visit, experimental learning, and experiment demonstration
Evaluation Method	Records, one Preparatory practical Exam, One End Semester Exam, Algal specimen and field note submission
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to : CO 1:- Ability to dissect an angiosperm flower and write floral formula, draw floral diagram. CO 2:- Ability to identify a plant to its family level, based on its vegetative and floral characters, using Flora	

COURSE	DETAILS
Code	BSCBOC331
Title	Ecology and Environmental Biology
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth
Type	Core Course
Total Credits	02
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning, study field visit, experimental learning, and project-based learning.
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments, field visit report
EXPECTED LEARNING OUTCOME	
CO 1:- Understanding the interrelationships and interactions between living and non-living factors CO 2:- Understanding the basic concepts of an ecosystem CO 3:- Understanding the importance of natural resources and their conservation CO 4:- Understanding the various environmental concerns and methods to control them.	

COURSE	DETAILS
Code	BSCBOC332
Title	Plant Physiology
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth
Type	Core Course
Total Credits	02
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04

Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning, study field visit, experimental learning, and project-based learning.
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments, field visit report
EXPECTED LEARNING OUTCOME	
CO 1:- Understanding of importance of water to plants CO 2:- Understanding of plant mineral nutrition and enzymes CO 3:- Understanding the mechanism of photosynthesis and growth in plants CO 4:- Understanding of vegetative and reproductive growth	

COURSE	DETAILS
Code	BSCBOP333
Title	Practical's V
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third / fifth
Type	Core Course
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	04 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	10 experiments
Pedagogy	Use of plant specimen, charts, Use of power point presentation, use of over headed projector, Study field visit, experimental learning, and experiment demonstration
Evaluation Method	Records, one Preparatory practical Exam, One End Semester Exam, Algal specimen and field note submission
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to : CO 1:- Ability to analyse soil/water samples for their physico-chemical properties like pH and salinity CO 2:- Knowledge of working principles and ability to use field instruments used during ecological studies CO 3:- Ability to identify the ecological habitat of plants based on morpho-anatomical features, in the laboratory CO 4:- Ability to explain important plant physiological phenomena with the help of suitable laboratory experiments. CO 5:- Ability to design and conduct basic botanical field-based projects/research and prepare reports.	

COURSE	DETAILS
Code	BSCBOC381
Title	Cytology, Molecular Biology and Genetics
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth
Type	Core Course
Total Credits	02
Total Contact Hours	36
Contact Hours per Week	03

Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning, study field visit, experimental learning, and project-based learning.
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments, field visit report
EXPECTED LEARNING OUTCOME	
CO 1:- Understanding the types and structure of cells CO 2:- Understanding the basis of heredity CO 3:- Understanding the historical aspects of genetics and contribution of Mendel CO 4:- Understanding the structure, function and variations in chromosomes	

COURSE	DETAILS
Code	BSCBOC382
Title	Plant Propagation and Biotechnology
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth
Type	Core Course
Total Credits	02
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning, study field visit, experimental learning, and project-based learning.
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments, field visit report
EXPECTED LEARNING OUTCOME	
CO 1:- Understanding of traditional plant breeding and propagation techniques CO 2:- Understanding of modern botanical techniques like plant tissue culture and plant biotechnology CO 3:- Understanding of environmental biotechnology	

COURSE	DETAILS
Code	BSCBOP383
Title	Practical's VI
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third / sixth
Type	Core Course
Total Credits	01
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	04 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100

Total Modules	10 experiments
Pedagogy	Use of plant specimen, charts, Use of power point presentation, use of over headed projector, Study field visit, experimental learning, and experiment demonstration
Evaluation Method	Records, one Preparatory practical Exam, One End Semester Exam, Algal specimen and field note submission
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to :	
CO 1:- Ability to demonstrate the cytological processes like mitosis and meiosis using appropriate laboratory techniques	
CO 2:- Ability to study cells and measure their size using microscopic tools Carey –foster bridge, Basics Logic gates Using NAND gates.	
CO 3:- Understanding of modern botanical techniques like plant tissue culture and plant biotechnology	
CO 4:- Ability to propagate plants using different plant propagation techniques	
CO 5:- Ability to analyse and solve genetic problems using Punnet square and other methods..	

