Course outcome, B.Sc.- Ist year

After completion of these courses students should be able to :-

I. Inorganic Chemistry -

Co (1). To understand the basic of organic chemistry including hybridization. Type of organic reactions and cleavage.

Co (2). To Discuss the periodic properties and chemical bonding.

Co (3). Knowledge about the s-and p-block element's and understand the group relationship and gradation properties.

Co (4). To discuss the chemistry of Nobel gases and understand the theoretical principles in qualitative analysis of caption & anions.

II. Organic Chemistry -

Co (1). To understand the basic of organic chemistry including hybridization. Types of organic reactions and cleavage.

Co (2). Introduce to stereo chemistry and distinguish between optical & geometrical isomerism.

Co (3). Discuss about the conformation analysis of alkanes and know reaction mechanism and understand mechanism of E_1 & E_2 reaction.

Co (4). To understand aliphatic hydrocarbons and aromatic hydro carbons & know the aromaticity & directive effects of the group.

III. Physical Chemistry -

Co (1). To understand basic mathematical concept for chemist-logarithmic / functions / vectors, and discuss about gaseous theory.

Co (2). To know the liquid state / colloid's and surface chemistry, understand the gold number & physical adsorption, BET equation.

Co (3). Discuss the solid state chemistry -x-ray diffraction & Bragg's law.

Co (4). To understand the chemical kinetics and catalysis. know rate of reaction & types of catalysis.

Practical Course Outcome :-

Co (1). To identify the two acidic and two basic radicals in the given inorganic mixture.

Co (2). Knowledge about identification of functional group and determine its M.P. in the given organic compound.

Co (3). To understand and calculate the % composition of given liquid with the help of viscometer and stalagmo meter.

Co (4). To discuss about the acid-base titrations and know the prepare standard solution of sodium hydroxide with the help of oxalic acid.

Course outcome B.Sc. 2nd year

After completion of these courses students should be able to :-

I. Inorganic Chemistry –

Co (1). Understand the first transition series-d-block elements and co-ordination & geometry.

Co (2). To discuss about the 2nd & 3rd transition series and understand the oxidation & Reduction. and co-ordination compound's.

Co (3). To discuss about the chemistry of lanthanides and actinides elements and know the lanthanides-contraction and actinides separation.

Co (4). Know the acid and bases and discuss about non-aqueous solvent's-liquid ammonia & liquid sulphur dioxide.

II. Organic Chemistry –

Co (1). To discuss about alcohols / phenols / epoxides and know the Di/tri hydric alcohols and name of reaction mechanism-gattermann synthesis & crown ether's.

Co (2). Understand the aldehydes and ketones condensation's reaction's and various name of reaction aldol and Baeyer-Villiger oxidation.

Co (3). Knowledge the canboxyllic acid's-substituted & derivatives and discuss about the organic compound's of nitrogen.

Co (4). To discuss about the heterocyclic compound's and their synthesis. Know the preparation & Nomen-clature of amines, pyrrole, Indole.

III. Physical Chemistry -

Co (1). To discuss about the thermodynamics-1st , 2nd and 3rd law of thermodynamic and know the thermo chemistry-Hess's law & enthalpy.

Co (2). To know the concept of entropy and Gibb's Helmholtz free energy.

Co (3). To understand the phase-equilibrium and know the Gibb's phase rule and Nernst distribution law.

Co (4). Discuss about the electrochemistry and know the Kohlrausch's law & strong electrolytes and migration of Ion's understand the electrode potential se PH determination.

Practical Course Outcome –

Co (1). Discussion about calibration of weights & glass-work & know the preparation of standard solution's of NaOH with the help of oxalic acid by volumetric analysis.

Co (2). To knowledge about the identification of functional group and specific group & its determine M.P. of the given organic compound's.

Co (3). Know the determination the solubility of benzoic acid at different temperature.

Co (4). To understand the chromatography and know the separation of mixture of amino-acid's and determine of R_f value.

Course outcome B.Sc. 3rd year

After completion of these course student should be able to :-

I. Inorganic Chemistry -

Co (1). Know the metal-ligand bonding in transition metal complexes and understand the thermodynamic & kinetics of metal complexes.

