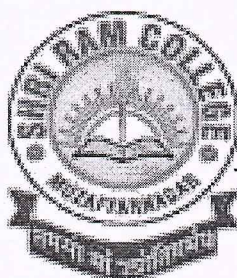


Department of Computer Application

Shri Ram College Muzaffarnagar



Evaluation of Programme Outcomes

BCA

Batch: (2021-24)


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Methodology

Direct Assessment (External + Internal)	70%
Indirect Assessment (AT +Assignment+ TA)	30%

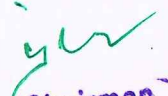
Direct Assessment Benchmark 40%

Level 1	60%	60% Students secure more than 40% marks	Points	1
Level 2	70%	70% Students secure more than 40% marks	Points	2
Level 3	80%	80% Students secure more than 40% marks	Points	3

Indirect Assessment Benchmark 40%

Level 1	60%	60% Students secure more than 40% marks	Points	1
Level 2	70%	70% Students secure more than 40% marks	Points	2
Level 3	80%	80% Students secure more than 40% marks	Points	3


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Department of Computer Application

Program Outcomes (POs)

PO 1 Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2 Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3 Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4 Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5 Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO 6 The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7 Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9 Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10 Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11 Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12 Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.


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Bachelor of Computer Application

Course Outcomes Semester-I	
Course	Outcomes
101 Mathematics-I	CO1-to be familiar with Determinant and Matrices. CO2-To formulate limit, continuity and Differentiability. CO3-To learn Differentiation, integration and their applications.
102 Programming Principle & Algorithm	CO1-Analyse a given problem and develop an algorithm to solve the problem. CO2-Design, develop and test programs written in C. CO3-Using different data types in computer program. CO4-Designing programs involving decision structures, loops and functions.
103 Computer Fundamental & Office Automation	CO1-To know evolution of computers, Components of a Computer system & Block Diagram. CO2- Understanding number system, Computer codes (BCD, EBCDIC, and ASCII). CO3- To learn input/output devices, memory and types of software. CO4-Learning basics of operating system like DOS, WINDOWS. CO5-Working knowledge of MS-Office: MS-Word, MS-Excel, MS-PowerPoint, Introduction of Internet.
104 Principal of Management	CO1-To understand management concepts & process. CO2-Learning Role and responsibilities associated with managerial function. CO3-To understand techniques of Interview & Group discussion. CO4-To understand the needs and benefits of written communication. CO5-To know word processor, Videos conferencing, decision making.
106 Business Communication	CO1-To develop student's ability to communicate accurately and effectively. CO2-Understanding different communication processes and tools. CO3-To draft effective business correspondence with clarity. CO4-To demonstrate verbal and non-verbal communication ability through presentations.
105 Computer Laboratory and practical work of Office Automation	CO1-To prepare students in understanding ICT basics and to make aware of Office automation using MS-Office (MS-Word, MS-Excel, PowerPoint).
107 Computer Laboratory and practical work of Programming Principle and Algorithm	CO1-To Train students with basic concepts of programming using C. CO2-Role of constants, variables, identifiers, operators, type conversion and other building blocks of C Language. CO3-Use of conditional expressions and looping statements to solve problems associated with conditions and repetitions. CO4-Role of Functions involving the idea of modularity.

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Course Outcomes

Semester-II

Course	Outcomes
0228001 Mathematics-II	CO1 -Understanding basic discrete structures such as sets, relations, functions used in computer science. CO2 -To perform operations and algebra on sets. CO3 - To study partial order set - POSET, Hasse diagram and lattice. CO4 -Understanding 3D Coordinate Geometry: Coordinates in Space, Direction coordinate cosines etc.
0228002 'C' Programming	CO1 - Understanding Arrays and Strings. CO2 -To know about Structure and Union. CO3 - Understanding memory by the use of Pointers, Dynamic memory allocation. CO4 -To learn file handling. File modes and file related function.
0228003 Organization Behavior	CO1 - Understand individual behavior in organization including attitude, job satisfaction, emotion, personality, values, decision making and motivation theory. CO2 - Understand group behavior in organization including communication, leadership, conflict, grievances and grievances handling. CO3 - Understand the organization system, culture, human resources and change.
0228004 Digital Electronics & Computer Organization	CO1 -Become familiar with basic Logic Gates and understanding Boolean algebra. CO2 - Design of combinational circuits such as MUX, DEMUX, Encoder & Decoder, Adder and Subtractor etc. CO3 -Understanding of sequential circuits such as flip flop, register and counters. CO4 -understanding Memory Organization.
0228005 Financial Accounting & Management	CO1 -To understand the objectives of accounting, need of accounting in business, Application of accounting and process of accounting. CO2 -To focus on how to calculate the profit or loss of the Business. CO3 -To study how to record, classify and summarize the business transaction. CO4 -to learn to generate financial statements of the business.
0228080 Computer Laboratory and practical work of C Programming	CO1 - To formulate problems and implement algorithms in C. CO2 - implementing pointers & Dynamic Memory Allocation. CO3 - Implement Arrays and its application in searching and sorting, Strings. CO4 -Implementing Structures, Union and File Handling.

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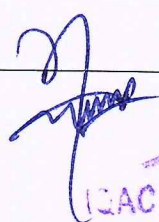
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Course Outcomes

Semester-III

Course	Outcomes
0328001 Object Oriented programming using C++	CO1-To understand object oriented programming concepts. CO2-To understand the difference between object oriented programming and procedural programming. CO3-To understand program using C++ features such as class, objects, operator overloading, dynamic memory allocation, inheritance and polymorphism. CO4-To understand file I/O operations, exception handling etc.
0328002 Data Structure Using C & C++	CO1-To study the various structures or methods of organizing data in computer's memory. CO2-To understand insert and delete operation for different data structure. CO3- Analyzing various sorting algorithms like Insertion, bubble, heap sort etc. and searching techniques. CO4-Improving programming skills.
0328003 Computer Architecture & Assembly Language	CO1-Undersatand the fundamentals of different instruction set architectures. CO2-Input and Output peripheral devices and their Communication with the rest of the computer components. CO3-Understand the principle sand the implementation of computer arithmetic. CO4-Overview of Intel 8085 processor and assembly level instructions.
0328004 Business Economics	CO1-To understand the concept of business and economics. CO2-To identify the central problem of an economy, prices mechanism. CO3-To understand the concept of demand and supply and production. CO4-To analyze market strucfure with determine prices and Output determination under various competitions.
0328005 Elements of statistics	CO1-Learning about sampling methods. CO2-Basics idea of permutation and combination and probability concepts. CO3- To learn measures of central tendency, and measures of dispersion. CO4- To use a control charts, a statistical graph that shows process changes over time.
0328080 Computer Laboratory and practical work of OOPS	CO1-Apply object-oriented programming features to program design and implementation. CO2-Understand object-oriented concepts and how they are supported by C++. CO3- Understand implementation issues related to objects-oriented techniques. CO4- Demonstrate the ability to analyze, use and create functions classes, to overload operators. CO5- Demonstrate the ability to understand and use inheritance and Pointers when creating or using classes and create templates.
0328081 Computer Laboratory and practical work of DS	CO1-Have practical knowledge on the application of data structure. CO2-Able to implement linked list, array, stacks, queues. CO3- Able to understand and implement various searching and sorting techniques.


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Course Outcomes Semester-IV	
Course	Outcomes
0428001 Computer Graphics & Multimedia Application	CO1-Understand the basics of computer graphics, different graphics systems and applications of computer graphics. CO2- Learn various algorithms for scan conversion and circle algorithm. CO3-To study geometric transformations on graphics objects and their application in composite form. CO4-Making students familiar with different clipping methods and its transformation to graphics display device. CO5-Learning Animation design and multimedia.
0428002 Operating System	CO1-To understand the objectives. Structure and functions of operating system. CO2-To learn about concept of processes, threads and its scheduling algorithms. CO3-To understand design issues in process synchronization and deadlock management. CO4-To study various memory management schemes. CO5- To learn about concept file and I/O management in details.
0428003 Software Engineering	CO1-To know about software engineering and its application in Software development. CO2-Understand the importance of the stages in the Software Development Life Cycle. CO3-Understand the different Software Development process models. CO4-Appling good coding style and practices. CO5-Applly different testing and debugging techniques and software maintenance.
0428004 Optimization Techniques	CO1-Understanding assignment problem and its solutions. CO2-To study the some important methods for solving linear programming problems such as Simplex, primal and dual simplex method. CO3-To study replacement of item such as group and individual replacement. CO4-To study Inventory Theory and Job Sequencing.
0428005 Mathematics-III	CO1- To study some basic concepts of Complex Number System, Polar Form, Powers and Roots, Functions of Complex Variables, Elementary Functions, Inverse Trigonometric Function. CO2-To study Sequence, Series, Partial Sums, Convergent Series, Theorems on Convergence of Series. CO3-To study differentiation of Vectors, Gradient, Directional Derivatives, Divergence and Curl. CO4-To study Fourier series ordinary differential equations and Bernoulli's Differential Equations.
0428080 Computer Laboratory and practical work of computer Graphics and Multimedia Applications.	CO1- Understand practical fundamental of line drawing, circle drawing, polygon drawing and curve drawing. CO2-Understand the concepts of different type of geometric transformation of objects in 2D. CO3-Create Presentations using Multimedia tools.

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Course Outcomes Semester-V	
Course	Outcomes
0528001 Introduction to DBMS	CO1-Give an introduction about DBMS, data models, a schema, E-R diagram, relational database and benefits of database. CO2-Able to design a good database using normalization, decomposition and functional dependency. CO3-To understand the basic concepts of PL/SQL programming, procedures, functions and transactions. CO4-to study the file organization and data security and its importance. CO5-Acquire a good understanding of database systems concepts and to use it to design database for different applications.
0528002 Java Programming and Dynamic Webpage	CO1-To understand fundamentals of object-oriented programming in Java including defining classes, invoking methods, using class libraries, etc. CO2-To handle abnormal termination of a program using exception handling. CO3-Develop client/server applications and TCP/IP socket programming. CO4-Develop server side programs in the form of servlets.
0528003 Computer Network	CO1-To understand the fundamental concepts of computer networks. CO2-To learn network type's reference model and layers in network. CO3-To prepare students with basic networking concepts: data communication, protocols and standards, various topologies & applications of network.
0528004 Numerical Methods	CO1-To study numerical methods to find the solution of algebraic equations using different methods under different conditions. CO2-To study Newton and Lagrange's interpolation methods and finite difference concepts. CO3-To study numerical differentiation and integration. CO4-Solve ordinary differential equation by Euler's methods.
0528065 Mini Project	CO1-Students will be able to practice acquired knowledge within the chosen area of technology for project development. CO2-Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach.
0528080 Computer Laboratory and Practical Work of DBMS	CO1-To prepare students in using and managing databases. CO2-Brief knowledge about SQL Fundamentals. CO3-Unary & Binary table operations. CO4-Able to handle with different Data Base languages (DML, DDL, DCL etc.)
0528081 Computer Laboratory and Practical Work of java Programming and Dynamic Web Page Design	CO1-understand programming language concepts, particularly java and object-oriented concepts. CO2-Implement Java classes from specifications and effectively create & use objects from predefined class libraries. CO3-Implement interfaces, inheritance, and polymorphism as programming techniques and apply exceptions handling. CO4-To prepare the students to acquire the knowledge of scripting languages like JSP, The students will be able to create dynamic websites using JSP. CO5-Database connectivity with front-end.
0528070 Viva-Voce on Summer Training	CO1-An ability to apply knowledge and skills acquired in programming. CO2-An ability to function in teams. CO3-An ability to identify, formulate, and solve real life problems. CO4-An understanding of professional & ethical responsibility. CO5-An ability to communicate effectively.

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Course Outcomes Semester-VI	
Course	Outcomes
0628001 Computer Network Security	CO1-To defend and protect the network infrastructure, architecture, protocols and applications. CO2-An ability to function in teams. CO3-An ability to identify, formulates, and solves real life problems. CO4-An understanding of professional & ethical responsibility. CO5-An ability to communicate effectively.
0628002 Information System	CO1-Overview of system analysis and design. CO2-Requirement analysis and data modeling with DFD and E-R diagram. CO3-Understanding application development methodologies and Case tools. CO4-Cost estimation and managerial issues in software projects.
0628003 E-Commerce	CO1-To know about Traditional Commerce vs. E-Commerce. Advantages and disadvantages of E-Commerce. CO2-Business Models - B2B, B2C, C2B, C2C. CO3- To familiar with Electronic payment System - Smart Card, Debit Card, Credit Card. CO4-To Know about the structure of Internet, Intranet and Extranet.
0628004 Knowledge Management	CO1-Understand Basic Concept of Knowledge Management. CO2-To know Database Systems and their underlying theory to be able to improve the decision-making process. CO3-Understand the technology of Data Warehousing. CO4-Understand Data Mining concepts and Techniques.
0628065 Major Project	CO1-It makes the student implement the knowledge of SDLC and technologies learnt so far by designing a Project. CO2-Students are trained to meet the requirements of the Industry by exploring different domains.
0628067 Presentation/Seminar based on Major Project	CO1-Use a structured presentation methodology to prepare presentation material and effective visual aids of project. CO2-Learn, practice and acquire the skills necessary to deliver effective, presentation with clarity and impact on project



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Department of Fine Arts (BFA)

Program Outcomes (POs)

POs 1: Artistic Knowledge:

Apply knowledge of artistic principles, theories, and techniques to create and evaluate artworks across various mediums.

POs 2: Critical Analysis:

Identify, analyze, and interpret visual and contextual elements in art to develop well-informed critiques and artistic perspectives.

POs 3: Creative Practice and Innovation:

Design and develop original artworks that reflect creativity, innovation, and personal expression while considering aesthetic, cultural, and social contexts.

POs 4: Research and Inquiry:

Conduct research in art history, theory, and contemporary practices using appropriate methodologies to inform artistic creation and scholarship.

POs 5: Mastery of Tools and Techniques:

Utilize traditional and modern tools, technologies, and techniques in the creation, presentation, and preservation of artworks.

POs 6: Art and Society:

Examine the role of art in society, understanding its power to influence culture, raise awareness of social issues, and contribute to community and identity.

POs 7: Environmental Awareness and Sustainability:

Recognize the environmental impact of artistic materials and processes, advocating for sustainable practices in the creation and display of art.

POs 8: Ethics and Professionalism:

Adhere to ethical standards and professional practices in the creation, presentation, and dissemination of art.

POs 9: Collaboration and Teamwork:

Work effectively as an individual and in collaborative settings, engaging with diverse perspectives to enhance artistic outcomes.

POs 10: Communication:

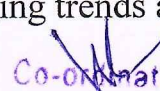
Articulate artistic concepts and processes clearly through verbal, written, and visual communication, including effective presentation and critique of artworks.

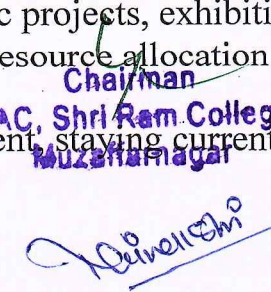
POs 11: Project Management:

Demonstrate the ability to plan, execute, and manage artistic projects, exhibitions, and events, considering budgeting, time management, and resource allocation.

POs 12: Lifelong Learning:

Commit to continuous personal and professional development, staying current with emerging trends and technologies in the arts.


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Department of Fine Arts (MFA)

Program Outcomes (POs)

POs 1: Artistic Knowledge and Historical Understanding

demonstrate a comprehensive understanding of the history of Indian and Western art, modern and contemporary art movements, and their impact on artistic practice.

POs 2: Visual and Critical Analysis

Analyze and interpret artworks, design elements, and cultural aesthetics through a critical and conceptual lens to enhance artistic expression.

POs 3: Creative Expression and Innovation

Develop original artworks and designs that integrate creativity, innovation, and experimentation across various mediums, including digital, graphic, and traditional arts.

POs 4: Technical Mastery and Craftsmanship

Apply advanced techniques in painting, sculpture, textile design, graphic design, fashion illustration, and digital media to achieve professional excellence.

POs 5: Research and Inquiry in Art and Design

Conduct research in fine arts, graphic design, textiles, and fashion, exploring traditional and contemporary artistic practices and their societal significance.

POs 6: Design Thinking and Problem-Solving

Utilize design thinking principles to create functional, aesthetic, and sustainable solutions in graphic design, packaging, fashion, and textile industries.

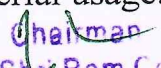
POs 7: Ethical and Professional Practices

Uphold ethical standards and intellectual property rights in artistic creation, fashion, textile design, and graphic communication industries.

POs 8: Sustainable and Environmental Awareness

Demonstrate knowledge of sustainable practices in art, fashion, and textiles, addressing environmental concerns and responsible material usage.


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POs 9: Digital and Technological Proficiency

Employ modern digital tools and software such as CAD, digital illustration, photography, and media techniques for professional artistic production.

POs 10: Communication and Presentation Skills

effectively communicate artistic concepts, design ideas, and project outcomes through visual storytelling, exhibitions, catalogs, and professional presentations.

POs 11: Entrepreneurship and Industry Readiness

Develop business acumen and management skills for careers in art, graphic design, textile production, fashion merchandising, and creative entrepreneurship.

POs 12: Collaboration and Interdisciplinary Approach

Engage in teamwork and interdisciplinary projects, integrating art with technology, media, marketing, and sustainable practices.

POs 13: Cultural and Social Awareness

Appreciate and incorporate cultural heritage, traditional textiles, costumes, and artistic expressions into contemporary art and design.

POs 14: Lifelong Learning and Adaptability

Commit to continuous learning, staying updated with emerging trends, technologies, and innovations in fine arts, fashion, and design industries.

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COURSE OUTCOMES & PROGRAM OUTCOMES (COs & POs)



(Session: 2023-24)

SUBMITTED BY:

(DEPARTMENT OF FINE ARTS)

SHRI RAM COLLEGE, MUZAFFARNAGAR

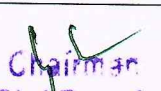
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Bachelor of Fine Arts

Course Name	Outcomes
History of Indian Art-I (Pre historic to Gupta Period) (BFA AA T1001)	CO1 -Gains knowledge of pre-historic paintings, their centers, subject matter, and characteristics. CO2 -Analyzes artistic developments in the Indus Valley, Mauryan, Sunga, Kushan, and Gupta periods, including sculptures, seals, pottery, and architectural elements. CO3 -Examines the impact of Buddhism, Jainism, and Hinduism on Indian art and architecture, including stupas, viharas, chaityas, and temple structures. CO4 -Understands the evolution of different artistic schools, such as Gandhara and Mathura, and the significance of Ajanta paintings and Gupta-era sculptures.
Foundation Course: English Communication (BFA AA T1002)	CO1 -Develop their communication skill of Learning, writing, Speaking and writing. CO2 -To help the students in developing their communication skills through effective use of English. CO3 -To assist in developing their personality
Drawing-I (BFA AA P1004)	CO1 -Develops the ability to observe and render man-made objects with accuracy, using various media and lighting techniques. CO2 -Enhances structural awareness by studying and sketching organic elements like plants, animals, and minerals to grasp their form and composition. CO3 -Strengthens visual memory and recall ability, improving the capacity to create detailed drawings from imagination.
Design 2D-I (BFA AA P1005)	CO1 -Develops knowledge of organizing two-dimensional space and exploring its creative possibilities. CO2 -Enhances awareness of fundamental pictorial elements like point, line, shape, volume, texture, light, and color. CO3 -Cultivates the ability to convert natural and man-made forms into flat pictorial representations. CO4 -Encourages observation and analysis of primitive, folk, and miniature paintings to understand spatial relationships in design.
Design 3D-I (BFA AA P1006)	CO1 -Develops an understanding of sculpture techniques, tools, and artistic anatomy for effective three-dimensional expression. CO2 -Enhances skills in working with various materials like clay, wood, wire, and Plaster of Paris, along with methods such as interlocking and casting. CO3 - Encourages problem-solving in sculpture design through structured experiments, incorporating light, color, and composition.
History of Indian Art-II (Medieval to Company School) (BFA AA T2001)	CO1 -Gains knowledge of architectural styles from the Pallava, Rashtrakuta, Chandela, and Orissan dynasties, focusing on significant temples and sculptures. CO2 -Develops an understanding of Rajasthani, Mughal, and Pahari miniature painting styles, their characteristics, and thematic elements. CO3 - Explores the transition of Indian art from temple sculptures to refined miniature paintings and their cultural significance.