COURSE	DETAILS
Code	BSCBOE 133
Title	Mushroom Cultivation Technology
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA :10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments.
EXPECTED LEARNING OUTCOMES	
CO 1:- Understanding of structure and diversity of mushrooms	
CO 2:- Understanding of and ability to identify edible and cultivated mushrooms	
CO 3:- Knowledge of mushroom cultivation methods	

COURSE	DETAILS
Code	BSCBOE 183
Title	Herbal Technology
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02

Examination Duration	02 Hours
Max. Marks	CIA :10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments.
EXPECTED LEARNING OUTCOMES	
CO 1:- Awareness about traditional plant based health systems and medicinal importance of plants	
CO 2:- Knowledge and ability to identify important medicinal plants and their parts by different techniques	
CO 3:- Understanding of herbal drug adulteration and evaluation	

COURSE	DETAILS
Code	BSCBOE233
Title	Vegetative and Reproductive Morphology of Angiosperms
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Third
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA :10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments.
EXPECTED LEARNING OUTCOMES	
CO 1:- Plant morphological structures and modifications	
CO 2:- Understanding of reproductive morphology of plants	

COURSE	DETAILS
Code	BSCBOE 283
Title	Plant Diversity for Human Welfare
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Fourth
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA :10 End Semester Exam : 40 Total : 50
Total Modules	02

Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments.
EXPECTED LEARNING OUTCOMES	
<p>CO 1:-General awareness on the concept of biodiversity and its types.</p> <p>CO 2:-Understanding of importance of plants as source of food, medicine and other products essential for human survival.</p> <p>CO 3:-Understanding the cultural and ecological importance of plants and the need for their conservation</p>	

COURSE OUTCOME OF ZOOLOGY

COURSE	DETAILS
Code	BSCZOC-131
Title	ANIMAL DIVERSITY-I (NON-CHORDATA)
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions, use of OHP, use of models and museum specimens, CD's, field-oriented project
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>CO 1:-Understand the basic principles of animal taxonomy</p> <p>CO 2:-Appreciate the vast biodiversity of local and global level and get an insight about the need for conservation.</p> <p>CO 3:-Identify the invertebrates and classify them up to the class level with the basis of systematics.</p> <p>CO 4:-Create the awareness of the economic importance and significance of invertebrates.</p>	

COURSE	DETAILS
Code	BSCZOP-132
Title	Practical's I
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	3

Pedagogy	Brainstorming, Group Discussions, Use of PPT Presentations/ Charts/ Models, Experimental methods.
Evaluation Method	Continuous evaluation, Practical work, Record book, Project work, One Preparatory Practical Internal Exam, One End Semester Exam..
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to : CO 1:- Identify different organ systems of invertebrates through dissection of their body. CO 2:- Identify different invertebrates and assign them to their respective taxonomical group based on the characters studied.	

COURSE	DETAILS
Code	BSCZOC-181
Title	ANIMAL DIVERSITY-II (CHORDATA)
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions, use of OHP, use of models and museum specimens, CD's ,field-oriented project
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
CO 1:- Describe the diversity in form, structure and habits of proto chordates and vertebrates CO 2:- Explain general characteristics and classification of different classes of vertebrates CO 3:- Identify and distinguish between poisonous and non-poisonous snakes by observing characteristic features CO 4:- Understand the basic anatomy of vertebrate body	

COURSE	DETAILS
Code	BSCZOP-182
Title	Practical's II
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/second
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	3

