SINGHANIA UNIVERSITY

(UGC- recognized university per section 2(f) of the UGC Act 1956)

COURSE OUTLINE

COURSE TITLE	Mathematics (Calculus)
Course Code	MA-01
Credits	4 (L: 3 ,P:1 ,4)
Faculty Name	Miss Meenu Nain
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description

Mathematics (Calculus) is an **essential program** in Physical Science . The objective of this subject is to enable the students to prepare solution for the mathematics problems with the connection in real life.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1 Gain knowledge of the concepts and theory of limit, continuity and differentiability of functions. Attain skills of

calculating the limit of functions and examining the continuity and differentiability of different types of functions, and perform successive differentiation of functions. To apply the procedural knowledge to obtain the series expansions of functions which find multidisciplinary applications.

2. Understand concepts of asymptotes and curvature, the geometrical meaning of these terms and to have procedural knowledge to solve related problems.

3. Determine singular points of a curve and classify them. Understand the concept of rectification of curves and derive the reduction formulae.

4. Have theoretical knowledge and practical skills to evaluate the area bounded by the curves, and volume and surface area of solids formed by revolution of curves.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

6. Academic Integrity:

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COURSE TITLE	Physics (Mechanics)
Course Code	PHY-01
Credits	4(L:3 , P:1 ,4)
Faculty Name	Mr. Kapil Sharma
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description

Physics (Mechanics) is an **essential program** in Physical Science . The objective of this subject is to enable the students to deal with the motion of various objects that are known as mechanical objects.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Understand the dynamics of system of particles, conservation of energy and momentum application of both translational and rotational dynamics motions simultaneously in analyzing rolling with slipping.

2. Differentiate between elastic and plastic body. Elastic constants, determination and their physical significance. Torque and its significance.

3. Familiar about the special theory of relativity and its applications. Michelson's Morley experiments and its finding.

4 .Analyze the two body Central Force problem and its applications

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

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COURSE TITLE	Chemistry-I
Course Code	CH-01
Credits	4(L:3 , P:1 ,4)
Faculty Name	Dr .Sarita
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description:

Chemistry-I is an **essential program** in Physical Science . The objective of this subject is to enable the students to introduce the basic principles and concepts in chemistry.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Enable to understand the basis of quantum mechanics and structural idea and relevance in describing shapes of s, p and d orbitals.

2. To learn about role of temperature and pressure to establish the state of gases and describe the concept of critical constants of real gases.

3. Get knowledge about the electrophile/nucleophile and its role in mechanism of preparation of organic compounds.

4. To know the physical properties, morphology and crystalline study of liquid and different type of solids

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

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COURSE TITLE	Computer Science (Problem Solving Through C)
Course Code	CS-01
Credits	4(L:3 , P:1 ,4)
Faculty Name	Dr .Monika
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description:

Computer Science (Problem Solving Through C) is a **"major program"** in Physical Science **chosen by student** . The objective of this subject is to enable the students to involve working with mathematical models, data analysis and security, algorithms, and computational theory.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Learn the basics of C program, data types and input/output statements.

2. Understand different types of operators, their hierarchies and also control statements of C.

3. Implement programs using arrays and strings.

4. Get familiar with advanced concepts like structures, union etc. in C language.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

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COURSE TITLE	Information Technology (DIGITAL ELECTRONICS-I)
Course Code	IT-01
Credits	4(L:3 , P:1 ,4)
Faculty Name	Dr .Ravi
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description:

Information Technology (DIGITAL ELECTRONICS-I) is a **"major program"** in Physical Science **chosen by student** . The objective of this subject is to enable the students to the foundation of all modern electronic devices such as cellular phones, MP3 players, laptop computers, digital cameras, high definition televisions, etc.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1: To understand the basics of various Number systems and their conversions

2: To understand the basics of logic gates, Boolean algebra and use of k map

3 To understand how to design combinational circuits

4: To understand the working and use of Sequential digital circuits

5: To learn and understand the use of various electronic components and equipments used for analysis of basic digital electronic circuits.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

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Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
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COURSE TITLE	Chemistry(Minor Chemistry-I)
Course Code	CH-M1
Credits	2 (L:2 , P:0 ,2)
Faculty Name	Dr. Sarita
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description:

Chemistry(Minor Chemistry-I) is a **"minor program"** in Physical Science . The objective of this subject is to enable the students about chemical reactions and covalent bonds.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. To understand the basics of Covalent bonding in simple molecules.