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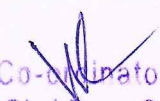

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	CO4 -Examines the emergence, main centers, artists, and stylistic features of Company School paintings under colonial influence.
Foundation Course: Hindi Communication (BFA AA 2002)	CO1 -Enhances verbal and written communication for academic and professional purposes. CO2 -Encourages artistic and creative writing in Hindi, including essays, stories, and scripts. CO3 -Provides insight into Hindi literature, poetry, and its connection to Indian culture and heritage. CO4 -Improves confidence in delivering speeches, presentations, and dialogues in Hindi. CO5 - Equips students with Hindi language skills for professional interactions, including drafting letters and emails.
Drawing-II (BFA AA P2003)	CO1 -Develops knowledge of basic solids, plan and elevation, and principles of parallel and angular perspective for accurate spatial representation. CO2 -Enhances skills in letter formation, spacing, and composition, fostering artistic handwriting with intuitive and logical design principles. CO3 -Improves observational drawing abilities through rapid sketching of urban scenes, museum artifacts, and human figures, focusing on gestures, expressions, and head studies.
Design 2D-II (BFA AA P2004)	CO1 -Develops an awareness of the interconnection between different shapes, forms, and their relative values in composition. CO2 -Enhances the ability to activate space using form, color, and optical illusions for dynamic visual impact CO3 - Strengthens skills in handling diverse materials like pencils, inks, watercolors, and collage elements for creative pictorial organization.
Design 3D-II (BFA AA P2005)	CO1 -Develops a strong foundation in human anatomy, drawing, and sculptural techniques for three-dimensional representation. CO2 -Enhances skills in carving, modeling, molding, and joining techniques using diverse materials like metals, wax, resin, and found objects. CO3 - Encourages problem-solving through structured design experiments, integrating color, texture, and material combinations in sculpture.
History of Western Art (BFA 201)	CO1 -To understand the evaluation & development in human being CO2 -To get introduced about paintings in different caves.
Western Aesthetics (BFA202)	CO1 -In western aesthetics we elaborate outer beauty of the body CO2 -We learned about lots of western philosophers & his views on Aesthetics
Advertising Theory (BFA 203)	CO1 -Indoor & outdoor advertising with photography CO2 -Writing of news letter CO3 -Study of different Brands
Fashion Theory (BFA 205)	CO1 -Understand the attributes of different textile material CO2 -Be able to understand the functioning of Apparel industry

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Press layout (BFA 208)	CO1 -Designing of product Adds of both manual & graphics
Poster Design (BFA 209)	CO1 -Designing of posters of different brands and their specific product
Drawing & Illustration (BFA 210)	CO1 -Designing of themes representing their ideas of art
Photography & Reproduction Technique (BFA 211)	CO1 -Understand both advanced digital and analogue camera operations with photographic exposure, shutter speed CO2 -Types of lighting equipments and their necessity
Pattern Making & draping (BFA 215)	CO1 -Making of layout CO2 -Knowledge of drafting and paper pattern CO3 -To understand the human anatomy and body fitting
Fashion Model Drawing & sketching (BFA 216)	CO1 -Practices of female and Kids illustrations CO2 -Knowledge of normal and fashion figures CO3 -Knowledge of various silhouettes CO4 -How to create designing with kids wear CO5 -Sketching practices of Features- eyes, ears, nose, ears CO6 -Sketching practice of Face sketch with different hairstyles of male and female
Garment Construction (BFA 217)	CO1 -To guide the students about sewing machines CO2 -Uses of different threads, needles and sewing methods according to the fabric. CO3 -Stitching of Kids Garment
Fashion Art (BFA 218)	CO1 -Be aware of new development in technology and process of fabric ornamentation CO2 -Understanding the weaving techniques
History of Far Eastern Art (BFA 301)	CO1 -Historically paralleled that in eastern painting CO2 -African art, Islamic art, Chinese & Japanese art each had a significant impact on Eastern Art
Indian Aesthetics (BFA 302)	CO1 - "What is beauty", in our surroundings CO2 -Knowledge of Rasa, Alankar, emotions etc. We learn about different types of art in Aesthetics
Advertising Theory (BFA 303)	CO1 -Study of Different logos & symbols CO2 -Logo designing CO3 -Designing of packaging- manual & digital
Fashion Theory (BFA 305)	CO1 -To understand evaluation changes & development in clothing with evaluation on human race CO2 -That introduce to the world of costumes & life style in culture content of India fro the ancient times
Press Layout (BFA 308)	CO1 -Designing of social adds of both manual & graphics
Poster Design (BFA 309)	CO1 -Designing of posters of different brands and their specific product
Drawing & Illustration (BFA 310)	CO1 -Designing of themes representing their ideas of art
Photography & Reproduction Technique (BFA 311)	CO1 -Product photography- outdoor & indoor CO2 -Food Photography of different brands & retailers


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Pattern Making & Draping (BFA 315)	CO1 -Understanding about darts required in garments CO2 -To manage the fabric materials as per falls and body sizes CO3 -Bodice Block & Patterns of Women, fits & sizes
Fashion Model Drawing & sketching (BFA 316)	CO1 -Designing techniques of female wears CO2 -Designing with different themes & trends
Garment Construction (BFA 317)	CO1 -Be able design & construct garments for women's wear CO2 -Be able to calculate fabric material required for construction of garment
Fashion Art (BFA 318)	CO1 -Become aware of an understanding hand crafting techniques, materials & process CO2 -Knowledge of different fabrics for innovative design development
History of Modern Indian Art (BFA 401)	CO1 -It influence the western styles but it is inspired by Indian themes & image
History of Modern Western Art (BFA 402)	CO1 -Refer to artistic works performed over an extended period 1970's & reflect the style & philosophy of that era. CO2 -It experimented new ways of artists & new ideas on the tendency of material & works of Art
Advertising Theory (BFA 403)	CO1 -Product advertising CO2 -Publicity of advertising & use of add in digital life
Fashion Theory (BFA 405)	CO1 -Understand the growth of fashion industry of post world war 1 st & 2 nd CO2 -Understand the traditional and global styles which influences over the modern Indian dressing in costumes
Apparel Fabric Studies & Fundamental of Apparel Production (BFA 406)	CO1 -Production process of Apparel Industry CO2 -Retailing, selling, Marketing of apparels CO3 -Types of Merchandising & role of merchandiser in apparel industry
Press Layout (BFA 408)	CO1 -Corel & Photoshop designing CO2 -Digital designing on different themes
Poster Design (BFA 409)	CO1 -Poster making with different colour mediums CO2 -Represents the social concept through their innovation ideas
Drawing & Illustration (BFA 410)	CO1 -Designing of Illustrations of adds CO2 -Innovative social designing for awareness on different themes
Pattern Making & Grading (BFA 416)	CO1 -To extend the Basic pattern into different sizes CO2 -Knowledge of Sizes & to grade them as per required size.
Fashion Model Drawing (BFA 417)	CO1 -Fabric Knowledge as per the season or trends CO2 -Illustrate the male/female garments
Fashion Art & Accessories (BFA 418)	CO1 -Developing of innovative designs in jewellerys of Gold, Diamond & clay CO2 -Designing of jewellerys with some waste materials CO3 -Designing of purses & Bag with innovative ideas

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(M.F.A)-Masters of Fine Arts

BRIEF SCHEDULE OF THE COURSE SEMESTER- I

S. No.	Stream	Course Name/Code	Title of the Paper	Outcomes
1	Drawing & Painting	Theory Course-I MFA-0118901	History of Indian Painting (Up to 1850 AD)	CO1 -Detailing & understanding of Indian art & its concept CO2 -Learning of Ancient Indian art techniques & art forms of different states
2	Applied Arts	Theory Course-I MFA-0119001	History of Print Making	CO1 -Process & modes of communication CO2 -Evolution of communication mediums
3	Fashion Designing	Theory Course-I MFA-0118801	Entrepreneurship Management with Project	CO1 -Inspire students for entrepreneur as career CO2 -Detailing & types of an Entrepreneur CO3 -To acquire financial management skills
4	Textile Designing	Theory Course-I MFA-0118701		
5	Drawing & Painting	Theory Course-II MFA-0118902	History of Graphic Designing	CO1 -Inventions of graphic techniques CO2 -Learn & develop various techniques of graphics art
6	Applied Arts	Theory Course-II MFA-0119002	Advertising Design	CO1 -Importance of advertising CO2 -Different aspects of advertising CO3 -Role of advertising in different fields
7	Fashion Designing	Theory Course-II MFA-0118802	History of Indian Costumes	CO1 -Be aware of rulers in political history of India CO2 -Lifestyle of socio-cultural content of India from ancient times CO3 -Design inspiration & past influencers over current fashion trends
8	Textile Designing	Theory Course-II MFA-0118702	Social & Psychological Aspects of Clothing	CO1 -Knowledge about the origin & history of clothing CO2 -Understanding the relation between clothing & wearer, clothing society
9	Drawing & Painting	Practical Course-I MFA-0118980	Life Study (Portrait and Full Figure)	CO1 -Techniques of sketching, face features of humans CO2 -Full figure study with the use of lights & shades
10	Applied Arts	Practical Course-I MFA-0119080	Graphic Design & Communication-I	CO1 -Visual communication through design CO2 -Use simple design elements in communication successfully
11	Fashion Designing	Practical Course-I MFA-0118880	Fashion Illustration-I	CO1 -Detailing of Colours CO2 -Use of textures CO3 -Different Bodice Block
12	Textile Designing	Practical Course-I MFA-0118780	Textile Testing & Quality control	CO1 -Quality of fabric, yarn & fiber by using different types of testing CO2 -Different standards use in testing

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13	Drawing & Painting	Practical Course-II MFA-0118981	Nature Study	CO1 -Different types of landscape CO2 -Using Different types of colours & textures
14	Applied Arts	Practical Course-II MFA-0119081	Typography-I	CO1 -Experiment & use of expressive styles of Type sets CO2 -Aesthetically explore the design concepts using typography
15	Fashion Designing	Practical Course-II MFA-0118881	Product Development	CO1 -Apply the knowledge of fashion design process in making collection
16	Textile Designing	Practical Course-II MFA-0118781	Textile Chemistry	CO1 -Understand the chemical knowledge of different types of fiber CO2 -Be able to understand the study of polymer, chemistry of textile fibers CO3 -Different types of dyeing & printing CO4 -Be able to understand the chemistry of finishes
17	Drawing & Painting	Practical Course-III MFA-0118982	Graphic Designing	CO1 -Understand & developing of design CO2 -Basic techniques in print making
18	Applied Arts	Practical Course-III MFA-0119082	Photography	CO1 -Styles & medium of important artists & art movement CO2 -Content of a visual expression in traditional & non- traditional art form
19	Fashion Designing	Practical Course-III MFA-0118882	Pattern Making & Grading	CO1 -Develop patterns for Indian wear CO2 -Be able to construct & finish garments for men & women
20	Textile Designing	Practical Course-III MFA-0118782	Drafting & Pattern Making Technique	CO1 -Making of standard patterns blocks CO2 -Drafting of different sleeves & collars

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SEMESTER-II

S.No.	Stream	Course Name/Code	Title of the Paper	Outcomes
1	Drawing & Painting	Theory Course-III MFA-0218901	Philosophy of Art (western & Indian)	CO1 -Principles of aesthetics of various periods in Indian & western
2	Applied Arts	Theory Course-III MFA-0219001	History of Graphic Design-II	CO1 -Importance of symbols & signage CO2 -Principles of layout design & theory of typography
3	Fashion Designing	Theory Course-III MFA-0218801	Environmental Concerns & Sustainability in	CO1 -Understanding various types of pollution, its causes & control measures CO2 -Sensitize the students to environmental concerns & social responsibility
4	Textile Designing	Theory Course-III MFA-0218701	Garment & Textile Industry	CO3 -Create awareness of various ecoparameters & environmental issues relate the textile & apparel industry
5	Drawing & Painting	Theory Course-IV MFA-0218902	Indian Sculpture	CO1 -Brief description of Indus Valley, Maurya period & many other
6	Applied Arts	Theory Course-IV MFA-0219002	Advertising: Visual Communication & Media	CO1 -Design in the age of electronic media CO2 -Historical evolution in designing
7	Fashion Designing	Theory Course-IV MFA-0218802	Fashion Merchandising & Management & Retail	CO1 -Business aspects of the fashion industry CO2 -Role & Scopes of fashion merchandiser CO3 -Visual merchandising effective in retailing CO4 -Basics of fashion promotion
8	Textile Designing	Theory Course-IV MFA-0218702	Design Ethics & Intellectual Property Rights in fashion Textile	CO1 -Understand ethics in business, apparel industry CO2 -Understand the procedure of registration of designs under Intellectual property Rights (IPR) CO3 -Sensitize young designers towards ethics in design & awareness of ethical fashion & issues
9	Drawing & Painting	Practical Course-IV MFA-0218980	Traditional Composition	CO1 -Exploring of miniatures with aesthetic principles CO2 -District folk art work done by students
10	Applied Arts	Practical Course-IV MFA-0219080	Graphic Design & Communication-II	CO1 -Importance of symbols & visual elements and use them in effective way CO2 -Interaction with people to know what they are looking for in their visual literacy level
11	Fashion Designing	Practical Course-IV MFA-0218880	Fashion Illustration	CO1 -To enable students to draw fashion figures & model figure drawing

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12	Textile Designing	Practical Course-IV MFA-0218780	Woven Fabric Structures & Fabric Analysis	CO1- To acquire knowledge of the different types of fabric structure, weave patterns, colour & weave effects CO2- Knowledge of different yarns, numbering system, weaving calculations & weaving mechanism.
13	Drawing & Painting	Practical Course-V MFA-0218981	Screen & fabric Paintings	CO1- Fabric painting techniques CO2- Experiment in different printing techniques on different types of clothes
14	Applied Arts	Practical Course-V MFA-0219081	Typography-II	CO1- Design & apply advanced type forms in context based layouts CO2- Different design concepts, visibility of the style shape & content
15	Fashion Designing	Practical Course-V MFA-0218881	Pattern Development & Draping	CO1- Draping aspects of pattern making CO2- To apply knowledge of draping in developing pattern & designs by draping
16	Textile Designing	Practical Course-V MFA-0218781	Textile CAD	CO1- Training of students to develop design from fabric from computer with various colour combinations, changes in material, yarn count, Reed & pick are to be made on the buyers need CO2- Computerized application uses
17	Drawing & Painting	Practical Course-VI MFA-0218982	Mix Media of Mural	CO1- How to create creative composition in mix media CO2- Learn about basic aesthetics principles to develop a distinct styles or creation
18	Applied Arts	Practical Course-VI MFA-0219082	Digital Illustration Techniques	CO1- Basic tools & techniques in Photoshop CO2- Does image research, usage, manipulation
19	Fashion Designing	Practical Course-VI MFA-0218882	Computer Aided Fashion Designing/ CAD Project	CO1- Enable students to learn the application of pattern making software
20	Textile Designing	Practical Course-VI MFA-0218782	Chemical Process & Finishing	CO1- Knowledge of preparatory process of fabric & coloration of textiles CO2- Understand different types of finishes used for textiles & current issues in processing also.

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SEMESTER-III

S.No.	Stream	Course Name/Code	Title of the Paper	Outcomes
1	Drawing & Painting	Theory Course-V MFA-0318901	History of Western Art	CO1 -Knowledge of western art & various movements CO2 -Western artist life & their work of techniques
2	Applied Arts	Theory Course-V MFA-0319001	History of Indian Art	CO1 -Knowledge of different paintings, Mughal Architecture, Pahari painting of various schools, also early modern painters
3	Fashion Designing	Theory Course-V MFA-0318801	History of Global Costume	CO1 -To acquaint the students with the history & evolution of Indian Costumes
4	Textile Designing	Theory Course-V MFA-0318701	History of Indian Textile Industry	CO1 -Understanding the structure of Indian textile industry & current position of textile in India CO2 -Supply chain of textile & Apparel in textile industry
5	Drawing & Painting	Theory Course-VI MFA-0318902	Brief study of Modern Art (Indian & Western)	CO1 -Be able to learn about movements in paintings from mid 19 th Century to the present day in Indian & western CO2 -Knowledge of modern & contemporary art they will walk through their latest trend in art
6	Applied Arts	Theory Course-VI MFA-0319002	Brief study of Modern Art (Indian & Western)	
7	Fashion Designing	Theory Course-VI MFA-0318802	Brief study of Contemporary Art	CO1 -Influence of Political, social & economic situations of a country on art practices in a specific time period CO2 -Technical development & modernization influenced artistic & their art work from time to time
8	Textile Designing	Theory Course-VI MFA-0318702	Brief study of Contemporary Art	
9	Drawing & Painting	Practical Course-VII MFA-0318980	Exhibition with catalogue CAD	CO1 -Display of student art work with catalogue
10	Applied Arts	Practical Course-VII MFA-0319080	Digital Media	CO1 -Create effective typography designs CO2 -Animate background layouts & characters using 2D animation principles
11	Fashion Designing	Practical Course-VII MFA-0318880	Advance Draping	CO1 -Be able to convert flat fabrics into garment CO2 -Be able to express design ideas through draping and dress designing
12	Textile Designing	Practical Course-VII MFA-0318780	Textile Study	CO1 -Knitting technology & how to control quality of knitted garments CO2 -Laundering & care of textiles

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13	Drawing & Painting	Practical Course-VIII MFA-0318981	Creative Painting	CO1 -Student learn about abstract or creative form with the use of different mediums & textures CO2 -It will enhance students creativity regarding contemporary art forms, abstract mediums & creative compositions
14	Applied Arts	Practical Course-VIII MFA-0319081	Packaging Design & Print Technology	CO1 -Know about packaging design & industry CO2 -Understanding screen printing techniques CO3 - Understand the digital printing technology
15	Fashion Designing	Practical Course-VIII MFA-0318881	Computer Aided Fashion Designing	CO1 -To develop art portfolio through CAD
16	Textile Designing	Practical Course-VIII MFA-0318781	Textile Project	CO1 -Understanding of types of knitting CO2 -Laundering & care of textile
17	Drawing & Painting	Practical Course-IX MFA-0318982	Sculpture Making	CO1 -Form of sculpture with 2D & 3D forms CO2 -Use of different materials in formation of sculptures
18	Applied Arts	Practical Course-IX MFA-0318882	Drawing for Designers	CO1 -Understand the visual elements & use them in their design CO2 -Demonstrate strong visual skills
19	Fashion Designing	Practical Course-IX MFA-0319082	Surface Ornamentation	CO1 -To acquaint the students with various ornamentation techniques on the fabrics
20	Textile Designing	Practical Course-IX MFA-0318782	Fabric Manufacturing	CO1 -Knowledge of different kinds of fabric & their terminologies, useful in manufacturing of fabric CO2 -Different kinds of looms & motions useful in looms

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SEMESTER-IV

S. No.	Stream	Course Name/Code	Title of the Paper	Outcomes
1	Drawing & Painting	Theory Course-VII MFA-0418901	Research Methodology its Application in Fine Arts	CO1 -To get a knowledge of Research Grants & how to write CO2 -Key learning: Article writing, Essay, Marketing Research, Thesis: Dissertation etc
2	Applied Arts	Theory Course-VII MFA-0419001		
3	Fashion Designing	Theory Course-VII MFA-0418801		
4	Textile Designing	Theory Course-VII MFA-0418701		
5	Drawing & Painting	Practical Course-X MFA- 0418965	Dissertation & viva voice	CO1 -To explore & revive the rich traditions in Art & Craft
6	Applied Arts	Practical Course-X MFA- 0419065		CO2 -To seek the training under professional Artist
7	Fashion Designing	Practical Course-X MFA- 0418865		CO2 -Thesis/Dissertation/Survey/ Report/ Field work
8	Textile Designing	Practical Course-X MFA- 0418765		
9	Drawing & Painting	Practical Course-XI MFA- 0418980	Series Composition theme based or Copy of Master Artist Paintings	CO1 -Creative composition, explore with mixed media
10	Applied Arts	Practical Course-XI MFA- 0419066	Exhibition /Display	CO2 -Copy of famous artists of Indian & Western Master Artists
11	Fashion Designing	Practical Course-XI MFA- 0418866	Exhibition/ Fashion Show/Display	CO3 -Review of all semester & display of work
12	Textile Designing	Practical Course-XI MFA- 0418766	Exhibition/Fashion Show/ Display	CO4 -Catalogue of min 5 pages of her resume & art work by computer designing- 5 catalogues are compulsory


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13	Drawing & Painting	Practical Course-XII MFA-0418970	Seminar or Workshop	CO1 -Seminar/ workshop on their paper presentation CO2 -10 min to each student to present their ppt & 3000 written words
14	Applied Arts	Practical Course-XII MFA-0419070		
15	Fashion Designing	Practical Course-XII MFA-0418870		
16	Textile Designing	Practical Course-XII MFA-0418770		
17	Drawing & Painting	Practical Course-XIII MFA-0418981	Installation Art	CO1 -It is an artistic genre of three dimensional works CO2 -Student will make installation art either solo or in group in dept
18	Applied Arts	Practical Course-XIII MFA-0419080		
19	Fashion Designing	Practical Course-XIII MFA-0418880		
20	Textile Designing	Practical Course-XIII MFA-0418780		

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SHRI RAM COLLEGE, MUZAFFARNAGAR
DEPARTMENT OF BIOSCIENCE
PROGRAM OUTCOMES AND COURSE OUTCOMES

B.Sc. MICROBIOLOGY

Program Outcomes

PO-1 Students will develop a comprehensive understanding of microbial diversity, including the classification, morphology, and physiology of bacteria, fungi, viruses, and protozoa, and their significance in various ecosystems.

PO-2 Students will acquire hands-on skills in microbiological laboratory techniques such as culturing, staining, microscopy, and microbial identification, as well as understanding laboratory safety protocols.

PO-3 Students will gain an understanding of the mechanisms of microbial infections, including the study of pathogens, host-pathogen interactions, and the immune response, as well as the principles of disease prevention and treatment.

PO-4 Students will understand the applications of microbiology in various fields such as biotechnology, food, pharmaceuticals, agriculture, and environmental microbiology, with a focus on using microbes for industrial processes, waste treatment, and environmental sustainability.

PO-5 Students will develop the ability to critically analyse microbiological data, design experiments, and troubleshoot issues in microbiological research, fostering a scientific approach to problem-solving.

PO-6 Students will stay informed about the latest advancements in microbiology, including emerging diseases, antimicrobial resistance, bioremediation, and innovations in genetic engineering, fostering a mindset of continuous learning and adaptation to new scientific developments.

PO-7 Students will develop effective communication skills, enabling them to present scientific data clearly and concisely through written reports, oral presentations, and collaborative discussions within research and professional settings.

Program Specific Outcomes (PSOs):

PSOs-1 Students will be able to describe diversity of microorganisms, bacterial cell structure and function, microbial growth and metabolism, and the ways to control their growth by physical and chemical means.

PSOs-2 Students will explain the role of microorganisms in food production and preservation, their ability to cause food-borne infections and demonstrate practical skills in fundamental microbiological techniques.


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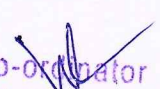
PSOs-3 Students will demonstrate engagement in the Microbiology discipline through involvement in their post-graduation period, research or internship activities, and outreach their goals specific to microbiology.

PSOs-4 Students will gain in-depth knowledge of the biochemical and physiological processes that occur in microorganisms, including microbial growth, energy production, nutrient utilization, and metabolic pathways in bacteria, fungi, and viruses.

PSOs-5 Students will acquire specialized knowledge in medical microbiology, focusing on the identification, diagnosis, and treatment of infectious diseases caused by bacteria, viruses, fungi, and parasites, along with an understanding of antimicrobial resistance.

PSOs-6 Students will be equipped with the knowledge to apply microbiological principles in various industrial applications such as fermentation technology, pharmaceutical production, food safety, and the development of genetically modified organisms (GMOs) for agricultural and industrial purposes.

PSOs-6 Students will learn about the biotechnological applications of microbiology, including fermentation technology, the production of antibiotics, enzymes, and biofuels, and their role in various industries such as food, pharmaceuticals, and agriculture.


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B.Sc. Microbiology I Year

Course: 128801 - Fundamentals of Microbiology

CO1- Demonstrate knowledge of the diversity of microorganisms, their structure, classification, and functions.

CO2- Explain the physiological processes of microbial growth, metabolism, and environmental factors affecting microbial activity.

CO3- Develop practical skills in culturing, isolating, and identifying microorganisms using microbiological techniques.

CO4- Analyse the role of microorganisms in the environment, biotechnology, and industrial applications.

Course: 128802 - Bacteriology

CO-1. The basis of classification of bacteria and to enumerate the order, family, genus and species.

CO-2. The morphology, cultural, biochemical and other biological properties and characteristics of medically important bacteria.

CO-3. The mechanism of virulence and pathogenesis and pathology.

CO-4. The disease caused by them, epidemiology, treatment, prevention and control.

Course: 128803 - Virology

CO-1. The process of entry into the cells, control of gene transcription and where relevant translation and gene product stability, control of and mechanism of genome replication, virion assembly and release from the cell.

CO-2. Define the growth behaviour differences between normal cells and cells transformed by oncogenic DNA and RNA Viruses.