Pedagogy	Brainstorming, Group Discussions, Use of PPT Presentations/ Charts/ Models, Experimental methods.
Evaluation Method	Continuous evaluation, Practical work, Record book, Project work, One Preparatory Practical Internal Exam, One End Semester Exam..
EXPECTED LEARNING OUTCOME	
<p>Upon the completion of this course, the students will be able to :</p> <p>CO 1:-Identify different organ systems of vertebrates in dissected animal..</p> <p>CO 2:-Identify various exoskeletal and endoskeletal structures of vertebrates.</p> <p>CO 3:-Identify different chordates and assign them to their respective taxonomical group based on the characters studied.</p>	

COURSE	DETAILS
Code	BSCZOC-231
Title	PHYSIOLOGY, BIOCHEMISTRY AND IMMUNOLOGY
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Third
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions, use of OHP, use of models and museum specimens, CD's, field-oriented project
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>CO 1:-Understand the functions of various systems, and apply the knowledge to lead a healthy life</p> <p>CO 2:-Understand the importance of Bio molecules, and familiar with various biochemical pathways.</p> <p>CO 3:-Explain the role of immune system in maintaining health, immunological response and the way it is triggered and regulated</p>	

COURSE	DETAILS
Code	BSCZOP-232
Title	Practical's III
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/third
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	14 experiments
Pedagogy	Brainstorming, Group Discussions, Use of PPT Presentations/ Charts/ Models, Experimental methods.

Evaluation Method	Continuous evaluation, Practical work, Record book, Project work, One Preparatory Practical Internal Exam, One End Semester Exam..
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to :	
CO 1:- Analyse various food samples to determine the nature of nutrients present.	
CO 2:- Analyse human urine samples through laboratory techniques to find out health and disease conditions	
CO 3:- Analyse human blood samples through laboratory techniques to find out health and disease conditions.	

COURSE	DETAILS
Code	BSCZOC-281
Title	HISTOLOGY, ANIMAL BEHAVIOUR, APPLIED ZOOLOGY
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Fourth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions, use of OHP, use of models and museum specimens, CD's, field-oriented project
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME	
CO 1:- Explain the gross anatomical structure of different organ systems and histological details of different organs in mammals in general and in humans in specific.	
CO 2:- Apply skill-based knowledge of histological techniques.	
CO 3:- Gain fundamental knowledge in the concepts of animal behaviour which enable the student to conceptualize learning behaviour, communication, migration and biological rhythms in animals.	
CO 4 :- Identify various methodologies and perspectives of applied branches of zoology for the possibilities of self-employment.	

COURSE	DETAILS
Code	BSCZOP-282
Title	Practical's IV
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/fourth
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	03

Pedagogy	Brainstorming, Group Discussions, Use of PPT Presentations/ Charts/ Models, Experimental methods.
Evaluation Method	Continuous evaluation, Practical work, Record book, Project work, One Preparatory Practical Internal Exam, One End Semester Exam..
EXPECTED LEARNING OUTCOME	
<p>Upon the completion of this course, the students will be able to :</p> <p>CO 1:-Carry out systematic field work to gain knowledge about animal behaviour and various applied aspects of animal life</p> <p>CO 2:- Identify various useful animal products</p> <p>CO 3:- Identify various birds' nests, castes of honey bees and parental care behaviour.</p> <p>CO 4:-Prepare slides and identify various mammalian tissues.</p>	

COURSE	DETAILS
Code	BSCZOC-331
Title	CELL BIOLOGY AND BIOTECHNOLOGY
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth
Type	Core Course
Total Credits	02
Total Contact Hours	24
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions, use of OHP, use of models and museum specimens, CD's, field-oriented project
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>CO 1 :-Understand the structure of cells and cell organelles in relation to the functional aspects and understanding of the working principles and applications of microscopes.</p> <p>CO 2 :-Understand the structure and functions of chromosomes; the process of cell division and its significance.</p> <p>CO 3 :-Gain fundamental knowledge of protein synthesis.</p> <p>CO 4 :-Understand the basic aspects of cancer biology.</p> <p>CO 5:-Understand the applications of Biotechnology and be familiar with the tools and techniques of Biotechnology</p>	

COURSE	DETAILS
Code	BSCZOC-332
Title	GENETICS, BIostatISTICS, EVOLUTION AND PALAEONTOLOGY
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Fifth
Type	Core Course
Total Credits	02
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100

Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions, use of OHP, use of models and museum specimens, CD's, field-oriented project
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

CO 1 :- Appreciate the contribution of great scientists; distinguish Classical Genetics and Molecular Genetics.