Co (2). To study the magnetic properties of transition metal complexes and its behavior.

Co (3). Get knowledge about organometallic compound's and bioinorganic chemistry and know the trace element's.

Co (4). To study hard and soft acids and bases.

II. Organic Chemistry -

Co (1). To study organometallic compound's and organo-sulphur compound's and know the Grignard reagents & active methylene.

Co (2). To discuss the biomolecules-carbohydrates, protein's and nucleic acid.

Co (3). Knowledge about synthetic polymers and dyes Rubber's.

Co (4). To study mass, infrared, UV, NMR, 13c NMR & MRI spectroscopy.

III. Physical Chemistry -

Co (1). To discuss about quantum-mechanics-black-body radiation and valence bond model of H^2.

Co (2). Know about the spectroscopy-vibrational & raman spectra & electro magnetic radiation's.

Co (3). Discuss about photochemistry law & jablonski diagram and know the radiative & non-radiative process.

Co (4). To understand the thermodynamics 3rd law and derived classius-mosoti equation & dipole moment's.

Practical Course Outcome –

Co (1). Estimation of barium as barium sulphate gravimetrically in the given solution and report.

Co (2). Preparation of inorganic compound of tetramine-cupric-sulphate.

Co (3). Identify the given binary mixture of organic compound's and it's prepare derivatives.

Co (4). Preparation of organic compound's-aspirin from salicylic acid and m-dinitrobenzene from nitrobenzene.

Co (5). Verify Lamber'ts Becr's law by colorimetric analysis and determine strength of strong acid by conducfometically and buy PH-meter.

Course - Outcome - (M.Sc. - Chemistry)

Master of science in chemistry two years (4-semester) post graduate course. Course includes five subjects in each semester with project and dissertation after successful completion of four semester degree course in chemistry a student should be able to :-

Course Outcome – M.Sc. Ist semester (Chemistry)

I. Inorganic Chemistry –

To study the concept of co-ordination chemistry, stability of the complexes and stereochemistry of complexes and to understand about structure and bonding of metal complexes.

II. Organic Chemistry –

To learn the concept of stereochemistry, conformational analysis and their application in the determination of reactions mechanism, and to understand the nucleophilic and electrophilic substitution.

III. Analytical Chemistry –

To study about the chemical analysis, solvent extraction separation technique and spectroscopic technique.

IV. Research Methodology & Computer Application Basics –

Understand the concept and place of research in concerned subject. Get acquainted with various resources for research. Becomes familiar with various tools of research. Gets conversant with sampling techniques, methods of research and techniques of analysis of data.

Achieves skills in various research writings. Gets acquainted with computer fundamentals and office software package.

V. Group Theory, Spectroscopy and Diffraction Method's –

To study the diffraction techniques and to learn about group theory and spectroscopy.

Outcome Course M.Sc. Second Semester (Chemistry)

I. Inorganic Chemistry – 2 -

To study about the theories of co-ordination complexes, chemistry of lanthanides, to learn about nanotechnology and use of inorganic compound in biological chemistry.

II. Organic Chemistry -

To learn the various types of reactions, rearrangements and their synthetic utility.

III. Physical Chemistry -

To study the various types of spectroscopy, thermodynamics, surface chemistry and understand the radio-chemistry.

IV. Applied Chemistry -

To gain the knowledge in the preparation, properties, characterization and use of polymers.

V. Social Outreach & Skill Development Field Work (Project) –

To aim of the project work or field work to introduce students with the research methodology in the subject and to prepare them for pursuing research in theoretical experimental or computational areas of the subject.

Outcome Course – M.Sc. Third Semester (Chemistry)

I. Applications of Spectroscopy – Inorganic Chemistry –

To learn about application of spectroscopy in carious field of inorganic chemistry and understand the use of AAS, ESR, NMR, PES, FES, Mossbauer & Raman spectroscopy.

II. Applications of Spectroscopy – Organic Chemistry –

To study about application of spectroscopy in various field of organic chemistry and know the UV/visible, Mass, IR, NMR, BC-NMR, COSY, NOSY, DEPT techniques.