CO-3. Define the process of virus latency and describe in molecular terms control of the process and activation of viral genomes during reactivation.

CO-4. Describe the processes involved in the anti-tumour effects of “anti-tumour” viruses.

Course: 128804 - Mycology, Phycology & Protozoology

CO-1 Understand the classification, diversity, and structural organization of fungi, algae, and protozoa..

CO-2 Explain the morphological and physiological characteristics of fungi, algae, and protozoa and their adaptations to various environments.


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CO-3 Evaluate the economic and industrial importance of fungi, algae, and protozoa in areas such as agriculture, biotechnology, pharmaceuticals, and food production.

CO-4 Explore the use of fungi and algae in sustainable practices, such as bioremediation, biofuels, and wastewater treatment.

Course: 128805 - Biochemistry

CO-1 Explain the structure, properties, and functions of biomolecules (proteins, lipids, carbohydrates, and nucleic acids) and their role in biological systems.

CO-2 Illustrate and interpret key metabolic pathways and their interconnections, as well as their significance in energy production and cellular processes.

CO-3 Utilize fundamental biochemical laboratory techniques and tools to analyze biomolecules and investigate enzymatic activities.

CO-4 Relate biochemical principles to physiological processes, clinical conditions, and the development of therapeutic interventions.

Course: 128806 – Biophysics

CO-1 Demonstrate an understanding of how physical laws and concepts govern biological processes at molecular, cellular, and organismal levels.

CO-2 Interpret and model biological phenomena such as molecular interactions, energy transfer, and membrane transport using biophysical approaches.

CO-3 Apply biophysical tools and methods, such as spectroscopy and imaging techniques, to study the structure and function of biomolecules.

CO-4 Relate biophysical principles to advancements in biotechnology, medical diagnostics, and therapeutic applications.

Course: 128807 - Instrumentation and Cultural Techniques

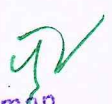
CO-1 Effectively operate and maintain instruments such as spectrophotometers, centrifuges, and chromatography systems for biological and chemical analysis.

CO-2 Perform microbial isolation, culturing, and identification using aseptic techniques and appropriate growth media.

CO-3 Interpret data obtained from various laboratory instruments and experiments to draw meaningful conclusions about biological and chemical systems.

CO-4 Implement sterilization methods and adhere to biosafety standards in laboratory settings to ensure the integrity of experiments and safety of personnel.


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Course: 128808 - Analytical Techniques

CO-1 Demonstrate the ability to perform and analyse experiments using various chromatography and electrophoresis techniques for the separation and identification of biomolecules.

CO-2 Accurately interpret the results from chromatographic, electrophoretic, and radioactive techniques, and use them to draw conclusions about the molecular composition and structure of samples.

CO-3 Safely utilize radioisotopes and radiometric techniques in biological and chemical analyses, ensuring proper safety protocols and accurate result interpretation.

CO-4 Carry out karyotyping procedures to analyse chromosomes for genetic studies, identify chromosomal abnormalities, and understand the implications for health and disease.

Course: 128809 - Biology Paper S-1

CO-1 Students will develop a comprehensive understanding of the diversity of animal life, including classification, physiology, anatomy, and evolutionary relationships among various species.

CO-2 Students will be able to analyze ecological interactions and the role of animals in ecosystems, understanding their significance in maintaining biodiversity and environmental health.

CO-3 Students will gain hands-on experience with laboratory techniques used in the study of zoology, including dissection, microscopy, and genetic analysis, enhancing their research and analytical skills.

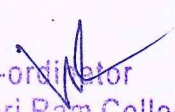
CO-4 Students will be able to understand and critically assess conservation strategies and wildlife management practices, and recognize the importance of preserving endangered species and habitats.

Course: 128810 - Biology Paper S-2

CO-1 Students will gain an understanding of the basic principles of plant classification, including the major plant groups (bryophytes, pteridophytes, gymnosperms, and angiosperms) and their distinguishing features.

CO-2 Students will develop an understanding of the basic structure of plants, including the anatomy of roots, stems, leaves, and flowers, and how these structures support the plant's functions such as nutrient absorption, photosynthesis, and reproduction.

CO-3 Students will understand the key processes involved in plant growth, such as germination, photosynthesis, respiration, and flowering, and how environmental factors influence these processes.


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CO-4 Students will learn about the role of plants in ecosystems, their interactions with the environment, and their importance in maintaining ecological balance and supporting biodiversity.

B.Sc. Microbiology II Year

Course: 228801 - Ultra structure of Cell Biology

CO-1 Students will gain a detailed understanding of the ultrastructure of cells, including the organization and function of cellular organelles such as the nucleus, mitochondria, endoplasmic reticulum, Golgi apparatus, and ribosomes, as observed under electron microscopy.

CO-2 Students will learn about the structural components of biological membranes, such as phospholipid bilayers, membrane proteins, and their roles in transport, signal transduction, and maintaining cellular integrity.

CO-3 Students will understand the molecular mechanisms of cellular processes like protein synthesis, cellular respiration, and intracellular transport, with a focus on the role of different organelles and structures in these processes.

CO-4 Students will develop skills in using advanced microscopy techniques, including light microscopy, transmission electron microscopy (TEM), and scanning electron microscopy (SEM), to study and analyze the ultrastructure of cells and tissues.

Course: 228802 - Cell Reproduction and Differentiation

CO-1 Students will gain a comprehensive understanding of the stages of the cell cycle (G1, S, G2, and M phases), and the molecular mechanisms that regulate cell division, including checkpoints, cyclins, and cyclin-dependent kinases (CDKs).

CO-2 Students will understand the processes of mitosis and meiosis, including the stages of cell division, chromosomal behaviour, and the differences between somatic and gametic cell division, as well as their roles in growth, development, and reproduction.

CO-3 Students will learn about the molecular and genetic mechanisms that drive cellular differentiation, including the role of transcription factors, signalling pathways, and epigenetic modifications in the formation of specialized cell types from pluripotent stem cells.

CO-4 Students will understand how cell reproduction and differentiation contribute to organismal development, tissue regeneration, and the maintenance of homeostasis, with insights into abnormal differentiation processes that lead to diseases such as cancer and developmental disorders.

Course: 228803 - Microbial Physiology

CO-1 Students will understand the metabolic pathways in microorganisms, including glycolysis, the Krebs cycle, fermentation, and their role in energy production.

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CO-2 They will gain knowledge of microbial growth kinetics, nutrient uptake mechanisms, and factors affecting microbial growth under various environmental conditions.

CO-3 Students will learn about the physiological adaptations of microorganisms to extreme environments, such as high temperature, salinity, and pH.

CO-4 They will develop an understanding of microbial transport systems, enzyme activity, and the regulation of biochemical processes in microbial cells.

Course: 228804 - Microbial Metabolism

CO-1 Students will be able to describe and analyse the key metabolic pathways in microorganisms, including glycolysis, the TCA cycle, and fermentation, and explain their significance in energy production and biosynthesis.

CO-2 Students will understand the role of enzymes in microbial metabolism, including their mechanisms, regulation, and importance in controlling metabolic processes.

CO-3 Students will be able to compare and contrast the metabolic strategies employed by different types of microorganisms, such as autotrophs, heterotrophs, and extremophiles, and their adaptation to various environments.

CO-4 Students will demonstrate the ability to apply knowledge of microbial metabolism in biotechnological processes, such as bioenergy production, bioremediation, and industrial fermentation.

Course: 228805 - Molecular Biology

CO-1 Students will gain a comprehensive understanding of the molecular mechanisms of DNA replication, transcription, translation, and regulation of gene expression in prokaryotic and eukaryotic systems.

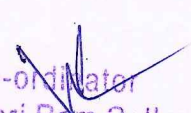
CO-2 Students will acquire practical knowledge of molecular biology techniques, such as PCR, gel electrophoresis, cloning, and sequencing, and their applications in research and biotechnology.

CO-3 Students will be able to analyse the processes of gene regulation, understand the impact of genetic mutations, and predict their consequences on protein structure and function.

CO-4 Students will demonstrate the ability to apply molecular biology principles to solve real-world problems in fields such as medicine, agriculture, and biotechnology, including genetic engineering and genome editing.

Course: 228806 - Microbial Genetics

CO-1 Students will be able to explain the fundamental mechanisms of genetic inheritance in microorganisms, including recombination, replication, and mutation.


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CO-2 Students will demonstrate knowledge of horizontal gene transfer mechanisms such as transformation, transduction, and conjugation, and their significance in microbial evolution and antibiotic resistance.

CO-3 Students will analyse the regulatory mechanisms controlling gene expression in microorganisms, including operons like the lac and trp operons, and their relevance to microbial physiology.

CO-4 Students will develop skills in using microbial genetics tools, such as plasmids, transposons, and understand their applications in biotechnology, medicine, and research.

Course: 228807 - Biomathematics

CO-1 Students will apply advanced mathematical techniques, such as calculus, linear algebra, and differential equations, to solve biological problems.

CO-2 Students will evaluate biological data using mathematical approaches, interpreting results to provide meaningful biological insights.

CO-3 Students will develop and analyse mathematical models to describe biological systems, including population dynamics, growth rates, and ecological interactions.

CO-4 Students will integrate mathematical principles with computational tools to analyse genetic and proteomic data.

Course: 228808 - Computer and Biostatistics

CO-1 Students will acquire knowledge of computer architecture, operating systems, and fundamental programming concepts.

CO-2 Students will demonstrate the ability to use computational tools and software for modelling, visualization, and statistical analysis in life sciences.

CO-3 Students will apply advanced statistical techniques such as regression, ANOVA, and multivariate analysis to biological research data.

CO-4 Students will comprehend and apply probability distributions, hypothesis testing, and inferential statistics to biological problems.

Course: 228809 - Biology Paper S-3

CO-1 Students will gain a comprehensive understanding of physiological processes in animals, including digestion, respiration, circulation, and excretion, and their adaptations to various environments.

CO-2 Students will explore the diversity of animal life, identifying key characteristics and evolutionary relationships among major phyla, with a focus on morphology and taxonomy.

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CO-3 Students will analyse animal behaviour and ecological interactions, understanding their roles in ecosystems, such as predator-prey dynamics, symbiosis, and habitat utilization.

CO-4 Students will investigate reproductive systems and strategies in animals, including sexual and asexual reproduction, developmental stages, and reproductive adaptations in different taxa.

Course: 228810 - Biology Paper S-4

CO-1 Students will gain a detailed understanding of the structural organization of plants, including tissue types, organ systems, and their functional adaptations to diverse environments.

CO-2 Students will analyse key physiological processes in plants, such as photosynthesis, respiration, water and nutrient transport, and their biochemical pathways.

CO-3 Students will explore the reproductive strategies of plants, including sexual and asexual reproduction, embryogenesis, and the development of seeds, fruits, and flowers.

CO-4 Students will evaluate the ecological roles of plants in ecosystems, studying their interactions with other organisms, adaptations to environmental stresses, and contributions to biodiversity.

B.Sc. Microbiology III Year

Course: 328801 - Immunology

CO-1 Students will gain a comprehensive understanding of the components of the immune system, including the roles of white blood cells, antibodies, cytokines, and major histocompatibility complex (MHC) molecules in immune responses.

CO-2 Students will analyse the mechanisms of innate and adaptive immunity, including antigen recognition, immune cell activation, and the processes of immune memory and tolerance.

CO-3 Students will develop proficiency in common immunological techniques such as ELISA, flow cytometry, and Western blotting, and understand their applications in diagnostics, vaccine development, and research.

CO-4 Students will explore immunological disorders, including autoimmune diseases, hypersensitivity reactions, immunodeficiencies, and the role of the immune system in cancer, and discuss therapeutic approaches to manage these conditions.

Course: 328802 - Medical Microbiology

CO-1 Students will develop the ability to identify and classify microorganisms, including bacteria, viruses, fungi, and parasites, using various laboratory techniques such as staining, culture, and molecular diagnostics.

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CO-2 Students will explore the mechanisms through which microorganisms cause disease, including factors that influence virulence, host-pathogen interactions, and the immune response.

CO-3 Students will analyse the principles of antimicrobial therapy, including the action of antibiotics, antifungals, antivirals, and the emerging issue of antimicrobial resistance and strategies to combat it.

CO-4 Students will study the principles of epidemiology, including the spread of infectious diseases, modes of transmission, and the development of infection control measures in healthcare settings.

Course: 328803 - Food and Dairy Microbiology

CO-1 Students will gain knowledge of the various types of microorganisms, including beneficial and spoilage microorganisms, that affect food and dairy products, and understand their roles in fermentation, preservation, and spoilage.

CO-2 Students will study the principles and applications of fermentation in the production of dairy products like cheese, yogurt, and fermented beverages, including the role of starter cultures and microorganisms in fermentation processes.

CO-3 Students will learn about common foodborne pathogens, their transmission, and the mechanisms by which they cause illness. Students will also explore food safety practices, methods of detection, and strategies for preventing contamination in the food industry.

CO-4 Students will develop an understanding of the microbiological quality control processes used in food and dairy industries, including testing methods, regulatory standards, and strategies to ensure product safety and consistency.

Course: 328804 - Agricultural Microbiology

CO-1 Students will gain an understanding of the diverse microbial communities in agricultural environments, including their roles in soil health, plant growth promotion, and nutrient cycling.

CO-2 Students will analyse the role of soil microorganisms in nutrient mobilization, organic matter decomposition, and enhancing soil fertility, and understand how these processes contribute to sustainable agricultural practices.

CO-3 Students will explore the use of microbial inoculants in agriculture, such as nitrogen-fixing bacteria and bio fungicides, and evaluate their applications in improving crop yield and controlling plant diseases.

CO-4 Students will study the role of plant pathogenic microorganisms, including bacteria, fungi, and viruses, in causing crop diseases and examine integrated pest management strategies to mitigate their impact on agriculture.

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Course: 328805 - Recombinant DNA Technology

CO-1 Students will gain a thorough understanding of the techniques involved in recombinant DNA technology, including DNA isolation, restriction enzyme digestion, ligation, and transformation, and their applications in gene cloning and manipulation.

CO-2 Students will learn about various expression systems (such as bacterial, yeast, and mammalian systems) used for the production of recombinant proteins, including the principles of promoter selection, plasmid vectors, and protein purification methods.

CO-3 Students will explore the applications of recombinant DNA technology in biotechnology, including its use in genetic engineering, gene therapy, vaccine development, and the production of pharmaceuticals.

CO-4 Students will analyse the ethical, safety, and regulatory considerations related to recombinant DNA technology, focusing on gene editing, GMOs (Genetically Modified Organisms), and the environmental and health implications of biotechnological innovations.

Course: 328806 - Industrial Microbiology

CO-1 Students will develop an understanding of microbial fermentation processes used in industrial applications, including the production of alcohols, organic acids, antibiotics, and enzymes, focusing on the optimization and scale-up of these processes.

CO-2 Students will explore the role of microorganisms in various biotechnological applications, such as the production of biofuels, bioplastics, and pharmaceuticals, and will understand the principles behind selecting and engineering microbial strains for industrial use.

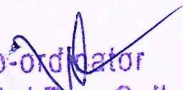
CO-3 Students will gain expertise in the principles of quality control in industrial microbiology, including microbial monitoring, sterility testing, and process optimization techniques to ensure the consistency and safety of microbial products.

CO-4 Students will learn about the use of microbial enzymes and other biocatalysts in industrial processes, such as bioremediation, waste treatment, and food processing, and will evaluate the environmental benefits and economic viability of these processes.

Course: 328807 - Microbial Ecology

CO-1 Students will gain an understanding of the structure and function of microbial communities in various ecosystems, including soil, water, and extreme environments, and their roles in nutrient cycling, biodegradation, and symbiosis.

CO-2 Students will explore the different types of microbial interactions, such as mutualism, commensalism, and competition, and analyse their ecological impacts in both natural environments and human-associated ecosystems.


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CO-3 Students will study how microorganisms adapt to various environmental stresses, such as temperature, salinity, and pH, and their ability to survive in extreme habitats like hot springs, deep-sea vents, and polar regions.

CO-4 Students will explore the practical applications of microbial ecology in areas such as waste treatment, bioremediation, biofuel production, and environmental monitoring, focusing on the potential of microorganisms in solving environmental challenges.

Course: 328808 - Microbes in Environment Biotechnology

CO-1 Students will understand the role of microorganisms in bioremediation processes, including their use in the degradation of pollutants like oil spills, heavy metals, and pesticides, and explore the biotechnological applications for cleaning up contaminated environments.

CO-2 Students will explore the biochemical pathways involved in microbial biodegradation of organic waste, focusing on the use of microbes in waste treatment processes such as composting, wastewater treatment, and solid waste management.

CO-3 Students will learn how microbes are used in environmental monitoring, including their role in bioindicators and biosensors for detecting pollution levels, and the application of genetic and molecular tools in studying microbial communities in environmental samples.

CO-4 Students will investigate the potential of microorganisms in the production of biofuels, including ethanol, methane, and biodiesel, and explore the advancements in using microbes for sustainable energy solutions and the challenges involved in scaling up these processes.

Course: 328809 - Fundamentals of Information Technology

CO-1 Students will learn the fundamental concepts of Information Technology, including hardware, software, networks, and databases.

CO-2 Students will learn how demonstrate the ability to use operating systems, file management, and basic troubleshooting techniques.

CO-3 Students will explore the principles of computer networks, internet technologies, cybersecurity, and data communication.

CO-4 Students will apply IT tools and software for productivity, such as word processing, spreadsheets, presentations, and cloud computing services.

Course: 328810 - Genomics, Proteomics and Bioinformatics

CO-1 Students will learn the principles of genomics, including genome structure, sequencing technologies, and functional genomics.

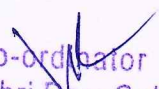
CO-2 Students will explore the techniques used in proteomics, such as protein separation, mass spectrometry, and protein-protein interactions.


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CO-3 Students will learn how to utilize bioinformatics tools and databases for genome and protein analysis, including sequence alignment, molecular modelling, and phylogenetic analysis.

CO-4 Students will learn how to analyse and interpret large-scale genomic and proteomic data to understand biological processes and disease mechanisms.


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M.Sc. MICROBIOLOGY

Program Outcomes

After successful completion of M.Sc. Applied Microbiology program, the students would be able.

PO1: To get opportunities in higher education. They are also developed on the professional front. It also provides opportunities for career advancement in teaching, research, and industries.

PO2: To integrate interdisciplinary thinking and practice.

PO3: To analyse a problem, identify and define the specific requirements with respect to the specific organism, appropriate to its management, and plan strategies for their solution.

PO4: To design, implement and evaluate information systems, processes, components, or programs and source cost-benefit efficient alternatives to meet desired needs, goals, and constraints.

PO5: To deploy and use effective skills, tools, and techniques required for an industry/ organization or institute

PO6: To live a life inculcated with higher values which enable them to withstand the challenges of life.

Program Specific Outcomes

PSO1. After successful completion of M.Sc. Applied Microbiology, students will gather substantive knowledge to pursue his/her career in areas of Biochemistry, Medical Microbiology, Environmental and Food Sciences, Molecular Biology and Biotechnology.

PSO2. Develop an exploratory mind-set along with problem-solving and analytical skills, to enable a smooth progress into the area of research and teaching.

PSO3. Accumulate skills such as critical scientific thinking needed for data analysis. The comprehensive curriculum gróoms the students into industrially efficient scientific manpower.

PSO4. It makes them able to take up challenges and contribute into the development of the world.

PSO5. It makes them equipped with knowledge to clear lectureship and fellowship exams like UGC/ CSIR – NET, SET/ ISRO/DRDO and other competitive exams.

PSO6. It provides students the insight of planning and conducts complex research projects, such as improving sterilization procedures or developing new drugs to combat infectious diseases.


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M.Sc. Microbiology I Semester

Course: 129101 - Instrumentation and Microbial Techniques

After completion of this course, the student will be able to

CO1. Learn the concept of sterile techniques for isolation of microbes in pure culture, and understand the principles of optical microscopy including generation of contrast.

CO2. Gain knowledge about the instrumentation, working principle and applications of varied forms of spectroscopy needed to study biomolecules and crystal structures.

CO3. Understand chromatographic techniques for separation of biomolecules.

CO4. Understand the working principle behind electrophoresis, and study of antigen-antibody interactions, including applications for the identification of microbes.

CO5. Learn centrifugation techniques, and forms of electron microscopy for the purification and characterization of microorganisms.

Course: 129102 - Microbial Diversity-Prokaryotes and Viruses

CO1. Know about bacterial and archaeal diversity in a morphological and phylogenetic context.

CO2. Understand the modern methodology and principles of classification of bacteria and archaea.

CO3. Learn the process of genetic recombination in bacteria (transformation, conjugation and transduction).

CO4. Know how to classify and compare the morphological and genomic characteristics of viruses.

CO5. Understand the working principle of cultivation and purification of viruses.

Course: 129103 - Microbial Diversity-Eukaryotes

CO1. Learn the diversity of fungi and algae along with their comparative structure and classification.

CO2. Learn the detail structure of eukaryotic cell.

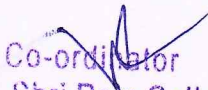
CO3. Learn about the pathogenic aspects of the various groups of microorganisms, their disease cycles and control measures.

CO4. Understand the modern methodology and principles of classification of fungi.

CO5. Understand the characteristics of pathogenic nematode and protozoa.

Course: 129104 - Biostatistics, Computer Applications and Bioinformatics

CO1. Demonstrate the ability to choose methods appropriate to research aims and objectives. Understand the limitations of particular research methods. Develop skills in


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qualitative and quantitative data analysis and presentation. Develop advanced critical thinking skills.

CO2. Restate the principal concepts about biostatistics, collect data relating to variable/variables which will be examined and calculate descriptive statistics.

CO3. Existing software effectively to extract information from large databases and to use this information in computer modelling.

CO4. Knowledge and awareness of the basic principles and concepts of biology, computer science and mathematics.

CO5. Ability to understand the software concepts and their applications.

M.Sc. Microbiology II Semester

Course: 229101 - Microbial Physiology and Biochemistry

CO1. Understand the structure of macromolecules and their basic building blocks.

CO2. Know the mechanisms of ATP generation by microbes, and importance of heterotrophic metabolism, fermentation and chemolithotrophy.

CO3. Learn the generation of ATP in a light driven process and pathways of CO₂ fixation by phototrophic microorganisms.

CO4. Understand how enzymes, the biological catalysts, work and factors affecting their catalytic function.

CO5. Know about nucleic acids and their building blocks, enzyme specificity, energy rich compounds and biological nitrogen fixation

Course: 229102 - Microbial Genetics, Molecular Biology and Genetic Engineering

CO1. Understand the regulation of transcription through the various operons, and the mechanics of translation in bacteria.

CO2. Know about enzymes, vectors and cloning strategies in genetic manipulation.