CO 2 :- Describe the concepts of heredity, chromosomal aberrations, gene regulation and genetic diseases, its inheritance and importance of genetic counselling.

CO 3 :- Critically analyse, think logically and reason, through solving genetic problems.

CO 4 :- Able to manage the statistical data in biological studies.

CO 5 :- Understand the concept of evolution through Lamarckism, Darwinism and Neo-Darwinism.

CO 6 :- Understand the Geological time scale, fossils and their significance

COURSE	DETAILS
Code	BSCZOP-333
Title	Practical's V
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third / fifth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	04 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	06
Pedagogy	Brainstorming, Group Discussions, Use of PPT Presentations/ Charts/ Models, Experimental methods.
Evaluation Method	Continuous evaluation, Practical work, Record book, Project work, One Preparatory Practical Internal Exam, One End Semester Exam..

EXPECTED LEARNING OUTCOME

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

CO 1:-Use different cytological techniques in the study of cell biology.

COURSE	DETAILS
Code	BSCZOC-381
Title	REPRODUCTIVE BIOLOGY AND DEVELOPMENTAL BIOLOGY
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth
Type	Core Course
Total Credits	02
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04

Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions, use of OHP, use of models and museum specimens, CD's, field-oriented project
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>CO 1 :-Understand the structure and functions of the reproductive systems</p> <p>CO 2 :-Familiar with various stages involved in embryonic development of different organisms including man</p> <p>CO 3 :-Understand the principles of IVF-ET and the importance of it</p> <p>CO 4 :-Familiar with different techniques involved in embryonic studies.</p>	

COURSE	DETAILS
Code	BSCZOC-382
Title	ENVIRONMENTAL BIOLOGY, TOXICOLOGY AND WILDLIFE BIOLOGY
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth
Type	Core Course
Total Credits	02
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions, use of OHP, use of models and museum specimens, CD's, field-oriented project
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>CO 1 :-Understand the structural and functional components of ecosystems and the complex mechanisms involved in the functioning of ecosystems.</p> <p>CO 2 :-Understand the concept of environmental pollution, effects and means of prevention.</p> <p>CO 3 :-Understand the effects of pesticides and toxins on the humans, animals and environment.</p> <p>CO 4 :-Appreciate the fauna of the world, in general by studying the zoogeographic realms, of India in particular, by studying distribution of animals.</p> <p>CO 5 :-Understand various threats for wildlife, role of different agencies and wildlife acts and policies in preventing wildlife depletion.</p>	

COURSE	DETAILS
Code	BSCZOP-383
Title	Practical's VI
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third / sixth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	04 Hours

Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	14 experiments
Pedagogy	Brainstorming, Group Discussions, Use of PPT Presentations/ Charts/ Models, Experimental methods.
Evaluation Method	Continuous evaluation, Practical work, Record book, Project work, One Preparatory Practical Internal Exam, One End Semester Exam..
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to : CO 1:- Understand basic concepts of embryology through the study of various embryological stages of different animals.	

COURSE	DETAILS
Code	BSCZOCE-133
Title	PARASITOLOGY AND VECTOR BIOLOGY
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA :10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions, use of OHP, use of models and museum specimens, CD's, field-oriented project
Evaluation Method	Viva-Voce, Assignment, Seminars and Presentations, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOMES	
CO 1:- Discuss human health and diseases caused by various parasites by understanding their mode of transmission, treatment and preventive measures. CO 2:- Understand the types of vectors and tools for vector control	

COURSE	DETAILS
Code	BSCZOCE-183
Title	INSTRUMENTATION AND TECHNIQUES IN BIOLOGY
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA :10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions, use of OHP, use of models and museum specimens, CD's, field-oriented project
Evaluation Method	Viva-Voce, Assignment, Seminars and Presentations, Two Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOMES

CO 1:-Understand the basic working principles of different instruments involved in various biological experiments

CO 2:-Understand important biological methodologies used in understanding biological principles

COURSE	DETAILS
Code	BSCZOCE-233
Title	AQUARIUM FISH KEEPING
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Third
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA :10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions, use of OHP, use of models and museum specimens, CD's, field-oriented project
Evaluation Method	Viva-Voce, Assignment, Seminars and Presentations, Two Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOMES

CO 1:-Develop the skill in setting up an aquarium, maintenance of aquarium fishes and their management

COURSE	DETAILS
Code	BSCZOCE-283
Title	VERMITECHNOLOGY
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Fourth
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA :10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions, use of OHP, use of models and museum specimens, CD's, field-oriented project
Evaluation Method	Viva-Voce, Assignment, Seminars and Presentations, Two Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOMES

CO 1:-Start self employment in vermitechology so that he/she will specialize in handling earthworms for the betterment of humanity

CO 2 :-Adopt ways of treating solid waste to make it useful for agriculture

COURSE OUTCOME OF MICROBIOLOGY

COURSE	DETAILS
Code	BSCMBC131
Title	Basic Microbiology
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam
EXPECTED LEARNING OUTCOME	
<p>CO 1:-Demonstrate theory and practical skills in microscopy and their handling techniques and staining procedures.</p> <p>CO 2:- Understand the basic microbial structure and function and study the comparative characteristics of prokaryotes and eukaryotes and also understand the structural similarities and differences among various physiological groups of microbe.</p> <p>CO 3:-Understand various physical and chemical means of sterilization.</p> <p>CO 4:-Know General concepts if staining,sterilization,motility studies etc.</p>	

COURSE	DETAILS
Code	BSCMBP132
Title	Basic Microbiology Practicals
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	10
Pedagogy	Explanations, Lab Manual , Demonstrations through videos ,Demonstration at Lab .
Evaluation Method	Viva-Voce, one Internal Assessment Exam, One End Semester Exam.
EXPECTED LEARNING OUTCOME	
<p>Upon the completion of this course, the students will be able to :</p> <p>CO 1: -Basic lab Rules and aseptic techniques of Microbiology Laboratory</p> <p>CO 2:will be able to use Apparatus, equipment and microscopes of microbiology laboratory and know various sterilization techniques</p> <p>CO 3: will be able to prepare bacterial and fungal smear , mounting and identification by various staining techniques.</p>	

COURSE	DETAILS
Code	BSCMBC181
Title	Microbial taxonomy and culture techniques
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

CO 1:-Know various culture media and their applications and also understand various physical and chemical means of sterilization
CO 2:-Know General bacteriology, mycology and virology
CO 3:-Knowledge on aseptic techniques and ability to perform routine culture handling tasks safely and effectively
CO 4:-Comprehend the various methods for identification of unknown microorganisms Understand the microbial transport systems and the modes and mechanisms of energy conservation in microbial metabolism — Autotrophy and heterotrophy Know the various Physical and Chemical growth requirements of bacteria and get equipped with various methods of bacterial growth measurement

COURSE	DETAILS
Code	BSCMBP-182
Title	Microbial Taxonomy and Culture techniques Practicals
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	10
Pedagogy	Explanations, Lab Manual , Demonstrations through videos ,Demonstration at Lab .
Evaluation Method	Viva-Voce, one Internal Assessment Exam, One End Semester Exam.

EXPECTED LEARNING OUTCOME

Upon the completion of this course, the students will be able to :
CO 1: will be able to prepare Media of fungi and bacteria
CO 2: will learn of making pure cultures of bacteria and fungi and will be able to recognize the differences among bacteria based on colonies formed on media
CO 3:will be able to identify some specimens of fungi, protozoa and Blue green algae.