III. Photo Chemistry & Pericyclic Reaction –

To discuss about principal and applications of photochemistry in various field and to understand the pericyclic reactions. Know the PMO, FMO, 1.3-dipolar cycloaddition reaction.

IV. Intellectual Property Right's, Human Right's & Environment –

To understand the concept and place of research in concerned subject. Gets various resources for research. Becomes familiar with various tools of research and to study patent, copyright's, and right's to environment as human right. Achieves skills in IPR.

V. Organic Synthesis –

To gain the knowledge in the preparation, properties, characterization, and to learn about disconnection approach & synthesis of complex molecule.

Course Outcome – M.Sc. Fourth Semester (Chemistry)

I. Bioinorganic Chemistry –

Trace metal ions. Enzymes and medicinal bioinorganic chemistry and to know the respiratory proteins and chelation therapy.

II. Environmental Chemistry –

To learn about earth, biosphere and pollution and its control and to understand the soil analysis and chemical toxicology.

III. Solid State Chemistry –

To study solid states and to know the electronic properties and band theory, conducting organics.

IV. (A). Material Science –

To learn about material science including conductors and semiconductors and to understand crustal classification & crystal geometry.

OR

(B). Chemistry of Natural Products –

To study of natural products and to understand plant pigments, steroids, alkaloid's and terpenoid's and carotenoid's.

V. Dissertation –

Describe a relevant area of career development and work related learning studies. identify research method & literature for review. Critically analyse and evaluate the knowledge and understanding in relation to area of study. Dissertation demonstrates a students is capable of identifying his or her own area of interest. Indicating your capacities as a researcher. Aim is required to the independent research skills students develop during time at university. Post graduate degree.

DEPARTMENT OF ECONOMICS, COURSE OUTCOMES

1. The behavioral patterns of different economic agents, advance theoretical issues and their applications.
2. Understand the basic concept of macro and microeconomics.
3. Acquaint with some basic statistical methods to be applied in economics.
4. Acquaint with some basic mathematical methods to be applied in economics.
5. Acquaint with some basic theoretical concept of public finance.
6. Acquaint with the measurement of development with the help of theories along with the conceptual issues of poverty and inequalities with Indian perspectives.
7. Delineate the fiscal policies designed for developed and developing economics.
8. Facilitate the historical developments in the economic thoughts propounded by different schools.
9. Learn the basic concept of monetary analysis and financial marketing in Indian financial markets.
10. Learn the development issues of Indian economy.
11. Acquaint with some basic concept of environmental economics along with the solution of the environmental problems.
12. Learn the real and monetary sides of International economics.

DEPARTMENT OF HISTORY, COURSE OUTCOMES

1. To promote an understanding of the processes of change and development through which human societies have evolved to their present stage of development.
2. To promote an understanding of the common routes of human civilizations and an appreciation of the basic unity of mankind.
3. Learn a basic narrative of historical events in a specific region of the world in a specific time frame
4. Distinguish between primary and secondary sources
5. Understand and evaluate different historical ideas, various arguments, and points of view.
6. Evaluate competing interpretations and multiple narratives of the past.
7. Gather and assess primary historical evidence. CO 6. Compile a composite bibliography.
8. Present clear and compelling arguments, based on critical analysis of diverse historical sources.
9. Articulate factual and contextual knowledge of specific places and times, to make careful comparisons (across time, space, and culture) and to discern how each generation (including theirs) uses the past for present purposes.
10. Students should understand academic honesty, a concept presented to them in all history classes.
11. Students will be able to understand the basic skills that historians use in research and writing and the basic tools of historical analysis.
12. Students should understand the value of diversity and develop a secular outlook towards society.
13. Students should believe in the equality of man irrespective of caste, creed, religion and colour and also learn to believe in the ideas of religious toleration.