CO3. Learn about recombinant DNA technology and methods of DNA sequencing.

CO4. Understand the protocol for cloning of a DNA fragment in a plasmid vector, transformation of bacterial cells and screening of cDNA libraries to identify a clone of interest.

CO5. Learn techniques in molecular biology such as PCR, RFLP and DNA microarray that are useful in diagnosis.

Course: 229103 - Agricultural Microbiology

CO1. To learn the various habitats of soil microorganisms and parameters of Soil.


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CO2. To understand the sign, symptoms and etiological agents of various plant diseases.

CO3. To learn the principle, mechanism and production of biopesticides.

CO4. To learn the principle, mechanism and production of biofertilizers.

CO5. To learn the principle and mechanism of biodeterioration, agriculture waste management.

Course: 229104 - Microbial Environmental Technology

CO1. Understand biomes, ecosystems, ecological pyramids and trophic levels in food chains and food webs.

CO2. Learn about the diversity of microbes in aquatic environments, factors affecting their growth, and water-borne diseases caused by infectious microbes.

CO3. Understand the concept of oxygen demanding wastes through BOD and COD, water pollution and its remediation, and waste management.

CO4. Define remarkable role of microbes in cycling of nutrients, and study species interactions and associations in soil affecting physiology and growth of plants.

CO5. Learn about microbes thriving in harsh environments, microbial blooms and their adverse effects, and methods of sampling air borne microbes.

M.Sc. Microbiology III Semester

Course: 329101 - Medical Microbiology

CO1. Provides learning opportunities in the basic's principles of medical microbiology and infectious disease.

CO2. Covers mechanisms of infectious disease transmission, principles of aseptic practices and the role of the human body normal micro flora.

CO3. Provides the conceptual basis for understanding pathogenic microorganism and the mechanisms by which they cause disease in the human body.

CO4. Provides opportunities to develop informatics and diagnostic skills, including the use and interpretation of laboratory tests in the diagnosis of infectious diseases.

CO5. Understand the importance of pathogenic bacteria in human disease with respect to infections of the respiratory tract, gastrointestinal tract, urinary tract, skin and soft tissue.

Course: 329102 - Molecular and Clinical Immunology

CO1. Understand pathogenesis and the role of toxins, enzymes and host factors in infection and disease.

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CO2. Know about diseases caused by diverse microorganisms with emphasis on emerging diseases and pandemics.

CO3. Learn about the oncogenic viruses and cell transformation, and understand the importance of antimicrobial agents and drug resistance.

CO4. Get an overview of immunology with a detailed account of molecular and cellular interactions that control innate and adaptive immunity.

CO5. Understand the concept of autoimmunity, hypersensitive and allergic responses of the host and to learn methods of inducing immunity against the pathogen in the host.

Course: 329103 - Food and Dairy Microbiology

CO1. Understand the significance and activities of microorganisms in food.

CO2. Know the characteristics of food borne, water borne and spoilage microorganism and methods for their isolation, detection and identification.

CO3. Learn the use of standard methods and procedures for the microbiological analysis of food.

CO4. To understand the types and methods of microbial food production.

CO5. To learn the importance of microbes and microbial enzymes applications in industry.

Course: 329104 - Industrial Microbiology

CO1. Understand industrial fermentation, manipulation of microbial strains, and techniques for producing optimal product.

CO2. Learn about diseases caused by contaminated food stuffs and the lab tests for detecting the causal microorganisms.

CO3. Learn of the valuable products obtained from industrially important microbes.

CO4. Know about the ubiquitous presence of microbes, hence contamination of food items and food spoilage, and factors affecting their growth.

CO5. Know the physical and chemical techniques utilized worldwide in food preservation.

M.Sc. Microbiology IV Semester

Course: 0429101 - Medical Microbiology

CO1. Provides learning opportunities in the basic's principles of medical microbiology and infectious disease.

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CO2. Covers mechanisms of infectious disease transmission, principles of aseptic practices and the role of the human body normal micro flora.

CO3. Provides the conceptual basis for understanding pathogenic microorganism and the mechanisms by which they cause disease in the human body.

CO4. Provides opportunities to develop informatics and diagnostic skills, including the use and interpretation of laboratory tests in the diagnosis of infectious diseases.

CO5. Understand the importance of pathogenic bacteria in human disease with respect to infections of the respiratory tract, gastrointestinal tract, urinary tract, skin and soft tissue.

Course: 0429102 - Industrial Microbiology

CO1. Understand industrial fermentation, manipulation of microbial strains, and techniques for producing optimal product.

CO2. Learn about diseases caused by contaminated food stuffs and the lab tests for detecting the causal microorganisms.

CO3. Learn of the valuable products obtained from industrially important microbes.

CO4. Know about the ubiquitous presence of microbes, hence contamination of food items and food spoilage, and factors affecting their growth.

CO5. Know the physical and chemical techniques utilized worldwide in food preservation.

Course: 0429103 - Agricultural Microbiology

CO1. To learn the various habitats of soil microorganisms and parameters of Soil.

CO2. To understand the sign, symptoms and etiological agents of various plant diseases.

CO3. To learn the principle, mechanism and production of biopesticides.

CO4. To learn the principle, mechanism and production of biofertilizers.

CO5. To learn the principle and mechanism of biodeterioration, agriculture waste management.

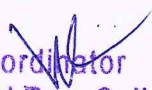
Course: 0429103 - Environmental Microbiology

CO1. Understand biomes, ecosystems, ecological pyramids and trophic levels in food chains and food webs.

CO2. Learn about the diversity of microbes in aquatic environments, factors affecting their growth, and water-borne diseases caused by infectious microbes.

CO3. Understand the concept of oxygen demanding wastes through BOD and COD, water pollution and its remediation, and waste management.

CO4. Define remarkable role of microbes in cycling of nutrients, and study species interactions and associations in soil affecting physiology and growth of plants.


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CO5. Learn about microbes thriving in harsh environments, microbial blooms and their adverse effects, and methods of sampling air borne microbes.

Course: 0429165 - Thesis Viva Voce

Students will carry out six months dissertation training at various reputed institutes of India. The project/dissertation works will enable students to learn the basic working of microbiological laboratories, and provide intensive hands-on training to learn new horizons of microbiology and related life sciences field and to shape their career towards industries and research organization. This project/ dissertation make the students more industrially competent.



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SHRI RAM COLLEGE, MUZAFFARNAGAR
DEPARTMENT OF BIOSCIENCE
PROGRAMME AND COURSE OUTCOMES

B. Sc. BIOTECHNOLOGY

Programme outcomes

- PO1: Students develop global competencies in the area of basic and applied biological sciences.
- PO2: Enhancing the subject knowledge of students by using traditional and modern ICT based teaching methods and learning by doing.
- PO3: To enrich students' knowledge and train them in various branches of Biotechnology such as genetics, molecular biology, biochemistry, immunology, fermentation technology, environmental biotechnology and tissue culture techniques.
- PO4: To groom the students to meet futuristic challenges and national interests
- PO5: Identify, formulate, and solve complex problems in biotechnology using innovative approaches and interdisciplinary knowledge.
- PO6: Design, conduct, and interpret experiments related to molecular biology, microbiology, bioinformatics, and bioprocessing to address real-world challenges.
- PO7: Develop and apply biotechnological solutions for healthcare, agriculture, environment, and industrial processes, addressing societal and global needs.

Programme Specific Outcomes

- PSO1: To bestow the students with all the research skills required to work independently
- PSO2: To develop scientific temperament and social responsibilities in the students.
- PSO3: To inculcate nature care by imparting knowledge of advance modern techniques
- PSO4: As Biotechnology is an interdisciplinary course, empower the students to acquire technological knowhow by connecting disciplinary and interdisciplinary aspects of biotechnology.
- PSO5: Acquire knowledge in students of biotechnology enabling their applications in industry and research.


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Course Outcomes

Year 1

Course -128701- Biochemistry

CO1: As Biochemistry is the branch of science concerned with the chemical and physico chemical processes and substances that occur within living organisms, therefore students will be able to understand how bio-molecules relate to a particular process (metabolism) within a living cell.

CO2: Students will be acquainted with the knowledge of structures, functions, and interactions of proteins, nucleic acids, carbohydrates and lipids.

CO3: The course will help the students to understand the abnormalities in the metabolism their relationship to various diseases. In addition to, it will help to understand the mechanism underlying correct disorders with dietary modifications or genetic modifications.

CO4: Students will learn about enzyme kinetics and types of inhibition as enzymes are important in catalyzing various reactions in the body

Course-128702—Biophysics

CO1: Students will develop a conceptual understanding of connections between physics and biology.

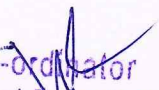
CO2: Students will be able to explain the behavior and interactions between, matter and energy at both the atomic and molecular levels by different atomic models.

CO3: Students will gain an understanding of interpreting spectra and will be able to explain how spectroscopic methods are used for quantitative analysis of biomolecules.

CO4: Students will comprehend the molecular components which constitutes the cell membrane and give its different electrical and physicochemical properties. They will understand the importance of transport in the cells.

Course: 128703—Cell Biology

CO1: This course introduces the students to the basics of cell and its components. This will help them to comprehend detail knowledge about cell and its different types.


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CO2: This gives them a strong foundation on the basic unit of life. It will help them understand about various proposed cell theory and origin of cell.

CO3: Students will acquire the knowledge of structure and functions of various cell organelles and their interaction within cell to promote cell growth, division and development.

CO4: The Students will gain in depth knowledge about cellular architecture and cytoskeletal organization.

CO5: At the end of the course, the student has a strong foundation about cellular theories functions of diverse organelles and the significance of cellular diversity.

Course: 128704-Microbiology

CO1: Student understands microorganism as a model system in life science studies and its importance in biotechnology.

CO2: Students gets knowledge of Eubacteria and Archaeobacteria and differences in structure and composition of respective cell

CO3: Student learn different types of microorganisms, their applications in different sector.

CO4: Student gets knowledge about interaction between microorganisms and plant and animal that helps them to think about its use in Agriculture, Medical and health, Environment field.

Course: 128705- Genetics

Upon successful completion of this subject student should be able to acquire a deep knowledge in:

CO1: Students are able to understand the basic concept of transmission of genetics.

CO2: Students enrich with the knowledge of Mendelian and Non-Mendelian genetics.

CO3: Understanding the concepts of gene interactions and its applications in knowing genetic disorders.

CO4: They learn about chromosomal aberrations and structure of chromosomes.

Course: 128706- Instrumentation and Bioanalytical Techniques

Upon successful completion of this subject student should be able to acquire a deep knowledge in:

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CO1: Students will be able to handle various equipment's used in biochemical analysis and troubleshoot them.

CO2: Students will be able develop competence in handling various chromatographic techniques and apply them in isolating and characterizing different biological molecules.

CO3: Understanding the applications of centrifugation and chromatography in biological investigations.

CO4: Students will be able to understand the working principle and working of different instruments.

CO5: Through hands on training, students are able solve the problems by understanding the principle of pH meter, centrifuge, microscopes, thermometers and their application in analyzing different biological samples.

Course- 128707- Bio Mathematics & Bio Statistics

CO1: Students should be able to solve and interpret the practical real life problem.

CO2: Problem solving skills, creative talent to convert the verbal information into mathematical form are enhanced.

CO3: Interdisciplinary approach is developed.

CO4: Theoretical concepts are strengthened by solving maximum no. of problems.

CO5: To enhance abstract thinking of students.

Course: 128708—Chemistry

After successfully completing this course, the students will be able to:

CO1: Students will learn different fundamentals of basic chemistry of different chemistry branches like organic chemistry, Inorganic, Physical etc.

CO2: Studies includes chemical bonding i.e. formation of different molecules types of bonds, hybridization, in thermodynamic studies free energy required for chemical and biochemical reactions and chemical kinetics rates of chemical reaction.

CO3: In stereo chemistry how different molecules/ bio-molecules are presented by different methods along with their stereo aspects like chirality, etc.

CO4: They will also learn electrochemical aspects during their course.

CO5: They will also perform experimental verification of some parts of theory.


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Course: 128709- Biodiversity

CO1: On successful completion of this course the students will be able to illustrate the importance of biodiversity for upcoming science and economy.

CO2: The main objective of this course is to provide the students with possibilities of acquiring information on biodiversity, its main principles to know measurement of biodiversity richness and abundance.

CO3: Students will develop an understanding of biodiversity with respect to biome (terrestrial) and aquatic ecosystem.

CO4: Students will learn how to study biotic and abiotic part of environment in specific way. International trade responsible for threat to biodiversity

Year 2**Course: 0228701- Fundamental of Computers and Bioinformatics**

CO1: Students will get basic knowledge (handling devices, role of operating system etc.) of computers. They will also familiar with how data gets stored through Database Management System.

CO2: They will capable to create documentation, budgets and mathematical calculations and also make attractive presentations using ms word, excel and Power point respectively They can easily do surfing on internet.

CO3: Introduction to bioinformatics and its role in biotechnology. Students will learn different biological databases present in bioinformatics

CO4: Students will learn how to generate data, tools for generation of data, classify data, and manipulate data, quality analysis. Students will learn metadata concept

CO5: Students will learn how to search, visualize protein using different visualization tool.

Course: 0228702—Bioenergetics and Bio-membranes

CO-1: To familiarize the students with the fundamental concepts of cellular membranes, their structures and the chemical composition that are responsible for the unique functions of biomembranes with emphasis on membrane transport

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CO-2: To help the students understand the concept of chemical thermodynamics and how they apply within cells

CO-3: To make the students understand the various energy transductions that occurs within the cell.

Course: 0228703—Molecular Biology

Upon successful completion of this subject student should be able to acquire a deep knowledge in:

CO1: This course introduces the students to the basics of central dogma of molecular biology and significance of its study. Students understand the chemical and molecular processes that occur in and between the cells.

CO2: This gives them a strong foundation on the basics structure and functions of nucleic acids proteins and their interaction within cell to promote cell growth, division and development.

CO3: Understanding the regulation of gene expression in prokaryotes using operon concept and Eukaryotes.

CO4: The student will demonstrate proficiency in understanding the concept of genetic code its features.

CO5: At the end of the course, the student has a strong foundation about replication of genetic material in prokaryotes and eukaryotes.

Course: 0228704- Molecular Genetics and Cytogenetics

CO1: Understand the molecular bases of genetic information. Learn in detail the chemical nature of nucleic acids and the relationship between structure and function.

CO2: Gain a command of the mechanisms of perpetuation and variation in inherited material and its implications.

CO3: Assimilate the molecular principles on which inheritance is based, to gain an understanding of genetic transmission. Use some of the latest, most representative molecular genetics techniques.

CO4: Describe the structure and functioning of living organisms at the molecular and cellular level, as well as the regulation and integration of the functions of living organisms at these levels.


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CO5: Know how to separate and combine isolated substances from living cells to determine their structure, properties and chemical and functional interactions.

Course: 0228705- Immunology and Immunotechnology

CO1: Upon completion of this course's students will be able to understand and demonstrate the basic knowledge of immunological processes at a cellular and molecular level.

CO2: The students will be able to demonstrate a capacity for problem-solving about immune responsiveness.

CO3: Students will be able to apply basic techniques for identifying antigen-antibody interactions.

CO3: The students will be able to identify the cellular and molecular basis of immune responsiveness.

CO4: Students will be able to elucidate the reasons for immunization and aware of different vaccination.

CO5: The students will be able to describe the roles of the immune system in both maintaining health and contributing to disease.

Course: 0228706- Recombinant DNA Technology

CO1: Explain the fundamental principles and concepts of recombinant DNA technology, including its history, scope, and applications in biotechnology.

CO2: Demonstrate knowledge of molecular tools such as restriction enzymes, DNA ligases, cloning vectors, and host organisms used in genetic engineering.

CO3: Perform DNA isolation, modification, and cloning techniques, and analyze their role in creating recombinant DNA molecules.

CO4: Apply advanced techniques such as PCR, gel electrophoresis, Southern blotting, and DNA sequencing for gene analysis and manipulation.

CO5: Explore the applications of recombinant DNA technology in areas such as pharmaceuticals, agriculture, diagnostics, and environmental biotechnology.

Course: 0228707- Animal Physiology

CO-1: Students learn about the mechanism of circulation and composition of blood.

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CO-2: Students learn about the functions of physiological systems like the digestive, respiratory, renal, reproductive, nervous, and muscular systems.

CO-3: Students learn about the endocrine system and its interactions with other systems.

CO-4: Students learn about the menstrual cycle and the role of contraceptives in population control.

CO-5: Students learn about the functioning of various organs and their interrelationship.

Course: 0228708- Plant Physiology

CO-1: Students explain the different mechanisms in plants used for water transport. They explain the different mechanisms in plants used for water transport.

CO-2: Students explain the importance of photosynthesis for plants. They explain the light and dark reactions of photosynthesis.

CO-3: Students explain assimilation of different mineral nutrients in plants. They explain the forms of nitrogen in biogeochemical cycle. They explain the biological nitrogen fixation. They explain phosphate, cation and oxygen assimilation.

CO-4: They explain the photochemical and biochemical characteristics of phytochrome.

CO-5: Students explain the plant hormones and their roles in plant development.

Course: 0228709- Enzyme and Enzyme Technology

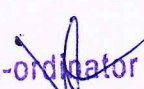
CO1: Students will be able to proceed towards various concepts in biotechnology, the knowledge on enzyme and enzyme reactions.

CO2: Enzyme kinetics will provide the importance and utility of enzyme kinetics in research.

CO3: Students will learn critical analysis of scientific phenomena involving enzymes and will be able to competently work with enzyme systems in both academia and industry.

CO4: Students will get an understanding of procedures involved in purification of enzymes, enzymes assays and quantitative evaluation of the influencing parameters such as concentrations of substrate / enzyme, pH, temperature and effects of inhibitors on enzyme activity.

CO5: Deploy the properties and functions of coenzymes and cofactors. Analyze the biological importance of immobilized enzymes and biosensors.


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Year 3

Course: 0328701- Plant Biotechnology

CO1: Students learn about the molecular and physiological processes that occur during plant growth and development.

CO2: Students learn how to use basic biotechnological techniques to explore plant molecular biology.

CO3: Students learn about the processes involved in planning, conducting, and executing plant biotechnology experiments.

CO4: Students learn about plant genetic transformation and its application in industries.

CO5: Students learn about different methods for improving plants, such as taste, texture, fruit ripening, and sweetness.

Course: 0328702- Animal Biotechnology

CO1: Provide a sound knowledge in development of biological therapeutic agents through stem cells, recombinant technology and monoclonal antibody production etc.

CO2: To promote knowledge about the Animal biotechnology including cell culture, gene transfer technology, use of stem cell in therapies and guidelines to conduct experiment on animals.

CO3: Describe the biotechnologies available for application in industries or disciplines that involve animals

CO4: Explain the potential applications of current or developing biotechnologies to these animal related fields

Course: 0328703- Molecular Virology

CO1: Describe the steps of viral replication, including attachment, entry, uncoating, replication, assembly, and release.

CO2: Explain the structural organization of viruses, including capsids, envelopes, and genetic material. Classify viruses based on genome type, replication strategy, and host range.

CO3: Demonstrate proficiency in methods such as cell culture, plaque assays, and PCR for studying viruses.


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CO4: Analyze the molecular basis of viral diseases and their symptoms. Understand the role of viral factors in disease progression and host immune responses.

Course: 0328704- Nanobiotechnology

CO1: Explain the principles of nanotechnology and its integration with biological systems.

CO2: Understand the interaction of nanomaterials with biomolecules, cells, and tissues. Identify various nanomaterials, such as nanoparticles, nanotubes, quantum dots, and their synthesis techniques.

CO3: Examine the use of nanotechnology in drug delivery, diagnostics, and imaging.

CO4: Describe the working principles of nanobiosensors for detecting biomolecules and pathogens.

CO5: Understand the role of nanotechnology in targeted therapy, including cancer treatment and gene therapy.

Course: 0328705- Environmental Biotechnology

CO1: Student will be able to discuss the role of microorganisms and biotechnological processes in environmental management.

CO2: Student will understand the mechanisms of bioremediation, including microbial degradation of pollutants.

CO3: Apply biotechnological methods for solid waste management, composting, and recycling.

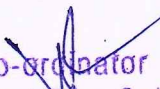
CO4: Explain the principles of biofuel production, including bioethanol, biodiesel, and biogas. Assess the potential of algae and other renewable resources for sustainable energy generation.

CO5: Analyze how genetically modified organisms (GMOs) can be used for pollutant degradation and enhanced bio-productivity.

Course: 0328706- Industrial Biotechnology

CO1: Demonstrate a comprehensive understanding of biological systems, biochemical processes, and their applications in industrial biotechnology.

CO2: Apply bioprocess engineering principles to design, optimize, and scale up industrial biotechnological processes.


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CO3: Operate and analyze the performance of bioreactors, including their use in fermentation, product recovery, and purification.

CO4: Utilize molecular biology techniques for the production of industrial enzymes, biofuels, bioplastics, and other biotechnological products.

Course: 0328707- Genomics and Proteomics

CO1: Demonstrate an in-depth understanding of the structure, organization, and function of genomes and proteomes across different organisms.

CO2: Apply advanced techniques such as sequencing, gene editing, protein profiling, and mass spectrometry to analyze genetic and proteomic data.

CO3: Utilize bioinformatics tools and databases for genome annotation, comparative genomics, proteome analysis, and data interpretation.

CO4: Analyze gene and protein expression patterns to understand biological functions, pathways, and interactions in health and disease.

CO5: Explore the applications of genomics and proteomics in precision medicine, drug discovery, diagnostics, and personalized healthcare.

Course: 0328708- Biosafety, Intellectual Property Rights and Entrepreneurship Development

CO1: Understand the principles of biosafety and bioethics, including handling hazardous materials, laboratory safety, and risk assessment in biotechnology.

CO2: Demonstrate knowledge of national and international biosafety regulations, policies, and guidelines, including the Cartagena Protocol on Biosafety.

CO3: Acquire a comprehensive understanding of intellectual property rights, including patents, copyrights, trademarks, and trade secrets, and their applications in biotechnology.

CO4: Recognize ethical issues related to genetic resources, biopiracy, and the use of traditional knowledge in biotechnological innovations.

CO5: Develop the skills needed to identify opportunities, write business proposals, secure funding, and manage startups in the biotechnology industry.

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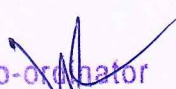
Course: 0328709- Recent Trends in Biotechnology

CO1: Awareness of emerging technologies to understand the latest advancements in biotechnology.

CO2: Explore developments in genomics, transcriptomics, proteomics, and metabolomics and their applications in health, agriculture, and industry.

CO3: Analyze the application of recent trends in industrial biotechnology, including biofuels, bioplastics, and green technologies.

CO4: Apply multidisciplinary approaches by integrating principles of biology, chemistry, physics, and engineering to understand modern biotechnological innovations.