2. To get the basics of rates of chemical reactions and factors affecting it.

3. To learn about the nomenclature, classification and methods of preparation of alkenes.

4. To learn about qualitative knowledge of conductors, semiconductors and insulates.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

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Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
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COURSE TITLE	Environmental Science (Environment and Social Issues)
Course Code	EVS-M1
Credits	2 (L:2 , P:0 ,2)
Faculty Name	Dr. Preeti Garg
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description:

Environmental Science (Environment and Social Issues) is a **"minor program"** in Physical Science . The objective of this subject is to enable the students about natural resources, biodiversity, and conservation..

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. To develop a multi-perspective analysis of pre-historic environment to the present condition.
2. . Understand the issues of resource inequality, ecological degradation, environmental pollution
3. . 3. Understand the impact of industrialization and technology on environment.
4. 4. Able to find the solutions for the various environmental issues through case studies.
5. . To critically relate the social issues arising from the human development and its impact on environment and to suggest possible solutions.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

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Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
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COURSE TITLE	Botany (Plant Diversity)
Course Code	BT-M1
Credits	2 (L:2 , P:0 ,2)
Faculty Name	Dr. Preeti Garg
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description:

Botany (Plant Diversity) is a **"minor program"** in Physical Science . The objective of this subject is to enable the students a detailed account of different plant groups like virus, bacteria, algae, fungi including and mycorrhizae, archegoniates including bryophytes, pteridophytes

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1: The general characteristics of microorganisms, algae, fungi, and lichens will be understandable to students.

2: Students will acquire a conceptual grasp of bryophytes and pteridophytes.

3: Students will acquire knowledge about the fundamental features of gymnosperms.

4: Students will acquire a foundational understanding of angiosperm morphology.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
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COURSE TITLE	Computer Science(Basics of Computer Science)
Course Code	CS-M1
Credits	2 (L:2 , P:0 ,2)
Faculty Name	Dr. Monika
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description:

Computer Science(Basics of Computer Science) is a **"minor program"** in Physical Science . The objective of this subject is to enable the students throughout the basics of computer system.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. To introduce to the students, the basic understanding of the working of a computer system.

2. To familiarize the students with the concept of algorithms and flowchart.

3. To familiarize the students with the various types of software.

4. To make the students familiar with the normal programs .

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

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COURSE TITLE	Statistics (Introduction to Statistics)
Course Code	STAT-M1
Credits	2 (L:2 , P:0 ,2)
Faculty Name	Miss Meenu Nain
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description:

Statistics (Introduction to Statistics) is a **"minor program"** in Physical Science . The objective of this subject is to enable the students to understand research in the social and behavioral sciences. In this **course** you will learn the basics of **statistics**;

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Tabular and graphical representation of data based on variables.

2. Measures of central tendency, measures of Dispersion

3. Moments and their use in studying various characteristics of data, Skewness and Kurtosis.

4. Correlation and regression, its properties and its implementation in real life problems.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

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5. Evaluation:

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COURSE TITLE	English (Introduction to Short Story and Basic Grammar)

Course Code	AEC-101
Credits	2 (L: 2,P:0 ,2)
Faculty Name	Dr. Monika
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description:

English (Introduction to Short Story and Basic Grammar) is a **"Ability Enhancement program"** in Physical Science . The objective of this subject is to enable the students about language skills and language systems. Language skills include: speaking, listening, reading, and writing.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1 The students will progress to understand intermediate of grammar.

2 The students will be able to understand tenses. B23-ENG-104.

3 The students will be able to understand parts of speech, voice and narration. .

4 Comprehend different forms and techniques of short fiction.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

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5. Evaluation:

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COURSE TITLE	Environmental Science (Environment and Social Issues)
Course Code	VAC-101
Credits	2 (L: 2,P:0 ,2)
Faculty Name	Dr. Preeti Garg
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description:

Environmental Science (Environment and Social Issues) is a **"Value Added program"** in Physical Science . The objective of this subject is to enable the students about social issues and the environment in which we are living.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. To develop a multi-perspective analysis of pre-historic environment to the present condition.