DEPARTMENT OF MATHEMATICS, COURSE OUTCOMES

1. Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.
2. A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.
3. Ability to analyze a problem, identify and define the computing requirements, which may be appropriate to its solution.
4. Introduction to various courses like group theory, ring theory, field theory, metric spaces, number theory.
5. Enhancing students' overall development and to equip them with mathematical modeling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment.
6. Ability to pursue advanced studies and research in pure and applied mathematical science.
7. Think in a critical manner. Know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand.
8. Formulate and develop mathematical arguments in a logical manner.
9. Acquire good knowledge and understanding in advanced areas of mathematics and statistics, chosen by the student from the given courses. Understand, formulate and use quantitative models arising in social science, Business and other contexts.

Course Outcome of English Language

The department of English of Govt. vivekanand P.G. college manendragarh seeks to develop the students abilities in grammer, oral skills, reading, writing and study skills.

- Students will highlin their awareness of correct usage of English grammer in writing and speaking.
- Students will improve their speaking ability in English both in terms of fluency and comprehensibility.
- Students will enlarge their vocabulary by keeping a vocabulary journal.
- Students will attain and enhance competence in the four modes of literacy i.e. Writing , speaking, reading and listening.
- **Reading :-** Students will interpret text with attention to ambiguity, complexing and aesthetic value. They will develop reading skills & reading speed.
- **Writing Process :-** Students will practice and deliberate writing process with emphasis on inquity, audience, researcher & revisions.
- **Speaking :-** Students will improve their accuracy and fluency in producing and understanding spoken & written English.
- Students will improve their communicative abilities by speaking and discussing in class, both informally and formally.

The English course on the whole aims to provide student with a strong command of the spoken and written language. Students will read diverse texts within their historical & cultural context. developing a critical understanding of how literature can both uphold and resist existing structure of power students will develop a hide vocabulary and a proper understanding of grammer and linguistic convention.

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Department of Political Science Outcome

1. Explaning the concept of state sovereignty : Approacher and phuralistic theories.
2. Assessing the theories of state nature, function, origin and contract idealist and equalitity an theories.
3. Kinds of government unitary and federal, parliamentary and presidential.
4. Introducing the Indian constitution with a focus one the role of constituent assembly and examining the essence of the preamble.
5. Examining the fundamental rights and duties of Indian citizens with a study of the significance.
6. Evaluating the major issues of Indian politics cast, religion, language and region panchayti raj.
7. To understand the plato : Ideal state justice education. Communism philosopher king.
8. Analysing marx's concept of freedom and democracy : nature, features and critiques.
9. Cratting information about system of British constitution : evolution, salient features, executive and legislature judiciary.
10. Making a comparative analysis of the institution of UK, USA, China and Switzerland.
11. Study of the relations of India with neighboring contries.
12. Analysing the civil service in India.
13. Analysing the major concepts in public administration.

Outcome of Commerce Courses

1. Students expaud knowledge about the method of auditing income tax & its applications.
2. Helps in evaluating concept related with business :- Corporate accounting, cost and management accounting for calculating cost.
3. To help the student to learn the application of statistical tools and techniques for decision making.
4. Knowledge of advertising and sales management help to students conceptual framework.
5. Promote the skill to understand the concept of research and becomes familiar with various tools of research.
6. Students gets conversant with sampling techniques, methods of research and techniques of analysis of data.
7. The objective of this course is to expose students to investment, management techniques and concept.
8. This course is helpful in considering how to scarce resources are exchanged within society. Economics study, theories and techniques useful for developing policies in government as they have a deep understanding of how to create efficiency in today's world.
9. After completing UG course under commerce, the students can find various job at entry or junior level in accounting, banking and finance and related fields such as junior accountant, HR manager, business executive, account executive, operations management, data analysist.
10. This course is helpful in developing the effective communication skills for .
11. Promote students to participate in industrial growth and to set-up their own small units.

12. Able to comprehend the framework of various laws specially related to business and financial markets (like contract act, sales of goods act, negotiable instrumental act, consumer protection act, company law, SEBI).
13. This course is helpful in educating students with the emerging issue in business at national as well as international level like government policy regarding business, exim policy and international organizational rate.
14. The objective of this course is to help student understand and conceptual framework of management and organizational behavior.