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M.Sc. BIOTECHNOLOGY

PROGRAMME OUTCOMES (PO's)

PO1: Demonstrate knowledge for in-depth analytical and critical thinking to identify, formulate and solve the issues related to Biotechnology Industry, Pharma industry, Medical or hospital related organizations, Regulatory Agencies, & Academia.

PO2: Develop an ability to solve, analyze and interpret data generated from experiments done in project work or practical courses.

PO3: Demonstrate skills to use modern analytical tools/ software/ equipments and analyze and solve problems in various courses of biotechnology.

PO4: Appreciate and execute their professional roles in society as biotechnology professionals, employers and employees in various industries, regulators, researchers, educators and managers.

PO5: Adopt code of ethics in professional and social context and demonstrate exemplary professional, ethical and legal behaviors in decision making.

PO6: Apply written and oral communication skills to communicate effectively in healthcare, industry, academia and research.

PO7: Apply responsibilities to promote societal health and safety, upholding the trust given to the profession by the society. Develop skills, attitude and values required for self-directed, lifelong learning and professional development

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Postgraduate students will be able to demonstrate and apply their knowledge of cell biology, biochemistry, microbiology and molecular biology to solve the problems related to the field of biotechnology.

PSO2: Postgraduate students will be able to demonstrate and apply the principles of bioprocess engineering in the design, analysis, optimization and simulation of bioprocess operations.

PSO3: Students will be able to gain fundamental knowledge in animal and plant biotechnology and their applications.

PSO4: Students will be equipped to understand three fundamental aspects in biological phenomenon: a) what to seek; b) how to seek; c) why to seek?


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PSO5: Student will be able to (a) Describe fundamental molecular principles of genetics; (b) Understand relationship between phenotype and genotype in human genetic traits; (c) Describe the basics of genetic mapping; (d) Understand how gene expression is regulated.

PSO6: Students will be able to (a) To elaborate concepts of biochemistry with easy to run experiments; (b) To familiarize with basic laboratory instruments and understand the principle of measurements using those instruments with experiments in biochemistry.

PSO7: Students will be able to gain hands on experience in gene cloning, protein expression and purification. This experience would enable them to begin a career in industry that engages in genetic engineering as well as in research laboratories conducting fundamental research.

Course Outcomes

Year 1 (I SEM)

Course: 0129001- Fundamentals of Genetics

CO-1: The students will be able to understand the classical and modern concepts of genetics.

CO-2: Students are able to understand the basic principles of inheritance biology.

CO-3: Students will be able to understand the sex linked inherited characters and diseases.

CO-4: They will get in-depth knowledge about gene interaction, penetrance and expressivity.

CO-5: The student will demonstrate proficiency in understanding the basic structure of atom and interpret the inheritance of characters by using linkage and crossing over.

Course: 0129002- Cytogenetics and Molecular Genetics

CO-1: Explain the concepts of DNA replication, DNA damage and repair, and gene expression in eukaryotic and prokaryotic organisms.

CO-2: Be able to take a family history and construct and interpret a pedigree.

CO-3: Be aware of the different laboratory techniques to investigate genetic material and their advantages and limitations.

CO-4: Be able to interpret a standard cytogenetic and molecular genetics.

CO-5: Be able to understand Duplication and deficiencies, Translocation, Inversion, Trisomic and Tetrasomic, Monosomic and Nullisomic.


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Course: 0129003- Statistical Methods and Bioinformatics in Biology

CO -1: Students will acquire independent ability to carry out statistical analysis of data and interpretation of results.

CO -2: Students will be able to statistically analyze the phenotypic data of plant traits.

CO - 3: The students will recognize and examine the relationships between inputs and outputs in their agricultural field to make effective and profitable decisions.

CO -4: Students will demonstrate an ability to engage in critical thinking by analyzing situations and constructing and selecting viable solutions to solve problems.

CO -5: Student will be able to demonstrate the ability to analyse data and draw appropriate statistical conclusions.

CO -6: Students will be well equipped to handle field level data for analysis and modeling purposes. They will learn how to draw a good sample from a population in order to draw valid inference.

CO -7: Students will be able to develop strategies for experimental designs.

CO - 8: Students will understand computational basis of genetic analysis that use genome data sets in system biology.

CO - 9: Students will be able to explain about the methods to characterize and manage the different types of biological data.

CO -10: Student will know about various biological databases that provides information about nucleic acids and protein.

CO -11: Student will understand the basics of sequence alignment and analysis.

CO -12: Students will be able to design and execute the programmes related to structural and functional aspects of genes and proteins.

Course: 0129004- Tools & Techniques in Biotechnology

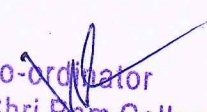
CO-1: Enable the student to get sufficient knowledge in principles and applications of bio instruments.

CO-2: The properties of biomolecules that are used for their analysis

CO-3: The principle concepts in using analytical and preparatory techniques

CO-4: How to quantify and assay for a biomolecules.

CO-5: On successful completion of the course the students will be aware of microscopic techniques, electro physiological methods, biomolecules structure determination using spectroscopy, centrifugation and radiolabelling techniques.


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Year 1 (II SEM)

Course: 0229001- Fundamentals of Biochemistry

CO -1: This course presents the chemical reactions or metabolic functions in the living system and their regulations.

CO -2: To make the student to understand the concept of biochemical regulations

CO -3: On successful completion of the subject the student should have understood: basic biomolecules, viz protein fats, enzymes and their relevance to biological molecular stabilization.

Course: 0229002- Plant Genetic Resources: - Conservation and Their Sustainable Use

CO-1: Students will have knowledge on the conservation of biodiversity.

CO-2: They will acquire knowledge on various organizations involved in conservation and their policies.

CO-3: The students will have knowledge on plant quarantine regulations.

CO-4: The students will be able to promote human capacity to appreciate, maintain, and promote utilization of plant genetic resources.

CO-5: Students will understand different forms of IPRs and legislations related with IPRs. They will be well aware of Farmers' and Plant Breeders' rights.

Course: 0229003- Biotechnology in Crop Improvement

CO-1: Ability to apply the concepts and principles of plant tissue culture techniques on research problems pertinent to crop improvement.

CO-2: Dissemination of skills on usage of the acquired knowledge on practical biotechnology tools to augment agricultural research.

CO-3: The knowledge required to execute, analyze and apply molecular marker systems for crop improvement.

CO-4: Students will know about different mapping populations.

CO-5: Establish different types of plant cultures.

CO-6: Apply the technical skills learnt to establish nurseries for horticultural and agricultural crops.

CO-7: Compare the pros and cons of transgenic plants on environment.

CO-8: Explain the concepts of intellectual property management and handling of GMOs.

Course: 0229004- Recombinant DNA Technology and Genetic Engineering

CO-1: Explain the basic principles and, the tools and techniques of Genetic engineering.

CO-2: Describe the applications of genetic engineering in various fields.


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CO-3: Debate on ethical issues concerned with Genetic engineering.

Year 2 (III SEM)

Course: 0329001- Microbial, Industrial and Environmental Biotechnology

CO-1: The objectives of this course are to introduce students to developments/ advances made in field of microbial technology for use in human welfare and solving problems of the society. On completion of this course, students would develop deeper understanding of the microbiology and its applications.

CO-2: Explain the principle and application of various types of Microscopy.

CO-3: Describe the structure and Classification, staining, culturing, physiology, of microorganism.

Course: 0329002- Concepts of Nanotechnology

CO-1: Basic knowledge of nanoscience and its advancement in present time, future aspects of nanoscience

CO-2: Introduction, Properties and Characterization of nanomaterials, use of quantum dots in biology

CO-3: Study of Protein and Peptide based Nanostructures, DNA based Nanostructures, DNA based devices, nanosensors

CO-4: Self assembling nanostructures, Synthesis and Assembly using Bio-Derived Templates.

CO-5: Use of Pharmaceutically important nanomaterials for controlled drug delivery

CO-6: Nanomaterials and Toxicity Evaluation at cellular level.

Course: 0329003- Animal biotechnology and Immunology

CO-1: Explain the concepts of innate and adaptive immune response and techniques for clinical diagnosis.

CO-2: Illustrate the methodology to establish animal cell culture.

CO-3: Describe the importance of engineering animal cells for the production of therapeutic proteins.

Course: 0329004- Genomics and Proteomics

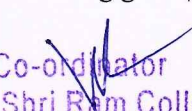
CO-1: Learning about genome, the types and significance of repeats in the genome.

CO-2: Learn strategies for Whole Genome Sequencing.

CO-3: Perform procedures for the De novo and reference based assembly, Genome finishing and annotation.

CO-4: Perform ORF, ab initio and homology based Gene prediction.

CO-5: Assessing genomic variations- using DNA marker systems.


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CO - 6: Knowledge on DNA chips and their use in transcriptome analysis.

CO - 7: Learn about the role of mutants and RNAi in functional genomics.

CO - 8: Acquire skills in the techniques of Site directed mutagenesis, Transposon tagging and targeted genome editing technologies.

CO - 9: Perform protein 3D structure modelling and proteome analysis.

CO-10: Understand protein - protein interaction by FRET, yeast two hybrid and co - immunoprecipitation.

Year 2 (IV SEM)

Course: 0429065- Thesis Work

CO -1: The purpose of this course is to help students organize ideas, material and objectives for their dissertation and to begin development of communication skills and to prepare the students to present their topic of research and explain its importance to their fellow classmates and teachers.

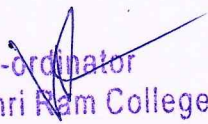
CO -2: Students should be able to formulate a scientific question

CO -3: Students should be able to present scientific approach to solve the problem

CO -4: Students should be able to interpret, discuss and communicate scientific results in written form.

CO -5: Students should be able to gain experience in writing a scientific proposal.

CO -6: Students should be able to learn how to present and explain their research findings to the audience effectively.



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Department of Basic Science

B.Sc. (NEP)

PROGRAMME OUTCOMES (POs)

The National Education Policy (NEP) 2020 proposes significant changes to the curriculum and structure of undergraduate programs in India, including B.Sc degrees. Here's a general outline of the potential program outcomes under NEP 2020 in MSU Saharanpur..

Program 1: B.Sc. PCM

This course offers theoretical as well as practical knowledge about different subject areas- Physics, Chemistry & Mathematics. . It helps to develop scientific temper and thus can prove to be more beneficial for the society as the scientific developments can make a nation or society to grow at a rapid pace. Some following outcomes may be described as:

- PSO-1 Understand the interrelations between the different subjects and develop the ability to identify the links between them.
- PSO-2 Develop skills necessary to plan, design and conduct experiments to test, demonstrate, verify and extend theoretical knowledge reliably and safely.
- PSO-3 Develop ability to logically analyze data and solve problems systematically and objectively analyze open ended problems.
- PSO-4 Use existing knowledge to synthesize new ideas and approaches to unfamiliar situations.
- PSO-5 Acquire ability to face competitive exams for higher study in a chosen subject and procedural knowledge required for professional engagement in industry, teaching, research or other service.
- PSO-6 This course also offers opportunities for serving in Indian Army, Indian Navy and Indian Air Force as officers.
- PSO-7 Apart from the research jobs, students can also work or get jobs in Marketing, Business & Other technical fields.
- PSO-8 Science graduates also recruited in the bank sector to work as customer service executives. Students can also find employment in government sectors.

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Program 2: B.Sc. CBZ

This course offers theoretical as well as practical knowledge about different subject areas—Botany, Zoology & Chemistry. . It helps to develop scientific temper and thus can prove to be more beneficial for the society as the scientific developments can make a nation or society to grow at a rapid pace. Some following outcomes may be described as:

PSO-9 Students will be able to define and explain major concepts in the biological sciences.

PSO-10 They are able to correctly use biological instrumentation and proper laboratory techniques.

PSO-11 After the completion of this course students have the option to go for higher studies i.e. M. Sc and then do some research for the welfare of mankind.

PSO-12 After higher studies students can join as scientist and can even look for professional job oriented courses.

PSO-13 This course also offers opportunities for serving in Indian Army, Indian Navy, Indian Air Force as medical officers.

PSO-14 Students after this course have the option to join Indian Civil Services as IAS, IFS etc..

PSO-15 Science graduates can go to serve in industries or may opt for establishing their own industrial unit.

PSO-16 Apart from the research jobs, students can also work or get jobs in Marketing, Business & Other technical fields.

PSO-17 Science graduates also recruited in the bank sector to work as customer service executives.

PSO-18 Students can also find employment in government sectors.

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COURSE OUTCOMES

PHYSICS

0120101: Mathematical Physics & Newtonian Mechanics

- Students able to recognize the difference between scalars, vectors, pseudo-scalars and pseudo-vectors.
- Comprehend the difference and connection between Cartesian, spherical and cylindrical coordinate
- Know the meaning of 4-vectors, Kronecker delta and Epsilon (Levi Civita) tensors.
- Study the origin of pseudo forces in rotating frame.
- Understand the dynamics of planetary motion and the working of Global Positioning System (GPS)

0220101: Thermal Physics & Semiconductor Devices

- Students will recognize the difference between reversible and irreversible processes.
- Students able to understand the physical significance of thermodynamical potentials.
- Students able to recognize the basic components of electronic devices

0320101: Electromagnetic Theory & Modern Optics

- Students able to understanding of electrical and magnetic phenomenon in daily life.
- Students able to troubleshoot simple problems related to electrical devices.
- Study the fundamental physics behind reflection and refraction of light (electromagnetic waves)

0420101: Perspectives of Modern Physics & Basic Electronics

- Students able to understand the difference between the structure of space & time in Newtonian & Relativistic mechanics.
- Understand the physical significance of consequences of Lorentz transformation equations
- Comprehend the wave-particle duality and Develop an understanding of the foundational aspects of Quantum Mechanics.

0520101: Classical & Statistical Mechanics

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- Understand the concepts of generalized coordinates and D'Alembert's principle.
- Understand the Lagrangian dynamics and the importance of cyclic coordinates.
- Comprehend the difference between Lagrangian and Hamiltonian dynamics

0520102: Quantum Mechanics & Spectroscopy

- Understand the significance of operator formalism in Quantum mechanics.
- Study the eigen and expectation value methods.
- Understand the basis and interpretation of Uncertainty principle.
- Develop the technique of solving Schrodinger equation for 1D and 3D problems.

0620101: Solid State & Nuclear Physics

- Understand the crystal geometry w.r.t. symmetry operations.
- Comprehend the power of X-ray diffraction and the concept of reciprocal lattice
- Recognize the importance of Free Electron & Band theories in understanding the crystal properties.

0620102: Analog & Digital Principles & Applications

- Understand the Two-Port model of a transistor.
- Study the working, properties and uses of FETs.
- Understand various number systems and binary codes




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COURSE OUTCOMES

CHEMISTRY

0120201: Fundamentals of Chemistry

- Fundamental Concepts: Demonstrate a thorough understanding of basic chemical concepts such as atomic structure, chemical bonding, periodic trends, states of matter, and chemical reactions.
- This course gives a broader theoretical picture in multiple stages in an overall chemical reaction. It describes reactive intermediates, transition states and states of all the bonds broken and formed. It enables to understand the reactants, catalyst, stereochemistry and major and minor products of any organic reaction.
- It describes the types of reactions and the Kinetic and thermodynamic aspects.

0220201: Bioorganic and Materials Chemistry

- Students can understand the physiological function that regulates the proper growth and development of a human body.
- Students able to introduce the basic experimental understanding of carbohydrates, amino acids, proteins, nucleic acids and medicinal chemistry.
- Students may get job opportunities in food, beverage and pharmaceutical industries.

0320201: Chemical Dynamics & Coordination Chemistry

- Students able to describe the characteristic of the three states of matter and describe the different physical properties of each state of matter. Kinetic theory of gases, laws of crystallography, liquid state and liquid crystals, conduct metric, potentiometric, optical methods, polarimetry
- Students able to use spectrophotometer technique to study Chemical kinetics and chemical equilibrium.
- Students will be able to understand metal-ligand bonding in transition metal complexes, thermodynamic and kinetic aspects of metal complexes

0420201: Quantum Mechanics and Analytical Techniques

- Students should be able to describe atomic structure, elementary quantum mechanics, wave function and its significance.
- Students will be able to explore new areas of research in both chemistry and allied fields

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of science and technology.

- Students will be able to function as a member of an interdisciplinary problem solving team.

0520201: Organic Synthesis A

- Students can understand about the Hydrocarbons which is the principal constituents of petroleum and natural gas.
- This course will provide a broad foundation in for the synthesis of hydrocarbons. Hydroxy and carbonyl compounds are industrially important compounds
- Students will understand the used of solvents and raw material for synthesis of drug and other pharmaceutically important compounds.

0520202: Rearrangements and Chemistry of Group Elements

- *Students* will able to synthesis of various class of organic compounds and functional groups inter conversion.
- Students can get jobs in production & QC departments related to chemicals, drugs, medicines, industries.
- Students will get detailed knowledge on the elements present in our surroundings, their occurrence in nature.

0620201: Organic Synthesis B

- Students can get jobs in production & QC departments related to chemicals, drugs, medicines, industries.
- Students will able to explain the importance of natural compounds as lead molecules for new drug discovery
- After the study of natural products and heterocyclic compounds students get the knowledge of identifying novel biological probes for a number of diseases

0620202: Chemical Energetic and Radio Chemistry

- Students should be able to describe laws of thermodynamics and its applications
- Students able to explain phase equilibrium of one and two component system
- Students able to understand electro chemistry ,ionic equilibrium applications of conductivity

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COURSE OUTCOMES

MATHEMATICS

0120301: Differential Calculus & Integral Calculus

- Students able to understand the foundation knowledge of basics of mathematics including applied aspect for developing enhanced quantitative skills and pursuing higher mathematics and research as well.
- They will also be able to know about convergence of sequence and series. Also, they have knowledge about curvature, envelope and evolutes and trace curve in polar, Cartesian as well as parametric curves.
- The main objective of the course is to equip the student with necessary analytic and technical skills. By applying the principles of integral he learns to solve a variety of practical problems in science and engineering. acquaintance with some basic concepts in statistics.

0220301T: Matrices and Differential Equations & Geometry

- The student will be able to find the rank, Eigen values of matrices and study the linear homogeneous and non-homogeneous equations. The course in differential equation intends to develop problem solving skills for solving various types of differential equation and geometrical meaning of differential equation.
- The students can visualize the fundamental ideas about coordinate geometry and learn to describe some of the surface by using analytical geometry.
- On successful completion of the course students have gained knowledge about regular geometrical figures and their properties. They have the foundation for higher course in Geometry.

0320301: Algebra & Mathematical Methods

- Students learning this course get a concept of Group, Ring, Integral Domain and their properties. This course will lead the student to basic course in advanced mathematics and Algebra.
- This course gives emphasis to enhance students' knowledge of functions of two variables, Laplace Transforms, Fourier Series.
- On successful completion of the course students should have knowledge about higher different mathematical methods and will help him in going for higher studies and research.

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0420301: Differential Equations & Mechanics

- Students doing this course is able to solve differential equations
- Students doing this course are able to acquire knowledge of basic mechanics such as simple harmonic motion, motion under other laws and forces.
- Students after completing the course can go for higher problems in mechanic such as hydrodynamics; this will be helpful in getting employment.

0520301: Group and Ring Theory & Linear Algebra

- Students can introduce to the basics of linear algebra and some of its applications.
- Students will be able to know the concepts of group, ring and other related properties which will prepare the students to take up further applications in the relevant fields.
- Student will use this knowledge in computer science, finance mathematics, industrial mathematics and bio mathematics.

0520302: Number Theory & Game Theory

- Students will gain the knowledge and skills to solve problems in elementary number theory and also apply elementary number theory to cryptography.
- Students able to analysis of the decision and predicting how individuals behave in a specific strategic situation through game theory, and therefore help improve decision making.
- To illustrate the concepts, real-world examples, case studies, and classroom experiments might be used

0620301: METRIC SPACES & COMPLEX ANALYSIS

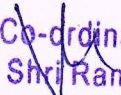
- Students able exposing to foundations of analysis which will be useful in understanding various physical phenomena and gives the student the foundation in mathematics.
- Student will have rigorous and deeper understanding of fundamental concepts in Mathematics. This will be helpful to the student in understanding pure mathematics and in research.
- Students will be able to know the concepts of metric space, basic concepts and developments of complex analysis which will prepare the students to take up further applications in the relevant fields.

0620302: Numerical Analysis & Operations Research


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- Students can use various numerical techniques for a variety of problems occurring in daily life.
- Students will be able to understand the basic concept of Numerical Analysis and to solve algebraic and differential equations.
- Students will be able to handle problems and find an approximated solution. Later he can opt for an advanced course in Numerical Analysis in higher Mathematics.



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COURSE OUTCOMES

BOTANY

0120401: Microbiology & Plant Pathology

- Develop understanding about the classification and diversity of different microbes including viruses, Algae, Fungi & Lichens & their economic importance. Develop conceptual skill about identifying microbes, pathogens, biofertilizers & lichens.
- To gain knowledge about developing commercial enterprise of microbial products.
- To understand the structure and reproduction of certain selected bacteria algae, fungi and lichens

0220401: Archegoniates and Plant Architecture

- Develop critical understanding on morphology, anatomy and reproduction of Bryophytes, Pteridophytes and Gymnosperms
- Understanding of plant evolution and their transition to land habitat.
- Understand morphology, anatomy, reproduction and developmental changes therein through typological study and create a knowledge base in understanding the basis of plant diversity, economic values & taxonomy of plants

0320401: Flowering Plants Identification & Aesthetic Characteristics

- To gain an understanding of the history and concepts underlying various approaches to plant taxonomy and classification.
- To learn the major patterns of diversity among plants, and the characters and types of data used to classify plants.
- To compare the different approaches to classification with regard to the analysis of data.

0420401: Economic Botany, Ethno medicine and Photochemistry

- Understand about the uses of plants –will know one plant-one employment
- Understand photochemical analysis related to medicinally important plants and economic products produced by the plants
- Know about the importance of Medicinal plants and its useful parts, economically important plants in our daily life and also about the traditional medicines and herbs, and its relevance in modern times.


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0520401: Plant Physiology, Metabolism & Biochemistry

- Understand the role of Physiological and metabolic processes for plant growth and development.
- Learn the symptoms of Mineral Deficiency in crops and their management.
- Assimilate Knowledge about Biochemical constitution of plant diversity

0520402: Molecular Biology & Bioinformatics

- Understand nucleic acids, organization of DNA in prokaryotes and Eukaryotes, DNA replication mechanism, genetic code and transcription process.
- Know about Processing and modification of RNA and translation process, function and regulation of expression.
- Gain working knowledge of the practical and theoretical concepts of bioinformatics

0620401: Cytogenetic, Plant Breeding & Nanotechnology

- Acquire knowledge on cell ultra structure.
- Understand the structure and chemical composition of chromatin and concept of cell division.
- Interpret the Mendel's principles, acquire knowledge on cytoplasm inheritance and sex-linked inheritance.