COURSE	DETAILS
Code	BSCMBC 231
Title	Basic Biochemistry, Microbial Physiology and Microbial genetics
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Third
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

CO 1:-Describe the concepts of pH and its biological significance, buffers, biological buffer systems and their importance.

CO 2:-Understanding the laws of thermodynamics, concepts of entropy, enthalpy and free energy changes and their application to biological systems and various biochemical studies and reactions.

CO 3:-Conceptual knowledge of aerobic and anaerobic respiration and various intermediary mechanisms involved, oxidative phosphorylation.

CO 4:-Overview of major biomolecules -carbohydrates, lipids, proteins, amino acids, nucleic acids, classification, above structure. Function of the mentioned biomolecules.

CO 5:-Specify the biological significance of biomolecules in metabolism. Conceptual knowledge of properties, structure, function of enzymes, enzyme kinetics and their regulation, enzyme engineering, Application of enzymes in large scale industrial processes.

COURSE	DETAILS
Code	BSCMBP-232
Title	Basic Biochemistry, Microbial Physiology and Microbial genetics Practicals
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/third
Type	Core Course
Total Credits	01
Total Contact Hours	36
Contact Hours per Week	03
Examination Duration	03 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	10
Pedagogy	Explanations, Lab Manual , Demonstrations through videos ,Demonstration at Lab .
Evaluation Method	Viva-Voce, one Internal Assessment Exam, One End Semester Exam.

EXPECTED LEARNING OUTCOME

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

CO 1:- Will be able to carry out biochemical tests for bacteria and give the presence or absence of enzymes.

CO 2:- will be able to estimate the amount of reducing sugar and protein in given samples

COURSE	DETAILS
Code	BSCMBC 281
Title	Molecular Biology, Recombinant DNA Technology, Biostatistics and Bioinformatics
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Fourth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	04
Pedagogy	Lectures with interactive sessions, Use of PPT Presentations, Group Discussions
Evaluation Method	Viva-Voce, Assignment, Two Internal Assessment Exam, One End Semester Exam

EXPECTED LEARNING OUTCOME

CO 1:- Know the terms and terminologies related to molecular biology and microbiology. Understand the properties, structure and function of genes in living organisms at the molecular level.

CO 2:- Explain the significance of central dogma of gene action.

CO 3:- Have a conceptual knowledge about DNA as a genetic material, enzymology, and replication strategies.

CO 4:- Understand the molecular mechanisms involved in transcription and translation. Describe the importance of genetic code and wobble hypothesis.

CO 5:- Discuss the molecular mechanisms underlying mutations, detection of mutations and DNA damage and repair mechanisms.

CO 6:- Explain the concept of recombination, and gene transfer mechanisms in prokaryotes and eukaryotes.

CO 7:- Elucidate the molecular techniques involved in gene manipulation and rDNA technology.

CO 8:- Explain the gene transfer methods for the production of transgenic animals.

CO 9:- Address bioethical and biosafety issues related to animal transgenics.

CO 10:- Handle and independently work on lab protocols involving molecular techniques like chromatography, electrophoresis, blotting techniques and nanotechnology.

CO 11:- Knowledge regarding the basics of Biostatistics and Bioinformatics-understanding the tools of bioinformatics tools and their applications.

COURSE	DETAILS
Code	BSCMBP-282
Title	Molecular Biology and Recombinant DNA technology Practicals
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/fourth
Type	Core Course
Total Credits	01

Total Modules	10
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments.
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to :	

COURSE	DETAILS
Code	BSCMBC 382
Title	Environmental Microbiology
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third/Sixth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	03 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	10
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments.
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to :	

COURSE	DETAILS
Code	BSCMBP 383
Title	Food ,Industrial Microbiology and Environmental Microbiology Practicals.
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Third / sixth
Type	Core Course
Total Credits	02
Total Contact Hours	48
Contact Hours per Week	04
Examination Duration	04 Hours
Max. Marks	CIA : 20 End Semester Exam : 80 Total : 100
Total Modules	14

Pedagogy	Explanations, Lab Manual , Demonstrations through videos ,Demonstration at Lab ,charts
Evaluation Method	Viva-Voce, one Internal Assessment Exam, One End Semester Exam.
EXPECTED LEARNING OUTCOME	
Upon the completion of this course, the students will be able to : CO 1:- will be able to analyse milk for lactic acid, lactose, check efficient pasteurization and check quality of milk. CO 2:- will be able to analyse water and will be able to differentiate <i>E.coli</i> from other coliforms CO 3: Mini project will enable them in designing an experiment and analyze the result, they learn time management. Are able to do literature review and write a paper. They will be able to research planning.	

