Semester I

Applied Science

OBJECTIVES:

1. To know the importance of science in daily life
2. To develop analytical attitude.
3. To develop scientific way of thinking.
4. To impart knowledge to apply.

Course	TC	Th C	Pr C	Int M	Ext M	Total
Applied Science	4	2	2	25	75	100

(Theory)

Module No.	Objectives	Content	Assessment
1	This will enable students to: 1) Inculcate scientific temper in the students and develop scientific, analytical attitude. 2) Develop to understand the importance of knowledge of chemistry with respect to food, textiles, medicine, harmful chemicals & industries. 3) Understand the use and importance of chemistry in day to day life.	**Applied Chemistry** **1) Review of Basic Chemistry** • Important definitions • Difference between Organic & Inorganic compounds • Functional groups • Bohr's model of atom • Atomic number & electronic configuration **2) Soaps & Detergents** • Saponification reaction • Cold and hot process of soap making • Difference between soaps and detergents • Cleansing action **3) Drugs and Pharmaceuticals** • Properties of good drug • Meaning of important terms with e.g. Analgesic, Antipyretic, Antacid, Antibiotic, Diuretic, anti-inflammatory, Laxatives, Sulfa drugs • Common drugs- use and side effects of Aspirin, Paracetamol, Sulphanilamide **4) Dyes** • Definition, important terms like chromophore, Auxochrome, chromogen • Classification based on application • e.g. and uses of different dyes in food, textile, medicine, laboratory, etc. & their hazards **5)Polymers** • Introduction • Define-monomer, polymer, polymerization Some important polymers and their structure	Assignment / Quiz (1) Multiple Choice Questions (MCQs) 2) Objective 3) Descriptive = 10 marks

		&uses polyethylene, polyester, polyvinyl chloride	
2	This will enable the students to - 1) Acquire the basic knowledge of the fundamentals of biological sciences. 2) Apply the knowledge of the biological processes to everyday life.	**Cell** • As the basic unit of life • Types of cells • Salient features of animal cell **Introduction to Micro-organism** • Bacteria-Structure, Classification based on response to O_2, nutrition, Importance of bacteria • Fungi- Morphology of molds and yeasts, classification, beneficial and harmful aspects • Virus- Morphology, Classification based on nucleic acid content and hosts **Genetics and Heredity** • Origin of the term gene • Chemical basis of heredity- organization of human genome, sex determination, monogenic and polygenic traits, patterns of inheritance-autosomal, recessive and sex-linked inheritance • Mutation and its type, abnormalities in chromosome number **Genetic Engineering and Biotechnology** • Definition of the terms • Methodology of gene cloning-in brief 1. Application of genetic engineering in plants-insects & virus resistant plants, plants with improved characters. 2. Application in human medicine-pharmaceuticals, thallessemia oncogenes, interferon, production of growth hormone, human insulin ELISA.	Assignment / Quiz 1 Multiple Choice Questions (MCQs) 2Objective 3 Descriptive 15 marks

EVALUATION :

1) Internal (Practical) - 25 marks Internal (Theory) - 25 marks. Total Internal =50/2 = 25
2) External Practical - 25 marks + Theory - 50 marks = 75 marks
3) Internal -25 + External - 75 marks = 100 marks

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(Practical)

Module No	Objective	Content	Evaluation
3	This will enable student to: 1) Develop in students the ability to work systematically in laboratory. 2) Develop in them the skill for simple chemical procedures	**Applied Chemistry** 1) Introduction to chemistry lab & apparatus. 2) Neutralization of strong acid with strong base (HCl & NaOH) 3) Neutralization of weak base with strong acid (Na_2CO_3& H_2SO_4) 4) Neutralization of weak acid with strong base (Oxalic acid & NaOH) 5) Oxidation- reduction reaction (Oxalic acid & $KMnO_4$) 6) pH determination of various solutions: acid, base and neutral (two household example for each) 7) Preparation of soap bar 8) Viscosity measurement: water, oil, shampoo by Oswald's viscometer	Daily work Journal Performing experiment 8 marks
4	This will enable student to: 1) Acquire knowledge of various micro-organisms and the required skills to study them. 2) Apply this knowledge in day to day life	**Applied Biology** 1) Study and care of microscope 2) Observation of motility of bacteria by Hanging drop method (*E.coli* / *Proteus*) 3) Observation of bacteria by the simple: monochrome staining method (Hay infusion culture or milk) 4) Gram staining of bacteria in buttermilk 5) To observe common pathogenic bacteria (any 6 – permanent slides) 6) Observation of fungi on different food materials 7) To observe common pathogenic protozoa (permanent slides of *Entamoeba histolytica* and *Plasmodium vivax*) 8) Study of medicinally important plants (projects)	Daily work Journal Performing experiment 7 marks