0620402: Ecology & Environment:

- Complex interrelationship between organisms and environment.
- Understand methods for studying vegetation, community patterns and processes, ecosystem functions, and principles of phytogeography.
- This knowledge is critical in evolving strategies for sustainable natural resource management and biodiversity conservation.



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COURSE OUTCOMES

ZOOLOGY

0120501: Cytology, Genetics and Infectious Diseases

- To understand the structure and function of all the cell organelles.
- To be familiar with the basic principle of life, how a cell divides leading to the growth of an organism and also reproduces to form new organisms.
- Understand the basic principles of genetics and how genes (earlier called factors) are inherited from one generation to another.

0220501: Biochemistry and Physiology

- Students will be able to understand the structure of biomolecules like proteins, lipids and carbohydrates
- Students able to understand the thermodynamics of enzyme catalyzed reactions.
- Students able to understand systems biology and various functional components of an organism

0320501: Molecular Biology, Bioinstrumentation & Biotechniques

- Students will understand the molecular processes viz. DNA to trait.
- Students will understand the processes of central dogma viz. transcription, translation etc. underlying survival and propagation of life at molecular level.
- Understanding of how genes are ultimately expressed as proteins which are responsible for the structure and function of all organisms.

0420501: Gene Technology, Immunology and Computational Biology

- Students will understand the principles of genetic engineering and how genes can be cloned in bacteria and the various technologies involved in it.
- Students able to know the applications of biotechnology in various fields like agriculture, industry and human health.
- Get introduced to DNA testing and utility of genetic engineering in forensic sciences.
- Enable students to get employment in pathology/Hospital.

0520501: Diversity of Non-Chordates and Economic Zoology

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- Students able to demonstrate comprehensive identification abilities of non-chordate diversity
- Student able to explain structural and functional diversity of non-chordate
- Students will get employment in different applied sectors

0520502: Diversity of Chordates and Comparative Anatomy

- Students will be able demonstrate comprehensive identification abilities of chordate diversity
- Students will be able explain structural and functional diversity of chordates
- Students able to take up research in biological sciences.

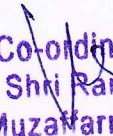
0620501: Evolutionary and Developmental Biology

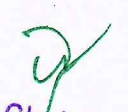
- The student will be able to understand the process of biological evolution.
- Students at the completion of the course will be able to understand that natural selection is one of several processes that can bring about evolution, although it can also promote stability rather than change.
- Students able to understand how the single cell formed at fertilization forms an embryo and then a full adult organism.

0620502: Ecology, Etiology, Environmental Science and wildlife

- Students able to understand the global environmental issues, their causes, consequences and amelioration.
- Students will be able to understand and identify behaviors in a variety of taxa.
- Students will be able to interpret the cause and effect of lifestyle disorders contributing to public understanding of biological timing.




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Course Outcomes & Program Outcomes (COs & POs)



Batch – 2020-24

SUBMITTED BY
DEPARTMENT OF AGRICULTURE

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Department of Agriculture

B. Sc. (Agriculture)

Batch- 2020-24

PROGRAMME OUTCOMES (POs)

Students graduating with the B.Sc. Physical Science degree should be able to acquire

PO-1: To demonstrate the ability to analyze data and draw appropriate statistical conclusions. To demonstrate the ability to communicate effectively both orally and in writing.

PO-2: Understand the impact of the professional agricultural solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO-3: To demonstrate research based knowledge of the legal and ethical environment impacting agriculture organizations and exhibit an understanding and appreciation of the ethical implications of decisions. And to demonstrate an understanding of and appreciation for the importance of the impact of globalization and diversity in modern agriculture organizations. Understanding of globalization, and NGO working.

PO-5: To demonstrate an ability to engage in critical thinking by analyzing situations and constructing and selecting viable solutions to solve problems. Ability to work effectively with others. To develop analytical ability and team work spirit.

PO-6: To understand and analyze the current events and issues that are occurring in agriculture and how they affect futuristic agriculture.

PO-7: Able to recognize and examine the relationships between inputs and outputs in their agricultural field to make effective and profitable decisions. To understand mechanics of agripreneurship.

PO-8: Understand how all aspects of agriculture combine and are used by scientists, marketers, producers and understand how employer characteristics and decision-making at various levels enhance the success of an agricultural enterprise. To understand components of agri business and economics of market.

PO-9: Able to demonstrate critical thinking and problem solving skills as they apply to a variety of animal and or plant production systems. To understand problem solving skills in crop production and animal husbandry.

PO-10: Knowledge of Weather codes and Symbols, Reading and Recording of weather and climatic data. To get trained for climatologically records, soil data and soil nutrition.

PO-11: To develop critical and self-critical opinion and approach aiming at solving the most

important practical problems in the field of plant protection by applying gained competencies


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and in accordance with high standards of academic integrity (ethics and moral) both in the profession and in society as a whole. To develop competence to work in Government, public and private sectors.

PO-12: Demonstrate knowledge and understanding in horticulture section: The breadth and depth of the profession of horticulture. Basic horticulture biology: taxonomy, anatomy, morphology, and physiology. The characteristics of the environment and their influence on plant growth and development. Current applications of horticultural principles and practices: propagation, pest management, production, maintenance, and business practices. Comprehensive knowledge of horticultural production. This programme will also help students to enhance their employability for jobs in different sectors.

D-191: Principles of Agronomy

Course Outcome:

CO-1. In modern terminology however the word has come to mean and denote a branch of science dealing with all aspects of crop cultivation and production.

CO-2. A study of agronomy often involves a summoning of resources from related disciplines such as Botany, Soil Science, Irrigation, plant protection, Plant Genetics and Breeding, Agro- meteorology etc.

CO-3. In a more fundamental sense it can be categorized as an applied Science, the object of which is crop cultivation and management for the purpose of producing food for humans, feed for animals as well as raw materials for the industry.

CO-4. Knowledge about Indian Agriculture and importance, present status, scope and future prospect.

D-192: Fundamentals of Soil Science

Course Outcome:

CO-1. To be able about physical and chemical properties of soil and their effect on plant's health.

CO-2. To aware the students about causes, effects and remedies to prevention and mitigation of soil pollution.

CO-3. Knowledge about soil forming rocks and minerals, their weathering and soil forming processes and climatic factors affect them.

D-193: Elements of Genetics

Course Outcome:


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- CO-1. Comprehensive, detailed understanding of the chemical basis of heredity specially in crop plants to improve and develop the new varieties of plants.
- CO-2. Understanding of how genetic concepts affect broad societal issues including health and disease, food and natural resources, environmental sustainability etc.
- CO-3. The knowledge required to design, execute, and analyze the results of genetic experimentation in plant systems.
- CO-4. Insight into the mathematical, statistical, and computational basis of genetic analyses that use genome-scale data sets in systems biology settings.
- CO-5: Understanding the role of genetic technologies in industries related to biotechnology, pharmaceuticals, energy, and other fields.

D-194: Elementary Statics and applied mathematics elements of Statistics

Course Outcome:

At the end of the course student will be able to know

- CO-1. Acquaintance with some basic concepts in statistics.
- CO-2. Making familiar with some elementary statistical methods of analysis of data viz. Measures of Central Tendency, Dispersion, Moments, Skewness, and Kurtosis and to interpret them.
- CO-3. Analysis of data pertaining to attributes and to interpret the results.

D-195: Agricultural Meteorology

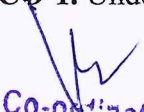
Course Outcome:

- CO-1. To understand roles of agro meteorology in agriculture and its relation to other areas of agriculture to acquaint with recent developments in agro meteorology with historical development of climate change.
- CO-2. Agro meteorology or Agricultural meteorology studies meteorological and hydrological factors in relation to agriculture.
- CO-3. Agro meteorology studies the behavior of the weather elements that have direct relevance to agriculture and their effect on crop production.
- CO-4. Weather and climate are the factors determining the success or failure of agriculture.
- CO-5. To develop weather based agro advisories to sustain crop production utilizing various

D-196: Rural Sociology and Educational Psychology

Course Outcome:

- CO-1. Understand concept of rural sociology, its importance in agricultural extension and


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characteristics of Indian rural society.

CO-2. Understand social groups, social stratification, culture, social values, social control and attitudes, leadership and training.

CO-3. Understand concept of educational psychology, intelligence, personality, perceptions, emotions, frustration, motivation, teaching and learning.

CO-4. Assess personality types, leadership types and emotions of human beings.

D-197: Fundamentals of Horticulture

Course Outcome:

CO-1. Students will be able to identify plant vegetative structure

CO-2. Students will understand basic principles, processes and plant propagation methods.

CO-3. Students will understand how to propagate plant, manage and harvest a variety of plant.

CO4 Students will learn how horticulture relates to the economy and environments, both currently and in the future.

D-198: Physical Education

Course Outcome:

CO-1. Understand concept of Physical education, develop skill and confidence.

CO-2. Maintain physical fitness.

CO-3. Demonstrate positive social skills, learn about personal health and wellness.

D-199: Structural & Spoken English

Course Outcome:

CO-1. Students will identify and explain their goals to the semester and also identify the needs of communication helps us meet. They will be able to understand the common misconceptions about communication and the reasons, people use language.

CO-2. Students can differentiate the action, interaction and transaction models of communication. They can define the process of both perception and listening. Students can recall the importance of listening effectively and can identify strategies for communicating the cultural awareness.

CO-3. Students will be able to introduce themselves to the class and begin getting to know one another and will apply communication strategies by preparing and participating in class discussion.


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CO-4. Students will prepare and present messages with the intent of persuading an audience. Students will be able to analyze basic communication skills, intercultural communication skills, interpersonal communication skills and public-speaking skills.

D- 008: Environmental Studies

Course Outcome:

CO-1. Appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving. Interdisciplinary branches of environment and their scopes.

CO-2. Concepts of natural resources, Food resources, mineral resources, Concept of non Conventional energy resources, types and various applications of renewable resources and current potentials of energy resources.

CO-3. Ecosystem Links between environmental components and their role and types of ecosystems.

CO4: Types of biodiversity, their values, depletion and conservation methods.

D-291: Irrigation and Water Management

Course Outcome:

CO-1. Explain soil and water engineering concepts like measurement of land, surveying and leveling.

CO-2. Describe about irrigation and its different methods.

CO-3. Describe about irrigation water quality and its management including conjunctive use of water and water management of different crops.

CO4. - Explain about agricultural drainage.

D-292: Fundamentals of Extension Education and Rural development

Course Outcome:

CO-1. Describe about rural sociology & educational psychology.

CO-2. Develop communication skill with farmer and easily implement the agricultural policies.

CO-3. Develop the personality for professional world, self-assessment, learn rectification and improvement.

D-293: Elementary Crop Physiology

Course Outcome:

CO-1. Role of crop physiology in crop health.


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CO-2. Identification of deficiency symptoms of nutrients.

CO-3. To know the difference between C3, C4 and CAM plant.

CO-4. Importance of growth Harmon in Agriculture.

D-294: Introductory Entomology

Course Outcome:

CO-1. To be able to identify morphological characteristics.

CO-2. To be able to apply concepts and analytical approaches in evolutionary biology, genetics and other areas of insect biology of the student's choice.

CO-3. To be able to categorize insects based on basic ecological, behavioural, morphological, physiological, or developmental attributes.

D-295: Introductory Plant Pathology

Course Outcome:

CO-1. To provide specific knowledge about host pathogen interactions.

CO-2. Recognition of plant disease is the first step in doing something about them.

CO-3. To give specific knowledge about environment and disease development.

D-296: Elementary plant Bio-Chemistry and Chemistry of Plant products

Course Outcome:

CO-1. Role of cell organelles and their functions

CO-2. Functions of biomolecules and their utility in cell

CO-3. Identify the deficiency symptoms of biomolecules

CO-4. Synthesis pathways of biomolecules and regulations

D-297: Introduction to Agriculture and Natural Resources Economics and Farm Management Economics

Course Outcome:

CO-1. Explain concept of farm management, objectives and relationship with other sciences.

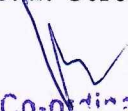
CO-2. Discuss Farm business analysis: meaning and concept of farm income and profitability.

CO-3. Develop understanding of various types of important issues in economics and management of

land, water, forest resource and the environment.

CO-4. Explain natural resources administration.

D-391: Cereals Millets, and pulses crops (Field Kharif crop)


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Course Outcome:

- CO-1. Collect the knowledge on kharif season crops, its classification (cereal crops, oilseed crops, pulse crops, sugar crops, fodder crops) and its importance in agriculture and national economy.
- CO-2. Describe the origin, geographical distribution and economic importance of kharif crops.
- CO-3. Define the soil and climatic requirements of Kharif crops.
- CO-4. Explain the cultural practices, varieties and yield of Kharif crops.

D-392: Principal of plant breeding**Course Outcome:**

- CO-1. Establish the commercial plant breeding company to developed new superior crops varieties.
- CO-2. Develop the insect and disease resistant varieties for environment friendly management of disease and insect.
- CO-3. Start a consultant company to guide & supply the better varieties to the farmers.

D-393: Form power and Machinery; Farm Structures, Power and Machinery**Course Outcome:**

- CO1: Various sources of farm power and their uses.
- CO2: About working of IC Engines and their uses in modern equipments.
- CO3: About various parts of tractors and their mechanism.
- CO4: The financial aspects of using farm power.

D-394: Environmental Science Agro Ecology**Course Outcome:**

- CO-1. Describe different ecosystems, natural resources and environmental pollution.
- CO-2. Explain about biodiversity and its conservation.
- CO-3. Interpret the values, feelings and participation of society in protection activities of the environment.
- CO-4. Develop the skills in identification of useful natural resources and their management practices.

D-395: Agriculture marketing, export and cooperation**Course Outcome:**

- CO-1. Optimization of Resource use and Output Management.


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CO-2. Increase in Farm Income, National Income, Price Signals, Better Living.

CO-3. Growth of Agro-based Industries.

CO-4. Adoption and Spread of New Technology.

D-396: Vegetable Production

Course Outcome:

CO-1. Students will understand practical knowledge on specialized production techniques of vegetables and spices.

CO-2. Students understand will Importance of vegetables & spices in human nutrition improved and national economy.

CO-3. Students will knowledge about quality requirement and production and techniques.

CO-4. Managing skill for solving field problems.

D-397: Elementary Microbiology and Soil microbiology

Course Outcome:

CO-1. Student will understand the basic microbial structure, function and study the comparative characteristics of prokaryotes and eukaryotes.

CO-2. To know the various Physical and Chemical growth requirements of bacteria

CO-3. Impart knowledge about production of beneficial bacteria.

D-491: Oil seeds commercials crops fields crops- II Rabi crops

Course Outcome:

CO-1. To know the Origin, geographical distribution, economic importance, soil and climatic requirements, varieties, cultural practices and yield of rabi crops .

CO-2. Students will be able to know about the economic importance of medicinal and Aromatic crops in present sphere.

CO-3. It will be helpful to know about basic morphological characteristics of *rabi* crops.

D-492: Breeding of field crops

Course Outcome:

CO-1. Comprehensive, detailed understanding of the chemical basis of heredity specially in crop plants to improve and develop the new varieties of plants.

CO-2. The knowledge required to design, execute, and analyze the results of genetic experimentation in plant systems.

CO-3. Insight into the mathematical, statistical, and computational basis of genetic analyses that


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use genome-scale data sets in systems biology settings.

D-493: Principles of soil physics and conservation

Course Outcome:

- CO-1.** various causes of soil erosion and forms of water erosion, classification of gully control measures or structures.
- CO-2.** Course will give the knowledge of soil loss equation and it can estimate long - term annual soil loss and guide conservationists on proper cropping, management, and conservation practices.
- CO-3.** This course will help the students to learn about Contour strip cropping designed to minimize soil erosion and Contour bunds which can save soils from erosion.

D-494: Livestock production and management

Course Outcome:

- CO-1.** Develop and evaluate animal production and management systems by integrating knowledge of animal genetics, nutrition, reproduction, and other relevant disciplines and applying scientific and quantitative reasoning to solve real-world challenges.
- CO-2.** Communicate effectively about animal sciences to a range of audiences, both orally and inwriting, using appropriate traditional and emerging media.
- CO-3.** Engage actively and effectively in discussion of complex issues relevant to the animal sciences by understanding and appreciating.
- CO-4.** Appreciate the breadth and depth of professional opportunities in animal sciences.

D-495: Economic Entomology, Economic entomology including crops

Course Outcome:

- CO-1.** To be able to address complex problems facing entomology or toxicology professionals taking into account related ethical, social, legal, economic, and environmental issues.
- CO-2.** To be able to surveillance and forecasting of insect pests and assessment of insect pest population and recent pest outbreaks and manage them by using different tools and recent methods pest management.
- CO-3.** To Understands about different classes of insecticides, their formulation, toxicity, poisoning, first aid and antidotes and their effect on plants, animals and environment.

D-496: Fruit production fruit production including plantation crops

Course Outcome:

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CO-1. To know importance of different fruit crops and plantation crops.

CO-2. Students will understand package of practices for the major crops like mango, banana, guava, lemon, pineapple, coffee, coconut and rubber.

CO-3. To understanding the concept of high density planting in different fruit crops.

D-591: Introduction to plant biotechnology

Course Outcome:

CO-1. Functions of biomolecules and their utility in cell

CO-2. Identify the deficiency symptoms of biomolecules

CO-3. Synthesis pathways of biomolecules and regulations

CO-4. Identification of biomolecules in given sample

D-592: Milk and milk processing

Course Outcome:

CO-1. To Understands about Milk and its secretion, composition of colostrums and milk of different species. Agencies engaged in handling and transportation of milk pricing of milk.

CO-2. To Understands about processing the milk. Filtration, Clarification bactofugation pasteurization ultra high temperature treatment, homogenization, sterilization, cooling and chilling of milk.

CO-3. To Understands about membrane filtration and reverse osmosis processes. Common adulterants and preservatives used in milk and their detection.

D-593: Preservation of fruits and vegetables post harvest management of fruits and vegetables

CO-1. To Understands about scope of post harvest management of fruits and vegetables

CO-2. Development of value added products of fruits and vegetables

CO-3. Practices of post harvest activities

D-594: Crop pests and integrated pest management crops pests and management

Course Outcome:

CO-1. Students are skilled in determining pest levels and impact on plant and animal hosts and the management of these pests by Integrated Pest Management approach.

CO-2. To be able to address complex problems facing entomology or toxicology professionals taking into account related ethical, social, legal, economic, and environmental issues.

CO-3. To be able to surveillance and forecasting of insect pests and assessment of insect pest

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population and recent pest outbreaks and manage them by using different tools and recent methods pest management.

CO-4. To Understands about different classes of insecticides, their formulation, toxicity, poisoning, first aid and antidotes and their effect on plants, animals and environment.

D-595: Weed management

Course Outcome:

CO-1. Students will be acquainted about why to undertake environmental weed control.

CO-2. Students will be acquainted about different approaches of weed management.

CO-3. Students will be acquainted about harmful and beneficial effects of weeds in Agriculture.

CO-4. Students will be acquainted planning for weed management and weed management processes.

D-596: Crop disease and their management plant pathology

Course Outcome:

CO-1. Student will know importance of sign and symptoms for detection of pathogens and disease

CO-2. Student acquires the knowledge of integrated methods of disease management.

CO-3. Learn about biological and chemicals in disease management.

CO-4. Gain the knowledge about IDM modules of wheat, rice, groundnut, mustard, potato, cummin, citrus and chickpea diseases.

D-597: Soil fertility, fertilize and integrated nutrient management

Course Outcome:

CO-1. Knowledge of different manure and fertilizers used in different crops according to soil condition

CO-2. To understand essentiality of plant nutrients and mechanism of nutrient transport to plant and factor affecting nutrient availability.

CO-3. To be able about procedure of soil testing and establish soil testing laboratory in future as entrepreneur.

D-691: Principles of seed technology oil seed and commercial crops

Course Outcome:

CO-1. Start a seed production program for fill full the requirement of quality seed in market and

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increase the income.

CO-2. Storage the pure variety seed to avoid the availability crises of pure variety seed due to adverse environmental conditions.

CO-3. To supply the disease free seed in the market to get the environment friendly cultivation of crops.

CO-4. To increase the farm income by producing high yielding disease free quality seed and decrease the cost of cultivation also, Production of hybrid seed of different crops to increase the farm income.

D-692: Dairy products technology

Course Outcome:

CO-1. Knowledge about composition and method of manufacture of cream, butter, dahi, khoa, Chhena, Ice cream, condensed milk powder, cheddar and cottage cheese, common adulterants of Ghee and khoa and their detection.

CO-2. Knowledge about Cleaning and sanitization of dairy equipments.

CO-3. Understand the nutritive value to milk and milk products.

D-693: Post Harvest Engineering

Course Outcome:

CO-1. Understand the post harvest technology of horticultural crops.

CO-2. Understand the value addition of horticulture crops.

CO-3. Understand the work space, tool and equipment design for PHT and value addition.

CO-4. study the various certification and accreditation i.e. FPO, ISO and other leveling.

D-694: Farming system and sustainable agriculture crop planning farm manage and sustainable agriculture

Course Outcome:

CO-1. It helps to adopt diversified farming system according to available farming situation.

CO-2. It will assist to encourage the sustainable agriculture system.

CO-3. Profitable based farming system can we adopted with the help of course content.

D-695: Agriculture Finance, Business management and trade management and trade

Course Outcome:

CO-1. Understand the conditions of financial markets and its impact in the economy.

CO-2. Understand the macroeconomics aspects of the economy as they affect the agricultural


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sector.

CO-3. Apply economics principles to understand the conduct and performance of the agricultural industry.

D696: Communication, Diffusion of agriculture innovation History and development of agri. Research and communication and diffusion of agriculture Innovation

Course Outcome:

CO-1. Understand the communication process, elements and models of communication process and types of communication.

CO-2. Knowledge about innovation, diffusion, adoption, diffusion effect and rate of adoption, stages of adoption, factors affecting adoption, elements of difference between diffusion and communication.

CO-3. Innovation decision process, categories of adopters, characteristics of innovations.

D-697: Plant Pathology: Mushroom cultivation, Mushroom culture and elementary plant nematology.

Course Outcome:

CO-1. Understand the morphology of edible mushrooms and their classification.

CO-2. Methods of Cultivation of different types of edible mushrooms.

CO-3. Understand the Mushroom diseases, its management and Mushroom recipes.

D-698: Ornamental Horticulture

Course Outcome:

CO-1. To evaluate natural herbal products from an economic perspective.

CO-2. To develop effective ideas related to collecting, processing and marketing herbal natural sources.