COURSE	DETAILS
Code	BSCMBCE 133
Title	Bioinstrumentation
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/First
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA :10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments.
EXPECTED LEARNING OUTCOMES	
CO 1:- After successful completion of this course, students were able to understand. CO 2:- Basic skills in microscopy, their handling techniques and specimen preparation for EM. CO 3:- Construction ,principle and applications of various instruments	

COURSE	DETAILS
Code	BSCMBCE 183
Title	Microbial quality control in food and pharma industry
Programme	Bachelor of Science (B.Sc.)
Year / Semester	First/Second
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA :10 End Semester Exam : 40 Total : 50
Total Modules	02

Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments.

EXPECTED LEARNING OUTCOMES

CO 1:-Identify microorganisms of relevance to healthcare and the pharmaceutical industry and their sources.

CO 2:-Discuss Microbial spoilage and antimicrobial preservation of pharmaceutical formulations during production and in products.

CO 3:-Understand various disinfection and sterilization techniques, evaluate the sterility testing, microbial assays, pharmacopoeia] standards of sterilization process.

CO 4:-Evaluate microbial content testing and sterility testing.

CO 5:-Demonstrate a knowledge and understanding of microbiological assays of growth promoting and growth inhibiting substances.

CO 6:-Acquire a Knowledge of GMP practices, concepts & guidelines of biosafety Management and disposal of bio hazardous waste

COURSE	DETAILS
Code	BSCMBCE 233
Title	Clinical lab techniques
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Third
Type	Elective Paper
Total Credits	01
Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA :10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments.

EXPECTED LEARNING OUTCOMES

CO 1:-Management of Clinical microbiology laboratory.

CO 2:-Knowledge on collection, transport and processing of clinical specimens.

CO 3:-Understanding the techniques involved in examination of urine and blood samples.

CO 4:-Laboratory methods in basic virology and mycology.

COURSE	DETAILS
Code	BSCMBCE 283
Title	Elementary concepts of Microbiology
Programme	Bachelor of Science (B.Sc.)
Year / Semester	Second/Fourth
Type	Elective Paper
Total Credits	01

Total Contact Hours	24
Contact Hours per Week	02
Examination Duration	02 Hours
Max. Marks	CIA :10 End Semester Exam : 40 Total : 50
Total Modules	02
Pedagogy	Lectures with interactive session, Use of power point presentation, use of over headed projector, Charts, Group discussion, peer teaching learning
Evaluation Method	Assignment, Two Internal Assessment Exam, One End Semester Exam, Assignments.

EXPECTED LEARNING OUTCOMES

CO 1:-Understand the basic staining procedures and various physical also understand and the structural chemical means of sterilization.

CO 2:-Understand prokaryotes and eukaryotes and similarities and differences among various physiological groups of microbes.

CO 3:-Know the spoilage mechanisms in foods and thus identify to control deterioration and spoilage.

CO 4:-Role of microorganisms in human health and diseases.

CO 5:-Role of microorganisms in agriculture.