2. Understand the issues of resource inequality, ecological degradation, environmental pollution.

3. Understand the impact of industrialization and technology on environment.

4. Able to find the solutions for the various environmental issues through case studies.

3. Required Textbook and Reference Material:

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4. Session Plan :

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5. Evaluation:

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COURSE TITLE	Bio-Chemistry(Biochemical Insights into the Human Body)
Course Code	MDC-101
Credits	2 (L: 2,P:0 ,2)
Faculty Name	Dr. Preeti Garg
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description:

Bio-Chemistry(Biochemical Insights into the Human Body) is a **"Multi Disciplinary program"** in Physical Science . The objective of this subject is to enable the students about study the actions of enzymes, and how they can be inhibited by drugs, as well as genetic engineering and molecular biology..

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Learn and correlate the biochemistry and human biology; illustrate role of biomolecules in body.

2. Understand the biochemical nature and functions of hormones.

3. Learn to correlate the cellular metabolism and energy production

4. Know the various applications of biochemistry in industrial & medical sector

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

6. Academic Integrity:

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COURSE TITLE	Electronics (Electronic devices & Network Analysis)
Course Code	SEC-101
Credits	3 (L: 2,P:1 ,3)
Faculty Name	Dr. Ravi
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 1st Semester

1. Course Description:

Electronics (Electronic devices & Network Analysis) is a **"skill enhancement program"** in Physical Science . The objective of this subject is to enable the students about the design, testing, manufacturing, construction, and monitoring of electrical and electronic devices, machinery, and systems.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Understand the construction, working & applications of various semiconductor diodes

2. Learn about the use of filters in rectifiers and about Bipolar Junction Transistor.

3. Understand the concept of various network circuits and its uses

4. Understand the conversion of one network to another

5. Present the experimental results and conclusions by having Hands-on experience in the Laboratory

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

6. Academic Integrity:

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COURSE TITLE	Physics (Mathematical Physics)
Course Code	PHY-02
Credits	4(L: 3,P:1 ,4)
Faculty Name	Mr. Kapil Sharma
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

Physics (Mathematical Physics) is a **"essential program"** in Physical Science . The objective of this subject is to enable the students about **demonstrate the utility and limitations of** a variety of powerful calculational ...

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Learn the Fourier analysis of periodic functions and their applications in physical problems. Learn the beta, gamma and the error functions and their applications in doing integrations.

2. Acquire knowledge of methods to solve partial differential equations with the examples of important partial differential equations in Physics.

3. Write given function in terms of sine and cosine terms in Fourier series and also to get knowledge in Fourier transforms

4. Learn about beta gamma function, their properties, solve Legendre equations find generating function for Legendre Polynomial, Hermite equation, study orthogonal properties of Hermite Polynomials, recurrence relations of complex numbers and their properties such as analyticity, poles and residues.

5. Learn about the methods to solve the mathematical problem using Fortran

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

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COURSE TITLE	Mathematics(ADVANCED CALCULUS)
Course Code	MA-02
Credits	4(L: 3,P:1 ,4)
Faculty Name	Miss. Meenu Nain
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

Mathematics(ADVANCED CALCULUS) is a **"essential program"** in Physical Science . The objective of this subject is to enable the students depth study of sequences and series, and their applications.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Have theoretical knowledge about various mean value theorems and their geometrical interpretations.

2. Learn conceptual variations while advancing from dealing with functions of one variable to several variables in calculus and discuss limit and continuity of such functions. Have deeper understanding of Euler's theorem and Taylor's theorem and practice to attain skill in multidisciplinary contexts.

3. Know about differentiability of real valued functions of two variables and understand Young's, theorem Schwarz's theorem and implicit function theorem. Determine maxima and minima of functions of two variables, learn Lagrange's method of undetermined multipliers and exploit this procedural knowledge for various realistic optimization problems.

4. Understand and acquire theoretical knowledge about Jacobians, Beta and Gamma functions, with acquisition of skill to analyse various methods of integration and evaluate double and triple integrals which find application in the determination of areas and volumes.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

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COURSE TITLE	Chemistry(Physical Chemistry-I)
Course Code	CH-02
Credits	4(L: 3,P:1 ,4)
Faculty Name	Dr. Sarita

Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

Chemistry(Physical Chemistry-I) is a **"essential program"** in Physical Science **as per student choice** . The objective of this subject is to enable the students to deal with the principles of physics involved in chemical interactions.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Get the knowledge of concepts of rates of chemical reactions and its application in determination of order of various reactions.

2. Get the knowledge of various thermodynamic variables and properties.

3. To learn about the concepts of physical and thermodynamic functions in different reversible reactions and get the knowledge of molecular structure.