CO-3. To use medicinal and aromatic

D-791: Rainfed Agriculture, Dry Land farming And Water Seed Management

Course Outcome:

CO-1. The term Rain fed agriculture is used to describe farming practices that rely on rainfall for water.

CO-2. Rainfall water can be used for a larger area by suitable watershed management techniques.

CO-3. Conservation of soil by adopting latest soil conservation techniques will help in obtaining higher production of Rainfed crops.


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D-792: Silviculture and Agro. Forestry and spec. Forestry

Course Outcome:

- CO-1.** Students will understand recognize various harvesting, transportation, and processing systems used in the management of forest resources and production of forest products.
- CO-2.** Students will understand develop and evaluate management plans with multiple objectives and constraints.
- CO-3.** Students will learn how to develop and apply silvicultural prescriptions appropriate to management objectives.
- CO-4.** Students will understand analyze forest inventory information and project futforest, stand, and tree conditions.

D-793: Production technology of Medicinal, Spices and Aromatic

Course Outcome:

- CO-1.** Understand the importance and scope of medicinal, aromatic and spices crops.
- CO-2.** Knowledge about cultivation of menthe, citronella, Khus, Ocimum, Rauvolfia and Dioscoria.
- CO3.** Knowledge about cultivation of turmeric, Zinger, Coriander, Zira and Saunf in the North Indian Condition.

D-794: Management of Problems Soil and Water Land

Course Outcome:

- CO-1.** Studies on saline and sodic soils-Occurrence classification, formation, diagnosis, characteristics and management.
- CO-2.** Knowledge about acid Soils- occurrence, formation, diagnosis, characteristics and management.
- CO-3.** Understand waterlogged soils- occurrence, characteristics and management. Factors responsible for land degradation and characteristics of different types of wastelands.

D-795: Dairy Chemistry and Animal Nutrition

Course Outcome:

- CO-1.** Understand the chemistry of milk constituent's viz. lactose, fat protein, enzymes and vitamins.
- CO-2.** Knowledge about classification of feeding stuffs, composition of Animal body and feeds.


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CO-3. Knowledge about Functions of food constituents, the digestion and absorption of food constituents in ruminates.

D-796: Computer Application

Course Outcome:

CO-1. Understand analogy of computer

CO-2. Basic knowledge of MS Office

CO-3. Some basic knowledge of Internet and WWW

CO-4. Use of IT application and different IT tools in Agriculture

D-891: RAWE Work

CO-1. Develop the knowledge of students through RAWE work keeping this in view the rural agricultural work experience (RAWE) is included in the programme.

CO-2. It provides exposure to agricultural students to the natural setting of the village situations, work with the farm families, identify their problems and make use of various extension tools for transferring the latest agricultural technologies.

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Methodology to Evaluate Course & Program Outcomes

Direct Assessment (External + Internal)	70%
Indirect Assessment (AT + Assignment + TA)	30%

Direct Assessment Benchmark

40%

Level 1	60%
Level 2	70%
Level 3	80%

60% Students secure more than 40% marks
70% Students secure more than 40% marks
80% Students secure more than 40% marks

Points	1
Points	2
Points	3

Indirect Assessment Benchmark

40%

Level 1	60%
Level 2	70%
Level 3	80%

60% Students secure more than 40% marks
70% Students secure more than 40% marks
80% Students secure more than 40% marks

Points	1
Points	2
Points	3

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Program Outcomes (POs) [For Engg. and Technical Courses]

PO 1 Subjective knowledge: Apply the knowledge of History, anatomy and physiology, kinesiology, biomechanics, statistics, methods, yoga, health and other physical education specialization to the solution of complex problems.

PO 2 Problem analysis: Identify, formulate, review research literature, and analyze complex subjective problems reaching substantiated conclusions using first principles of statistics, anatomy, biomechanics, kinesiology, and other subjects

PO 3 Design/development of solutions: Design solutions for complex subjective problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4 Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5 Physical Education and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional physical education practice.

PO 7 Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8 Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9 Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10 Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

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PO 11 Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Outcomes (POs) [For Traditional Courses]

PO1.Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO2.Effective Communication: Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.

PO3. Social Interaction: Elicit views of others, mediate disagreements and help reach conclusions in group settings.

PO4. Effective Citizenship: Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO5. Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.

PO6. Environment and Sustainability: Understand the issues of environmental contexts and sustainable development.

PO7. Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes

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CO & PO Mapping

(Three Levels: 3-Strongly Related, 2-Moderately Related, 1-Slightly Related)

Assessing Total Attainment for given Subject:

Direct Assessment (70%)
University Exams & Internal Exams

(70%): 70% of (1 or 2 or 3) eg. 70% of 3 is 2.1

Indirect Assessment (30%)
Attendance + Assignment/Presentation+ TA

(30%): 30% of (1 or 2 or 3) eg. 30% of 3 is 0.9

Therefore Total Attainment for Subject Name (Sub code :) is $(2.1+0.9) = 3.0$

Assessing PO attainment through CO's:

Formula for Computation:
$$\frac{\text{Total Attainment for Subject} \times \text{AVG of POi}}{3}$$

3

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DEPARTMENT OF PHYSICAL EDUCATION

Program outcomes

Introduction

Program outcomes examine what a program or process is to do, achieve, or accomplish for its own improvement and/or in support of institutional or divisional goals: generally numbers, needs, or satisfaction driven.

Physical Education is a form of one of the most effective means of education imparted through physical exercises, recreational activities and sports. It is an integral part of education. Which by mere participation in it gives the outcomes. These outcomes are both instant as well as have strong carry over values in the life. The children as well as the adults and the old enjoy physical activities & sports and gets benefit in the form of stronger muscles and bones, increased energy, coordination level and most importantly the decreased risk of developing chronic diseases.

Physical Education is an integral part of the total education process. India has a great tradition in physical education as a means of ensuring physical development, martial velour and recreational competence and the Indian system of exercises include a variety of physical activities such as dands, haithaks, nanwskars, yogicasanas, etc, which, formed the integral part of physical education such as Kho - Kho and Kabbadi now promoted as National Games.

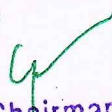
PROGRAMME OFFERED

P1: Bachelor of Physical education and sports (BPES) - 3 Year (Semester System)

P2: Bachelor of Physical education (B. P. Ed) - 2 Year (Annual System)

P3: Master of Physical Education (M. P. Ed) - 2 Year (Semester System)


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P1: Bachelor of Physical education and sports

(BPES) - 3 Year (Semester System)

Programme Outcomes (POs)

Physical Education and Sports is the study, Practice and appreciation of the Art and Science of human movement. While movement is both innate and essential to an individual's growth and development, it is the role of physical education to provide instructional activities that not only promote skill development and proficiency but also enhance an individual's overall health. Physical education not only fulfills a unique role in education but is also an integral part of the whole education process. To develop a comprehensive outlook of an individual with a strong civic position, moral qualities, sense of responsibilities, an independent, initiative, tolerant person who is able to successfully socialize and to use different forms of physical education and sports in daily life to protect his or her own health and promote effective professional activities.

The graduate level course in Physical Education and Sports contains subjects varying from foundation of Physical Education to Anatomy, Physiology, Kinesiology, Officiating & coaching, Test & Measurement, Nutrition, Rehabilitation, Psychology, Sports Training, Sports Biomechanics, Methods of Teachings etc. which are aimed to give thorough knowledge and skills to the students. Students pursuing physical education courses are fit to join the jobs as physical trainers, coaches, game officials, referees, umpires, curators, gym trainers, life guards, personal trainers etc. During their course of education the students also develop the expertise to establish their own business as entrepreneurs in the field of sports; fitness, recreation, adventure sports, camping, event management etc.

This programme is designed for students to gain specialized knowledge in the areas of physical education and sports. The programme helps you chalk out your pathway to becoming an innovator in the exciting world of physical education and sports.

Programme Specific Outcomes (PSO)

After successful completion of program the Graduates will be able to;

- Pursue higher education (PG) from India or abroad.

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- Demonstrate knowledge of psychological and sociological concepts, principles, and strategies as they apply to learning and performance of physical activity.
- Demonstrate knowledge and competency of movement patterns and strategies needed to perform a variety of physical activities.
- Achieve a level of physical fitness for health and performance while demonstrating knowledge of fitness concepts, principles, and strategies.
- A variety of motor skills and abilities related to lifetime leisure activities
- Improved understanding of the importance of maintaining a healthy lifestyle
- Improved understanding of movement and the human body
- Improved knowledge of rules and strategies of particular games and sports
- Self-confidence and self-worth as they relate to physical education recreation programs.

Course outcome (COs)

1. This would lead the students to understand historical concept of physical education and relationship between Philosophy, Education and Physical Education. The student would further understand the theoretical implications of philosophies of physical education with modern development and social aspects of Physical Education.
2. The curriculum would enable the pass out to select the inherited talented children for various sports activities.
3. The pass out shall be able to orient children in schools with the fundamental skills of selected sports as per their inherited potential.
4. The pass out shall be able to devise training program for athletes engaged in different sports activities
5. The curriculum shall enable them to officiate, supervise various sports tournaments and orient them in organizing sports events at all levels.
6. The curriculum would enable the pass out students to be entrepreneur (to start their own fitness center, gym, spa etc) and device appropriate fitness program for different genders and age groups of people.
7. The curriculum would enable the pass out to devise training program for physically challenged peoples.

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S. No.	Course	Out come
1	Hindi	1. To strengthen oral communication skills in Hindi/ Regional Language. 2. To develop the knowledge of written in Hindi/ Regional Language. 3. To improve vocabulary in Hindi/ Regional Language. 4. To enrich the knowledge of synonyms, antonyms, idioms and phrases. 5. To inculcate the knowledge of grammar in Hindi/ Regional Language.
	English	1. Students would be able to create linguistic skills. 2. Students would be able to understand the societal cultural perspectives. 3. Students would be able to inculcate the knowledge of compositional and comprehension skills. 4. Students would be able to develop the knowledge of various forms of English literature.
2	Principles and History of Physical Education	The students can better understand the importance of physical education by studying the history.
3	Foundations Of Physical Education	This subject helps the students to understand the values and ethics of life and personality development.
4	Olympic Study	1. Understand the Educational and cultural values of Olympic movement. 2. Analyze the Modern Olympic Games and Rules of Eligibility for Competition. 3. Know about The organizational structure and functions of Para Olympic Games 4. Analyze the Achievement of India in Team Games and Individual Sports.
5	Anatomy and .	By learning the subject the students will be aware of

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	Physiology	the various anatomical structures present and functions of Human body.
6	Yoga	The students will be introduced to the essential elements of a yogic life style
7	Kinesiology	To understand the various movements and muscles of the body.
8	Sports Nutrition	To understand Macronutrients and their primary functions and to Gain basic knowledge of the different nutrients and their role in maintaining health of the community
9	Health Education	To understand the concept of optimal health in developing a personal view of health. The history of national disease prevention and health promotion activities
10	Sports Psychology	Understand and explanation of various psychological and behaviourist theories.
11	Physiology of Exercise	1. Understand the basic principles of physiology and Exercise Physiology 2. Apply the knowledge in the field of physical education and movement activity. 3. Analyze the practical knowledge during the practical situation. 4. Remember and recall the definition of physiology and co-relate the principles of physiology. 5. Appraise the effects during the training and practical sessions
12	Management in Physical Education	1. Know sports management and employ principles of strategic planning, and financial and human resource management. 2. Assess marketing needs and formulate short term and long term solutions. 3. Develop critical thinking in analysing sport

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		management issues and in managerial planning and decision making.
13	Fundamental of Computer and its use in Physical & Sport	1. The student will be oriented with the basic knowledge of computer applications. 2. The student will be able to apply the knowledge in the framing of training programs. 3. The outcome of this course will help him in gathering, storage and processing of huge information in relation to inputs, outputs and feedback of sports training programs.
14	Basic principles of Sports Training	1. Understand training as performance based science 2. Explain different means and methods of various training 3. Prepare training schedule for various sports and games 4. Appraise types of periodization for performance development 5. Create various training facilities and plans for novice to advance performers
15	Recreation	1. Able to organize recreational camp and activities.
16	Adapted Physical Education	1. Understand about classification of Disabilities. 2. Understand adopted games for disability persons. 3. Known the benefits of exercise for disability persons.
17	Sports Sociology	Analyze the social structure of education and society.
18	Method of Physical Education	1. Develop a positive attitude towards life and teaching profession. 2. Use the collaborative learning into a course in a way that aligns with students learning

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P2: Bachelor of Physical education (B. P. Ed) - 2 Year

(Annual System)

Programme Outcomes (POs)

The Bachelor of Physical Education (B. P. Ed.) Programme is a professional Programme meant for preparing physical education teacher for high school (classes I to X) level. The curriculum and syllabus have been structured in such a way that each of the course meets one or more of the outcomes related to the skills, knowledge, and behaviors that students acquire as they progress through the program. Further, each course in the program spells out clear instructional objectives which are mapped to the student outcomes.

Programme Specific Outcomes (PSO)

After successful completion of program the Graduates will be able to

Career as a coach or a physical education instructor is the main option in the field. Their job entails selecting potential players and then teaching them the rules of the game, demonstrate various techniques, ways to plan a game and devise strategy. They also observe players and offer them guidance and helpful criticism. They accompany players for competitions and motivate them so as to bring out the best in them.

One can also join one of the many health centers that are opening in clubs and hotels as fitness experts and have a respectable job and a handsome pay package. Experienced coaches are in great demand at all the training centers set up by SAI and by state and central sports bodies. Besides sports clubs, schools and colleges, they can also work as in-house coaches for corporate sports teams. Opportunity after B. P. Ed course-Physical Education Teacher, Insurance agencies, Steel authority of India, Banks, Indian Oil Corporation and Food Corporation are appointing sportspersons for jobs, Experienced sportsperson can work as coach, fitness instructor, team manager, umpire or referee, Class XII - any subject with physical education, Graduate degree in Physical education; in Physical education. Jobs as Physical education trainers/ educators/therapists/coaches.

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Course Outcome (Cos)

S. No.	Course	Out come
1	History, Principles and Foundation of Physical Education	1. Know the origin and development of Physical Education 2. Apply the knowledge of Olympism in organizing various sport activities. 3. Distinguish the functional operations on National and International Olympic Federations. 4. Analyze the concepts and issues pertaining to Physical Education. 5. Formulate the principles, philosophy and concepts about Physical Education
2	Anatomy and Physiology	1. Learn about the anatomy of human body from the cell structure to the major systems of the body . 2. Understand the physiology, unique anatomical features, and the functions of the major systems of the body
3	Health Education and Environmental Studies	1. To understand the concept of optimal health in developing a personal view of health. 2. The history of national disease prevention and health promotion activities.
4	Yoga Education	1. Understand the basic Concepts of Yoga 2. Apply the principles of Yoga to live healthy and active life style. 3. Promote the awareness of health through yoga 4. Analyze the techniques and of body posture to bring out healthy change.

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		5. Able to execute loosening exercise, Asanas, Pranayama and Shatkriyas.
5	Educational Technology and Methods of Teaching in Physical Education	1. Demonstrate knowledge, attitudes, and skills of digital age work and learning. Plan, design, and assess effective learning environments and experiences. 2. Implement curriculum methods and strategies that use technology to maximize student learning. 3. Develop technology-enabled assessment and evaluation strategies. 4. Develop a positive attitude towards life and teaching profession. 5. Use the collaborative learning into a course in a way that aligns with students learning objectives and intended outcomes. 6. Critically analyse the classroom teaching learning and the ability to observe classroom behaviour.
6	Organization and Administration	1. Understand the principles and process of Administration and Management 2. Administer physical education and sports programs in schools. 3. Develop appropriate physical education curriculum, tools and budget to manage school programs 4. Appraise and manage physical education facilities and personnel in school 5. Design tournament fixtures and structures to organize competitions

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7	Officiating and Coaching	1. Able to mark Track and Field and Officiate 2. Able to understand the rules of the games and sports 3. Able to give seeding and Heats in Track and Field. Combined Events. 4. Design and practice the new methods of technique of officiating
8	Sports Nutrition and Weight Management	1. Restate the role of nutrients and caloric requirements 2. Sketch the basic classification, functions and utilization of nutrients. 3. Point out diet for various competitions and nutrient supplements for performance. 4. Evaluate the factors affects weight management and solutions for obesity. 5. Design caloric requirements for various sports and age group
9	Sports Training	1. Understand training as performance based science 2. Explain different means and methods of various training 3. Prepare training schedule for various sports and games 4. Appraise types of periodization for performance development 5. Create various training facilities and plans for novice to advance performers

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10	Computer Applications in Physical Education	1. The student will be oriented with the basic knowledge of computer applications. 2. The student will be able to apply the knowledge in the framing of training programs. 3. The outcome of this course will help him in gathering, storage and processing of huge information in relation to inputs, outputs and feedback of sports training programs.
11	Sports Psychology and Sociology	1. Explain group mechanisms and group psychology in a sports context 2. Reflect upon motivational psychology as applied to sports activities 3. Formulate relevant constructs of exercise psychology 4. Demonstrate the ability to discuss sociological theories, concepts, and ideas in large and small groups and to express empirically as well as theoretically-based opinions. 5. To apply core sociological theories to specific social problems in order to analyses social problems.
12	Measurement and Evaluation in Physical Education.	1. Understand the Measurement and Evaluation in physical education, Health and Fitness. 2. Know about the different types of test for different sports and games.
13	Kinesiology and Biomechanics	1. Analyze and explain the mechanisms underlying biomechanical, physiological and psychological changes that occur during

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		after acute and chronic exercise. 2. Understand mechanical principles can be applied to the analysis of human movement to assess and improve performance and reduce risk of injury. 3. Know effectiveness of human movement using mechanical principles.
14	Research and Statistics in Physical Education	1. Identify the research problem in the field of physical Education and sports 2. Know to Summarize the various research literature 3. Understand and apply the basics of statistics in research. 4. Organize the samples and sampling techniques which is relevant to the study.
15	Sports Medicine, Physiotherapy and Rehabilitation.	1. Perform and report on the exploratory analysis of data collected using sports technology 2. Analyze sporting data of various types via astute use of statistical packages. 3. Practice mathematics, statistics, and information technology in sport technology related problems. 4. Support a conclusion based upon quantitative prediction, performance and analysis of a sporting team, code, or gaming environment. 5. Offer Hands on Knowledge in sports Technology

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16	Sports Management.	1. Know sports management and employ principles of strategic planning, and financial and human resource management. 2. Assess marketing needs and formulate short term and long term solutions. 3. Conceive, plan, execute, and evaluate a sports event.
17	Teaching Practices/Internship Teaching	Experience in designing Physical Education programmes for various age groups
18	Track and Field	1. To equip the students to learn fundamental skills and techniques of track and field events. 2. To familiarize with mechanical principles involved in skills and technique track and field events. 3. To understand and conduct the qualitative and quantitative analysis in track and field events
19	Games And Sports	1. Know the fundamental of all the games and sports 2. Understand the rules of all the games and sports 3. Preparing the students for the competition 4. Classify the students accordingly for various games and sports. 5. Design and practice the new methods of technique and training.

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		objectives and intended outcomes. 3. Critically analyse the classroom teaching learning and the ability to observe classroom behaviour.
19	Remedial and Corrective Physical Education	It aims to convince the student of health and physical education that one of his greatest concerns should be to help children and young people build efficient and beautiful bodies
20	Test and Measurement in Physical Education	1. Understand the Test, Measurement and Evaluation in physical education, Health and Fitness. 2. Know about the different types of test for different sports and games.
21	Professional Preparation in Physical Education & Sports	Professional preparation programs in Physical education are necessary to provide dynamic leadership in the field in order to help individuals and groups-the consumers-improve their own physical education.
22	Educational Technology	Demonstrate knowledge, attitudes, and skills of digital age work and learning. Plan, design, and assess effective learning environments and experiences. Implement curriculum methods and strategies that use technology to maximize student learning. Develop technology-enabled assessment and evaluation strategies.
23	Officiating and Coaching	1. The pass out would be oriented with the rules regulations of the chosen game. 2. The pass out would be able to lay-out and mark the dimensions of the play court. 3. Students would be able to organize the concerned sports event and officiate in it. 4. Students would be oriented in the art of coaching

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		the sports team. 5. Students shall also be able to organize and officiate in yogie events.
24	Fitness & Wellness	Students will be able to explain the process to become physically fit and They will also understand how food affects your personal well-being and learn how to make smart choices.
25	Class Room Teaching	Understand the needs to address the children with diversities in classroom.
26	Game Specialization	1. Know the fundamental of all the games and sports 2. Understand the rules of all the games and sports 3. Preparing the students for the competition 4. Classify the students accordingly for various games and sports. 5. Design and practice the new methods of technique and training.
27	Athletics	To equip the students to learn fundamental skills and techniques of Athletics events.
28	Project Organized	By carrying out a intensive project work in an organization, the students would be able to have hands on experience in identifying the real time problem in the organization and analyzing the same using relevant methods and reaching to logical conclusions.

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P3: Master of Physical Education (M. P. Ed) - 2 Year

(Semester System)

Programme Outcomes (POs)

The Master of Physical Education (M.P.Ed.) Programme is a professional Programme meant for preparing physical education teacher for senior secondary (classes XI and XII) level as well as assistant professor / directors / sports officers in colleges /universities and teacher educators in college of physical education and university departments of physical education. The curriculum and syllabus have been structured in such a way that each of the course meets one or more of the outcomes related to the skills, knowledge, and behaviors that students acquire as they progress through the program. Further, each course in the program spells out clear instructional objectives which are mapped to the student outcomes

Programme Specific Outcomes PSO

After successful completion of program the will be able to;

1. Physical Education Instructors:

- ✓ Conducting physical training classes, organising games and coaching students in games and athletics.
- ✓ Training students in callisthenics, gymnastics and other physical exercises to promote strength and gracefulness, or to correct body posture.
- ✓ Organising and instructing or refereeing for games such as hockey, basketball, football etc.
- ✓ Assuming responsibility for the maintenance of gymnasiums and sports equipment.
- ✓ Physical Education teachers also supervise games in junior classes.

2. Coaches :

- ✓ There are coaches for each game and athletic event.
- ✓ Selecting potential players
- ✓ Giving them instructions about the rules of the games, planning and precision of movements.

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- ✓ Demonstrating techniques of play, drilling them in fundamentals until players become familiar with them.
- ✓ Observe players in action, and offer helpful criticism and corrective methods.
- ✓ Accompany the player during tournaments and provide the necessary guidance as well as boost up the morale of the players.

3. Umpire/Referee :

This job requires knowledge of the rules of the game one is refereeing. Recognised state or national bodies appoint or reward certification of umpires/referees. Their job is to conduct the games and sports in accordance with rules and regulations. Inspecting sports equipment, the ground, and enforcing compliance of schedules and rules is part of their job.