COURSE OUTCOME OF BOTANY

1. Critically evaluation of ideas and arguments by collection relevant information about the plants, so as recognize the position of plant in the broad classification and phylogenetic level.
2. Identify problems and independently propose solutions using creative approaches, acquired through interdisciplinary experiences, and a depth and breadth of knowledge/expertise in the field of Plant Identification.
3. Accurately interpretation of collected information and use taxonomical information to evaluate and formulate a position of plant in taxonomy.
4. Students will be able to apply the scientific method to questions in botany by formulating testable hypotheses, collecting data that address these hypotheses, and analyzing those data to assess the degree to which their scientific work supports their hypotheses.
5. Students will be able to present scientific hypotheses and data both orally and in writing in the formats that are used by practicing scientists.
6. Students will be able to access the primary literature, identify relevant works for a particular topic, and evaluate the scientific content of these works.
7. Students will be able to apply fundamental mathematical tools (statistics, calculus) and physical principles (physics, chemistry) to the analysis of relevant biological situations.
8. Students will be able to identify the major groups of organisms with an emphasis on plants and be able to classify them within a phylogenetic framework. Students will be able to compare and contrast the characteristics of plants, algae, and fungi that differentiate them from each other and from other forms of life.
9. Students will be able to use the evidence of comparative biology to explain how the theory of evolution offers the only scientific explanation for the unity and diversity of life on earth. They will be able to use specific examples to explicate how descent with modification has shaped plant morphology, physiology, and life history.
10. Students will be able to explain how Plants function at the level of the gene, genome, cell, tissue, Flower development. Drawing upon this knowledge, they will be able to give specific examples of the physiological adaptations, development, reproduction and mode of life cycle followed by different forms of plants.

11. Students will be able to explain the ecological interconnectedness of life on earth by tracing energy and nutrient flow through the environment. They will be able to relate the physical features of the environment to the structure of populations, communities, and ecosystems.
12. Students will be able to demonstrate proficiency in the experimental techniques and methods of analysis appropriate for their area of specialization within biology.

COURSE OUTCOME OF GEOLOGY

- Understand the basic geological concept, principles and theories of stratigraphy.
- Learn, design and perform experiments in the labs to demonstrate the concepts, principles and theories learned in the classroom.
- Expose the student to the vast scope of Geosciences in the field of disaster management, watershed management, water pollution, oil exploration, mining etc.
- Emphasize the importance of geology as the most important discipline for sustaining the existing industries and establishing new ones to create job opportunities at all levels of employment.
- Collaborative learning is encouraged during the field training programs and educational tours.
- Encouraging faculty members to participate in conferences, seminars, workshops and other faculty development programs to enrich and update their academic and administrative knowledge and capacity building.
- Encouraging standard research activities of faculty members and students.
- Organizing Career Counseling sessions for students imparting training to members of the non-teaching staff to utilize computer facilities in documentation.
- Overall development of an ethical sense and increasing awareness in terms of gender sensitization, cleanliness, environmental protection etc. Inculcation of value-orientation in students through the promotion of a sensitive attitude towards one's surrounding and culture.
- Assists students in competitive examination (JAM etc.).

COURSE OUTCOMES PHYSICS

- Students will demonstrate an understanding of core knowledge in physics, including the major premises of classical mechanics, E&M and Modern Physics.
- Students will demonstrate written and oral communication skills in communicating physics-related topics.
- Students will design and conduct an experiment (or series of experiments) demonstrating their understanding of the scientific method and processes. Students will demonstrate an understanding of the analytical methods required to interpret and analyze results and draw conclusions as supported by their data.
- Students will demonstrate proficiency in the acquisition of data using a variety of laboratory instruments and in the analysis and interpretation of such data.
- Students will utilize a wide range of printed and electronic resources and information technologies to support their research on physical systems and present those results in the context of the current understanding of physical phenomena.
- Students will demonstrate understanding of the applications of numerical techniques for modeling physical systems for which analytical methods are inappropriate or of limited utility.
- Students will demonstrate a thorough understanding of the analytical approach to modeling of physical phenomena.
- Students will demonstrate an understanding of the impact of physics and science on society.