4. To learn about the various properties of molecules related to its magnetic behavior.

5*. Hand on practice in preparation of solutions, compounds, estimation and determination of physical properties of some compounds

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

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COURSE TITLE	Computer Science(Computer Fundamentals)
Course Code	CS-02
Credits	4(L: 3,P:1 ,4)
Faculty Name	Dr. Monika
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

Computer Science(Computer Fundamentals) is a **"essential program"** in Physical Science **as per student choice** . The objective of this subject is to enable the students **to introduce the fundamentals of computing devices and reinforce computer vocabulary**,

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Understand the basics of computer

2. Learn about I/O devices and operating systems

3. Understand internet and its services

4. Learn about the threats and security concepts on computers

5. To understand the working of operating system, internet and security related concepts.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

,**4. Session Plan :**

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
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COURSE TITLE	Information Technology(Digital Electronics-II)
Course Code	IT-02
Credits	4(L: 3,P:1 ,4)
Faculty Name	Dr. Ravi
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

Information Technology(Digital Electronics-II) is a **"essential program"** in Physical Science **as per student choice** . The objective of this subject is to enable the students with the competencies necessary to design digital circuits that perform simple calculations or control tasks using typical simulation

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1: To understand the design and working of Sequential circuits

2: To learn how shift registers work and its applications

3 To understand the concept of digital memory and its uses

4: To understand the working , types and use of Analog to Digital and Digital to Analog converters circuits

5: Handson with various combinational and sequential circuits

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

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4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	**WEIGHTAGE**	**DETAILS**
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.

Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

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COURSE TITLE	Chemistry(Minor Chemistry-II)
Course Code	CH-M2
Credits	2(L:2 ,P: 0 ,2)
Faculty Name	Dr. Yogesh
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

Chemistry(Minor Chemistry-II) is a **"minor program"** in Physical Science **as per student choice** . The objective of this subject is to enable the students the nature of matter, gases, liquids and solids, energy, atomic theory, properties of elements, chemical bonding, molecular structure and properties, stoichiometry, the mochemistry, and solutions.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. To know the basics of periodic properties and hybridization.

2. To learn about the ionic solids.

3. Understand about the semiconductors and metallic bonds.

4. Get the knowledge of stereochemistry of simple organic molecule

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

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4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
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COURSE TITLE	Environmental Science(Climate Change)
Course Code	EVS-M2

Credits	2(L:1 ,P: 1 ,2)
Faculty Name	Dr. Sarita
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

Environmental Science(Climate Change) is a **"minor program"** in Physical Science **as per student choice** . The objective of this subject is to enable the students the significant variation of average weather conditions becoming, for example, warmer, wetter, or drier—over several decades or longer.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Learn about the origin, composition and structure of the atmosphere and about Earth's energy balance.

2. Understand the concept of changing climate, sources, and trends.

3. Learn about various impacts of climate change on the environment

4. Gain knowledge on mitigation strategies adopted worldwide.

5. To develop research aptitude in climate change research.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

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4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.

Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

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COURSE TITLE	Botany (Plants for Human Welfare)
Course Code	BT-M2
Credits	2(L:1 ,P: 1 ,2)
Faculty Name	Dr. Preeti Garg
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

Environmental Science(Climate Change) is a **"minor program"** in Physical Science **as per student choice** . The objective of this subject is to enable the students about Plants are an essential and valuable resource, which provide us with **food, fiber, medicine** and all other basic requirements.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Students will acquire a foundational understanding of plant diversity.

2. Students will develop a conceptual grasp of plants utilized for human welfare.

3. Students will gain knowledge about the origins of certain cultivated plants.

4. Students will acquire a conceptual understanding of the utilization of fruits, nuts, and other plant components for human welfare.

5 Students will acquire the knowledge about the economic valuable plants and their products

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

,**4. Session Plan :**

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

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COURSE TITLE	Statistics(Introduction to Operations Research)
Course Code	STAT-M2
Credits	2(L:1 ,P: 1 ,2)
Faculty Name	Miss. Meenu Nain
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

Statistics(Introduction to Operations Research) is a **"minor program"** in Physical Science **as per student choice** . The objective of this subject is to enable the students about the fundamental concepts of operation research.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Fundamental concepts of Operational Research Techniques

2. Linear Programming Problems and their formulations.

3. Graphical procedure and simplex method, to solve for artificial variables using Big-M & Two-Phase methods.

4. How to minimize cost for any balanced transportation problem using different methods. CLO 5 is related to the practical components of the course

5. Formulation of LPP, solution of LPP by using Simplex, Big-M and Two Phase methods. Basic feasible solution of Transportation Problem.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

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4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.

Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

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COURSE TITLE	Computer Science(Fundamentals of Computer Science)
Course Code	CS-M2
Credits	2(L:1 ,P: 1 ,2)
Faculty Name	Dr. Monika
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

Computer Science(Fundamentals of Computer Science) is a **"minor program"** in Physical Science **as per student choice** . The objective of this subject is to enable the students about the fundamental concepts of basic computer science.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Understand the basic concepts of operating systems
2. Do the basic editing and formatting in a document
3. Create basic spread-sheets for different purposes
4. Create basic presentations for different applications
5 To understand the working of operating system and various office tools practically.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

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4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

6. Academic Integrity:

- Please note that students involved in academic dishonesty will receive a **ZERO** grade on the particular component in which the infraction occurred.

● Academic dishonesty consists of misrepresentation by deception or by other fraudulent means. In an academic setting this may take the form of copying or use of unauthorized aids in tests, assignments, examinations, term papers, or cases; plagiarism; talking during in-class examinations; submission of work that is not your own without citation; submission of work generated by another person; aiding and abetting another student's dishonesty; and giving false information for the purpose of gaining credits.

7. No Network Policy

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COURSE TITLE	English(Literature and Language I)
Course Code	AEC-201
Credits	2(L:2 ,P: 0 ,2)
Faculty Name	Dr. Preeti Garg
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

English(Literature and Language I) is a **"Ability Enhancement program"** in Physical Science . The objective of this subject is to enable the students about the short stories and basic grammer.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1 The students will be able to understand various hues of prose writings.

2 They will be able to understand different kinds of poetry.

3 Students will be able to understand basics of English grammar.

4 Students will be able to understand antonyms and synonyms in English

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

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4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
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COURSE TITLE	Environmental Science(Environmental Issues)
Course Code	VAC-201
Credits	2(L:2 ,P: 0 ,2)
Faculty Name	Dr. Vijay
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

Environmental Science(Environmental Issues) is a **"Value Added program"** in Physical Science . The objective of this subject is to enable the students about the harmful effects of human activities on the environment .

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Students will gain knowledge about environmental issues related to industrialization and urbanization.

2. Students will be able to understand the issues related to population explosion, degradation, pollution

3. The students will gain knowledge about major global environmental issues.

4. Students will understand the issues related to energy and water consumption and international efforts for environmental protection.

5*. Students will be able have and practical insight on local and global environmental issues.

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

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4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

6. Academic Integrity:

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COURSE TITLE	Bio-Chemistry (Biochemistry& Health)
Course Code	MDC-201
Credits	3 (L:2 ,P: 1 ,2)
Faculty Name	Dr. Preeti Garg
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

Bio-Chemistry (Biochemistry& Health) is a **"Multidisciplinary program"** in Physical Science . The objective of this subject is to enable the students about **covering topics related to enzymes and proteins**.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Exhibit the knowledge of the importance of biochemistry with reference to health.

2. Learn the biochemical functions and role of major and minor nutrients.

3. Know the relationship between biochemistry, exercise and energy metabolism.

4. Understand the Biochemistry of Aging and effect of environmental toxins and pollutants on human health.

5. An understanding of quantitatively analyze the sample for vitamin, minerals and lactose

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

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4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

6. Academic Integrity:

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COURSE TITLE	Electronic Components , Measuring Instruments and Amplifiers
Course Code	SEC-201
Credits	3 (L:2 ,P: 1 ,2)
Faculty Name	Dr. Ravi
Program	Bachelor of Physical Science
Academic Year and Semester	w.e.f. 2024-25, 2nd Semester

1. Course Description:

Bio-Chemistry (Biochemistry& Health) is a **"Skill Enhancement program"** in Physical Science . The objective of this subject is to enable the students about the change in the electric current so it can carry information and help in the functions of that circuit.

2. Student Learning Outcomes :

At the end of this course, students should be able to:

1. Learn about Passive components and their use

2. Understand the concept and use of different measuring instruments.

3. Understand the basics of Bipolar Junction Transistors

4. Understand the construction and working of different amplifiers

5. Get the Handson experience Through Lab work

3. Required Textbook and Reference Material:

- Material will be provided by faculty.

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4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work(A-4 Size sheet in a well mannered way)
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
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