Course	Details
Code	BSCCIF131
Title	Constitution of India.
Programme	Bachelor of Science (B.Sc.)
Year/Semester	First / First
Type	Group III –Elective Foundation Course
Total Credits	01
Total Contact Hours	28 Hours
Contact Hour per Week	02 Hours
Examination Duration	02 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	06
Pedagogy	Debate, Group Discussions, viva-voce.
Evaluation Method	2 Internal Examinations/ viva-voce/Assignment, One end semester examination
Learning Objectives:	
<ul style="list-style-type: none"> • Acquire a complete and detailed understanding on Constitution of India. • Elicit the knowledge on Constitutional issues. 	
Expected Learning Outcomes:	
Upon the completion of this course the students will be able to:	
CO 1: Understand the structure and principles of the constitution.	
CO 2: Generate awareness on Fundamental Rights and Fundamental Duties.	
CO 3: Enrich the Knowledge on Constitutional functionaries of the state.	
CO 4: Understand the Organization and structure of Central/State government.	
CO 5: Develop insight on the Role of Judiciary in India.	

Course	Details
Code	BSCHRF181
Title	Human Rights
Programme	Bachelor of Science (B.Sc.)
Year/Semester	First/ Second
Type	Group III – Elective Foundation Course
Total Credits	01
Total Contact Hours	28 Hours
Contact Hour per Week	02 Hours
Examination Duration	02 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	05
Pedagogy	Lectures with Interactive Sessions, Debate, Group Discussions, PPT
Evaluation Method	2 Internal Examinations / Assignment/ Viva-voce, one end semester examination
Learning Objectives:	
<ul style="list-style-type: none"> • Acquire awareness on Human Rights Issues and Concerns. • Enhance citizenship sensitivity and Initiatives. 	
Expected Learning Outcomes:	
Upon the completion of this course the students will be able to:	
CO 1: Enrich their knowledge on Human Rights and Human Values.	
CO 2: Understand the concept of Human Rights.	
CO 3: Promote and protect Human Rights in India.	

CO 4: Focus on issues and concerns in Human Rights.

CO 5: Equip themselves with international concerns on Human Rights.

Course	Details
Code	BSCGEF231
Title	Gender Equity.
Programme	Bachelor of Science (B.Sc.)
Year/Semester	Second /Third
Type	Group III – Elective Foundation Course
Total Credits	01
Total Contact Hours	28 Hours
Contact Hour per Week	02 Hours
Examination Duration	02 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	04
Pedagogy	Lectures with interactive sessions, Debate, Group Discussions, Viva-voce, Assignment, PPT.
Evaluation Method	2 Internal Assessment Examinations and VIVA-VOCE/ Assignment, one end semester examination.
Learning Objectives:	
<ul style="list-style-type: none">• Understand the Basic concepts of Gender Equity.• Generate awareness on Gender Discrimination and Violence.• Contribution towards women Empowerment.	
Expected Learning Outcomes:	
Upon the completion of this course the students will be able to	
CO 1: Enrich their knowledge on basic Concept of Gender Equity.	
CO 2: Generate awareness on Gender Discrimination and Gender violence.	
CO 3: Acquire knowledge on Constitutional Rights and protective Legislations for women.	
CO 4: Gain knowledge on Measures adopted / Implemented for Gender Empowerment.	

Course	Details
Code	BSCSF281
Title	Environmental Studies
Programme	Bachelor of Science (B.Sc.)
Year/Semester	Second /Fourth
Type	Group III – Elective Foundation Course
Total Credits	01
Total Contact Hours	28 Hours
Contact Hour per Week	02 Hours
Examination Duration	02 Hours
Max. Marks	CIA : 10 End Semester Exam : 40 Total : 50
Total Modules	04
Pedagogy	Lectures with Interactive sessions, Debate, Group Discussions, PPT
Evaluation Method	2 Internal Examinations / viva-voce/ Assignment, one end semester examination.
Learning Objectives:	
<ul style="list-style-type: none">• Understand the Environmental studies.• Gain awareness on Environmental pollution.• Apply their knowledge in conservation and management of Natural Resources.	

Expected Learning Outcomes:

Upon the completion of this course the students will be able to

CO 1: Enrich their knowledge on Environment.

CO 2: Generate Awareness on Environment pollutions.

CO 3: Provide knowledge on Resource conservation.

CO 4: Provide knowledge on legislative measures for Environment pollution.