4. Professional players :

Professional players are selected from amongst those who show record performance in a number of tournaments played at various levels. Selections are conducted at the institutional level, district level, regional level and national level. Outstanding performers represent the country at the international level.

5. Sport and leisure club managers

6. Administrative and sports duties.

Office work, e.g., manage accounts, formulate plans, make timetables for schools, clubs and the general public and arrange for specialised coaches. Ensure that health and safety regulations are adhered to. Ensure that the premises, the swimming pool and equipment such as badminton nets, mats are in good condition. Sports for physical fitness and therapy: Sport and health are being recognised as related concepts. In India there is a growing interest in health and fitness, particularly among conscious adults.

7. Sports and business marketing :

The marketing of sports goods, research and development also need the involvement of sports persons.

8. Sports journalism :

Columnists, feature writers, commentators, programme producers, directors and presenters are involved in preparing and presenting sports programmes for viewers.

9. Sports photojournalists :

Cover sports events for newspaper and magazines.

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10. Sports administration :

The government sponsored sports institutions have officials to manage the work at various levels.

11. Physical Education Instructors :

- ✓ Conducting physical training classes, organising games and coaching students in games and athletics.
- ✓ Training students in callisthenics, gymnastics and other physical exercises to promote strength and gracefulness, or to correct body posture.
- ✓ Organising and instructing or refereeing for games such as hockey, basketball, football etc.
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14. Professional players :

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15. Sport and leisure club managers

16. Administrative and sports duties.

Office work, e.g., manage accounts, formulate plans, make timetables for schools, clubs and the general public and arrange for specialised coaches. Ensure that health and safety regulations are adhered to. Ensure that the premises, the swimming pool and equipment such as badminton nets, mats are in good condition. Sports for physical fitness and therapy: Sport and health are being recognised as related concepts. In India there is a growing interest in health and fitness, particularly among conscious adults.

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Course outcome (COs)

S. No.	Course	Out come
1	Research Process in Physical Education & Sports Sciences	1. To equip students with a basic concepts of research. 2. To enable the students to learn the sampling techniques. 3. To enable students to chose the most appropriate research method / design to address a particular research question. 4. To equip the students to prepare a research proposal for grants. 5. To enable the students to prepare a research thesis/report/article for a journal. 6. To enable the students to learn the basic concepts of statistics. 7. To acquire the skills of parametric and non parametric statistical methods and apply the appropriate technique for a research data analysis.
2	Physiology of Exercise.	This course presents the study of develop basic understanding of the human anatomy, the human physiology and a deeper understanding of the human systems.
3	Management in Physical Education	Management in sport organizations provide sports development, general planning activities in the field of sports, organizes all relevant resources, processes and functions, exercised a policy of human resources development, organized sports and business functions.
4	Sports Biomechanics	1. Identify biomechanical, health, physiological,

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	& Kinesiology	and psychological limitations to and interventions for improving physical performance. 2. Analyze and explain the mechanisms underlying biomechanical, physiological and psychological changes that occur during 'after acute and chronic exercise. 3. Develop physical conditioning programs based on scientific principles designed to develop physical fitness and improve athletic performance 4. Understand mechanical principles can be applied to the analysis of human movement to assess and improve performance and reduce risk of injury. 5. Know effectiveness of human movement using mechanical principles.
5	Sports Engineering	1. Apply the knowledge of science, mathematics, and engineering principles for developing problem solving attitude 2. Identify, formulate and solve engineering problems in the domain of sports engineering field. 3. Use different software tools for Analysis and Design sports engineering domain.
6	Applied Statistics in Physical Education & Sports Science	• Understand and apply the statistics in research. • Organize the samples and sampling techniques which is relevant to the study. • Apply the statistics in research thesis for evaluation

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7	Sports Psychology	1. To make the students familiarise with concept of psychology applied in sports performance. 2. To integrate personal relevance of the selected theories, techniques, and skills to one's own sport experiences 3. To develop an understanding of how psychological factors influence performance in sport and physical activity settings 4. To develop the ability to think critically about issues in sport and physical activity.
8	Tests, Measurement and Evaluation in Physical Education	1. Understand the Test, Measurement and Evaluation in physical education, Health and Fitness. 2. Know about the different types of test for different sports and games. 3. Apply the tests in minor research areas. 4. Analyse the performance and movements in the field of sports.
9	Sports Journalism and Mass Media	1. To understand the basics of reporting 2. To familiarize the students with different types of reporting. 3. To create understanding of specialized reporting. 4. To develop the general understanding of art culture and sports reporting.
10	Curriculum designs in Physical Education.	1. Introduce the teaching and curriculum objectives and course module design. 2. Analyze the planning strategies, teaching, learning and assessment
11	Scientific Principles of Sports Training	1. Understand training as performance based science

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		2. Explain different means and methods of various training 3. Prepare training schedule for various sports and games 4. Appraise types of periodization for performance development 5. Create various training facilities and plans for novice to advance performers
12	Sports Medicine	1. Understand the primary responsibilities the sports trainer has in preventing sports injuries and providing initial care for injured athletes. 2. Demonstrate the basics of sport first aid during and after game situation. 3. Recognise and appropriately treat common sports injuries and conditions from onset through rehabilitation
13	Health Education and Sports Nutrition	1. To understand the concept of optimal health in developing a personal view of health. 3. The history of national disease prevention and health promotion activities 2. Restate the role of nutrients and caloric requirements 3. Sketch the basic classification, functions and utilization of nutrients. 4. Point out diet for various competitions and nutrient supplements for performance.
14	Yogic Sciences	1. Understand the basic Concepts of Yoga. 2. Apply the principles of Yoga to live healthy and active life style.

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		3. Promote the awareness of health through yoga
15	Physical Fitness and Wellness	1. Develop physical conditioning programs based on scientific principles designed to develop physical fitness and improve athletic performance 2. Understand mechanical principles can be applied to the analysis of human movement to assess and improve performance and reduce risk of injury.
16	Information & Communication Technology (ICT) in Physical Education	1. Understand concept of information and communication technology in physical education field 2. Analyse sporting data of various types via astute use of statistical packages. 3. Practice mathematics, statistics, information technology in sport technology related problems. 4. Offer Hands on Knowledge in information and communication Technology
17	Athletic Care and Rehabilitation.	1. Recognise and appropriately treat common sports injuries and conditions from onset through rehabilitation. 2. Identify and apply knowledge of anatomy to the design and execution of research studies.
18	Sports Sociology	Analyze the social structure of education and society. Critically Evaluate the role of Science in the development of discipline of Education and Values in the Human Resources involved. Deep observation of education and social equity and facilities provided to disadvantage group.
19	Dissertation	This paper will be taught according to the syllabus of each students based on their dissertation topic which may have depth knowledge on various aspects of the study

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		chosen.
20	Professional Preparation in Physical Education	Professional preparation programs in Physical education are necessary to provide dynamic leadership in the field in order to help individuals and groups-the consumers-improve their own physical education.
21	Internship	Develop an understanding of Technicality of Teaching roles. Develop Pedagogical and Productive competencies to Pre service and In- service teachers of Elementary/ Secondary schools. Enrich administrative ability and entrepreneurship of M.P. Ed. interns. Develop observational skills of teaching profession. Develop a comprehensive and critical understanding on school plant and related activities. Develop the managerial skills required in schools. Understand pedagogical skills and how to apply these skills in real teaching situations.
22	Track and Field	1. To equip the students to learn fundamental skills and techniques of track and field events. 2. To familiarize with mechanical principles involved in skills and technique track and field events. 3. To understand and conduct the qualitative and quantitative analysis in track and field events.
23	Games and Sports	1. To enable the students to learn the basic skills and techniques of sports and games. 2. To learn and apply the mechanical principle on the technique of sports skill. 3. To understand the technique of qualitative and quantitative analysis.

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Program Outcomes (POs) [For Traditional Courses]

- PO1. **Critical Thinking:** Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
- PO2. **Effective Communication:** Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
- PO3. **Social Interaction:** Elicit views of others, mediate disagreements and help reach conclusions in group settings.
- PO4. **Effective Citizenship:** Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
- PO5. **Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
- PO6. **Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development.
- PO7. **Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes

CO & PO Mapping

(Three Levels: 3-Strongly Related, 2-Moderately Related, 1-Slightly Related)

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BACHELOR OF COMMERCE
COURSE OUTCOMES AND PROGRAM OUTCOMES
2023-2024

S.No	B. Com	
1	Program Outcome	After completing three years for Bachelors in Commerce (B. Com) program, students would gain a thorough grounding in the fundamentals of Commerce and Finance.
2	Program Specific Outcomes	1: Students will be able to demonstrate progressive learning of various tax issues and tax forms related to individuals. Students will be able to demonstrate knowledge in setting up a computerized set of accounting books 2: Students will demonstrate progressive affective domain development of values, the role of accounting in society and business. 3: Students will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business. 4: Students will learn relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business. 5: Students will gain thorough systematic and subject skills within various disciplines of commerce, business, accounting, economics, finance, auditing and marketing.
S.No	Course	Course Outcomes
CO-1	B. Com- Business Organization- C- 0130101	Student understands: 1.Examine the dynamics of the most suitable form of business organization in different situations. 2. evaluate the various elements affecting the business environment. 3. Analyze business models for different organizations. 4. record and report emerging issues and challenges of business organizations. 5. evaluate changes in the working pattern of modern organizations
CO-2	B. Com- Business Statistic- C- 0130102	Student understands: 1. How to do comparative study of two or more observations and understand relation between them. 2. The basic concepts of statistics and its use in business.

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CO-3	B. Com- Business Communication- C- 0130103	Student understands: 1. The concept, process and importance of communication. 2. The new technologies in business communication. 3. How to use various soft skills in business. 4. How to draft various letters in business. 5. Business communication skills through the application and exercises.
CO-4	B. Com- Basic Economic C- 090101	Student understands: 1. The fundamental conceptual foundations of Economics. 2. How to analyze the behavior of consumers in terms of the demand for products. 3. How to evaluate the factors affecting firm behavior, such as production and costs. 4. How to analyze the performance of firms under different market structures.
CO-5	B. Com- Certificate Course in Computer- C-090101	Student understands: 1. To develop in depth understanding of the key concepts of MS Window to impart knowledge of problem-solving techniques, Computer Application Information System and MS Word, MS Excel and MS Power Point. 2. Develop problem solving skills in interdisciplinary domains. 3. Focus on development of knowledge and specific skills required in Office Computer Work. 4. To develop competent computer professionals with strong ethical values.
CO-6	B. Com- Food and Nutrition and Hygiene- C-180101	Student understands: This program is designed with an objective to cover all important topics so that students will be able to use this knowledge in advancement of their career.
CO-7	B. Com- Business Management- C- 230101	Student understands: 1. The importance of management and various management principles and thoughts. 2. The functional areas of business management including planning, decision making, organizing, staffing, direction, communication, direction, coordination and control. 3. How to apply best practices of business administration in the functional areas of business. 4. The recent trends in Business Management i.e. Business Ethics, Corporate Governance, CSR.
CO-8	Financial Accounting- C- 230102	Student understands: 1. The concepts, nature and purpose of financial statements in relationship to decision making. 2. How to use the fundamental accounting equation to analyze the effect of business transactions on an organization's accounting records and financial


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		statements. 3. How to use a basic accounting system to create the data needed to solve a variety of business problems. 4. How to use accounting information to solve a variety of business problems.
CO-9	Computerized Accounting- C- 23018Q (Practical)	Student understands: 1. Provide an overview of basic accounting principles and concepts 2. Introduce students to the accounting cycle and accounting terminology 3. Teach students how to create and manage accounting records using
CO-10	Essentials of E-commerce- C- 230103	Student understands: 1. Understand the basic concepts and technologies used in the field of management information systems; 2. Have the knowledge of the different types of management information systems; 3. Understand the processes of developing and implementing information systems; 4. Be aware of the ethical, social, and security issues of information systems;
CO-11	Introduction of E Return- C- 090172	Student understands: 1. Know the difference between e-filing and regular filing of Income tax returns and understand the circumstances when e-filing is mandatory. 2. Understand the basic process of computing taxable income and tax liability, and know about various types of income tax return forms. 3. Understand the concept of advance payment of tax and tax deduction at source and develop the ability of e-filing of TDS returns. 4. Become aware of the basic framework and structure of GST, including the meaning of input tax credit and the process of its utilization. 5. Know about various types of GST returns and their filing.
CO-12	First Aid and Health- C- 280101	Student understands: 1. Learn the skill needed to assess the ill or injured person. 2. Learn the skills to provide CPR to infants, children and adults. 3. Learn the skills to handle emergency child birth 4. Learn the Basic sex education help young people navigate thorny questions responsibly and with confidence. 5. Learn the Basic sex education help youth to understand Sex is normal. It's a deep, powerful instinct at the core of our survival as a species. Sexual desire is a healthy drive. 6. Help to understand natural changes of adolescence 7. Learn the skill to identify Mental Health status and Psychological First Aid


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CO-13	Company Law- C- 330101	Student understands: 1. The knowledge of fundamentals of Company Law. 2. The provisions and the changes of the Companies Act of 2013. 3. New concepts involving in company law regime. 4. The duties and responsibilities of Key Managerial Personnel.
CO-14	Cost Accounting- C- 330102	Student understands: 1. The basic cost concepts and difference between Financial Accounting and Cost Accounting. 2. The concept of classification of costs and its types. 3. How to prepare Cost Sheet, Tender and Quotations. 4. Various aspects of material accounting and control.
CO-15	Business Regulatory Framework-C- 330103	Students understands: 1. The basic concepts, terms & provisions of Mercantile and Business Laws. 2. How affect these laws on business, trade and commerce.
CO-16	Population & Environment Education-C-250150	Student understands: 1. Investigate the complexities of the natural environment and our relationship with it. 2. Explore the problems we face in understanding our natural environment and in living sustainability. 3. Develop scientific, interpretive and creative thinking skills. 4. Learn to apply quantitative analysis and field research techniques. 4. Use computer-based geographical information systems to study environmental change.
CO-17	Basic Certificate in MIS- C- 090200	Student understands: 1. Understand the leadership role of Management Information Systems in achieving business competitive advantage through informed decision making. 2. Analyze and synthesize business information and systems to facilitate evaluation of strategic alternatives. 3. Effectively communicate strategic alternatives to facilitate decision making.
CO-18	Human Values and Environment Studies- C- 03080101	Student understands: 1. Investigate the complexities of the natural environment and our relationship with it. 2. Explore the problems we face in understanding our natural environment and in living sustainability. 3. Develop scientific, interpretive and creative thinking skills. 4. Learn to apply quantitative analysis and field research techniques. 5. Use computer-based geographical information

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		systems to study environmental change.
CO-19	Income Tax Law and Accounts- C- 430101	Student understands: 1. Computation of Taxable Income under the different Heads of Income. 2. The process of Submission of Income Tax Return, Advance Tax, and Tax deducted at Source, Tax Collection.
CO-20	Fundamentals of Marketing- C- 430102	Students understands: 1. Recent trends in marketing management. 2. How to create awareness about marketing of ecofriendly products in the society. 3. Various aspects of marketing management and its practical approach. 4. Importance and use of E-Commerce in competitive environment. 5. Various factors influencing consumer behavior and buying decision.
CO-21	Digital Marketing (Practical)- C- 430180	Student understands: 1. Understand the concept of digital marketing and its integration of traditional marketing. 2. Understand behavior of online consumers. 3. Create digital media campaigns through an understanding of e-mail, content and social media marketing. 4. Examine search engine optimization tactics to enhance a website's position and ranking. 5. Leverage digital strategies to gain competitive advantage for business and career.
CO-22	Fundamentals of Entrepreneurship- C- 430103	Student understands: 1. How to become a successful entrepreneur. 2. The importance of entrepreneurship as career. 3. The legal and financial conditions for starting a business venture.
CO-23	Principles and Practice of Banking- C-090103	Student understands: 1. The Program imparts various skills such as Accounting Skills, Managerial Skills Communication Skills etc. 2. Make the students competent to face challenges in the present competitive market. 3. Develop among the students the qualities of entrepreneurship and give the ideas about modern business strategies. 4. Provide the ideas related to various fields like Banking Sector, Insurance Sector, Marketing, Advertising, Income tax, E-Commerce etc. 5. This program develops trained professionals for the industries, banking sector, insurance companies, investment & finance companies to meet the manpower requirements.

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		6.The students will gain the knowledge, skills and attitude of managing banking and finance at the end of the degree course.
CO-24	Physical Education and Yoga-C-480101	Student understands: 1.After completion of this course students are able to know the meaning, need, aim, objectives and scope of Physical Education with emerging trends and historical development of physical education in India and abroad. 2.Concept of yoga, type of yoga, type of asanas, Surya namaskar, Pranayama, siguiriyas, mudras and bandhas etc. discussed in yoga. Apply the principles of Yoga to live healthy and active life style.
CO-25	Corporate Accounting-C-530101	Student understands: 1.Corporate Accounting in conformity with the provisions of Companies Act and Accounting as per Indian Accounting Standards. 2. The conceptual aspect of corporate accounting. 3. Various skills about Computerized Accounting and Accounting Standards. 4. Various concepts related to companies i.e. liquidation, amalgamation, absorption, re-construction and holding company.
CO-26	Goods & Service Tax-C-530102	Student understands: 1.Understand the importance and contribution of indirect taxes (GST) in the Indian and global economy. 2.Students will comprehend the principles of taxations. 3.Understand the implications of GST on the taxable capacity consumers, dealers and society at a large. 3. After successfully qualifying the examination, students are eligible to be employed as a tax consultant in preparing the tax planning, tax management, payment of tax and filing of tax and GST returns.
CO-27	Business Finance-C-530103	Student understands: 1. Compute complex time value of money calculations. 2. Value both bonds and equities using appropriate financial models. 3. Illustrate basic risk and return calculations. 4. Apply the core concepts of financial management for basic project valuation. 5. Analyze the capital structure of a company. 6. Identify ethical behavior in the context of financial management and financial planning.
CO-28	Principles & Practices of Insurance-C-530104	Student understands: 1.Acquire knowledge on Evolution of insurance and role of IRDA

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		2.Examine the various types of insurance policies 3. Acquaint knowledge on health insurance
CO-29	Analytical Ability & Digital Awareness-C-580101	Student understands: 1.Familiarize with analogy, number system, set theory and its applications, number system and puzzles. 2. To understand the basics of Syllogism, figure problems, critical and analytical reasoning. 3. Familiarize with word processing application and worksheet. 4.To understand the basics of web surfing and cyber security.
CO-30	30 Days Training & Project-C-530165	Student understands: 1.Acquire knowledge about the company and industry on which the student intends to create a project. 2. Understand the basics of research.
CO-31	Accounting for Managers-C-630101	Student understands: 1.To develop the knowledge of business finance and management decision. 2. To enable an awareness of the global environment in which accounting management operate. 3. Use effective communication skills to promote respect and relationship for financial deals. 4. Utilize information by applying a variety of business and industry software and hardware to major financial function. 5. Demonstrate a basic understanding of accounting management. 6. Explain the financial concepts used in making accounting management decision. 7. To teach a sense of responsibility and a capacity for accounting for management.
CO-32	Auditing-C-630102	Student understands: 1. The concept and principles of Auditing, Audit process, Assurance Standards, Tax Audit, and Audit of computerized Systems. 2. How to prepare the Audit report and its importance.
CO-33	Comprehensive Viva/ Project- C-630170	Student understands: 1.To acquire knowledge and skills to face the interview panel. 2.To Equip the students with analytical and evaluation abilities to respond to impromptu questions by the panel members. 3. To make the students to face the expert panel and present the knowledge, skills and problems in the most efficient way.
CO-34	Human Resource Management- C-630104	Student understands: 1. Develop necessary skills to prepare an HR policy to enable the employees attain work life balance; 2.Prepare a Human Resource Plan in an organization, prepare a report on job analysis, Organize an

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		induction program in an organization; 3. analyze the applicability and use of different kinds of training and development strategies in real life scenarios; 4. Organize counselling sessions for employees in an organization; b. Design incentive schemes for different job roles in an organization; 5. Create HR policies related to grievance redressal, employee health, safety, welfare, and their social security in an organization
CO-35	Communication Skills and Personality Development-C-680101	Student understands: 1.To understand the concept of Personality. 2.To learn what personal grooming pertains. 3.To learn to make good resume and prepare effectively for interview. 4. To learn to perform effectively in group discussions. 5. To explore communication beyond language. 6. To learn to manage oneself while communicating. 7. To acquire good communication skills and develop confidence.


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MASTER OF COMMERCE
COURSE OUTCOMES AND PROGRAM OUTCOMES
2023-2024

S.No	M.Com	
1	Program Outcome	1: The commerce and finance focused curriculum offer a number of specializations and practical exposures which would equip the student to face the modern-day challenges in commerce and business. 2: The all-inclusive outlook of the course offers a number of values based and job-oriented courses ensures that students are trained into up-to-date. In advanced accounting courses beyond the introductory level, affective development will also progress to the valuing and organization levels.
2	Program Specific Outcomes	1: Students will be able to recognize features and roles of businessmen, entrepreneur, managers, consultant, which will help them to possess knowledge and other soft skills and to react aptly when confronted with critical decision making. 2: Students will be able to prove proficiency with the ability to engage in competitive exams like CA, CS, CMA and other courses. 3: Students will acquire the skills like effective communication, decision making, problem solving in day-to-day business affaires 4: Students will involve in various co-curricular activities to demonstrate relevancy of foundational and theoretical knowledge of their academic major and to gain practical exposure. 5: Students can also acquire practical skills to work as tax consultant, audit assistant and other financial supporting services. 6: Students will be able to do higher education and advance research in the field of commerce and finance.
S.No	Course	Course Outcomes
CO-01	M.Com- Management Concepts and Organizational Behavior-I-1001	Student understands: 1. The importance of management and various management principles and thoughts. 2. The functional areas of business management including planning, decision making, organizing, staffing, direction, communication, direction, coordination and control.


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CO-02	M.Com-Direct Tax-Law and Practice-I-1002	Student understands: 1. Various concepts related to Income Tax. 2. How to calculate the taxable income under various Heads of income. 3. Various slabs of income tax and how to use the slabs to calculate the tax liability. 4. Various tax authorities in India
CO-03	M.Com- Statistical Analysis-I-1003	Student understands: 1. How to do comparative study of two or more observations and understand relation between them. 2. The advanced concepts of statistics and its use in business.
CO-04	M.Com-Financial Management-I-1004	Student understands: 1. The concepts, nature and structure of business finance. 2. The importance of corporate securities and sources of long-term finance. 3. How to use short term finance and working capital in organization.
CO-05	M.Com-Direct Tax-Law and Practice-I-2001	Student understands: 1. Various concepts related to Income Tax. 2. How to calculate the taxable income under various Heads of income. 3. Various slabs of income tax and how to use the slabs to calculate the tax liability. 4. Various tax authorities in India
CO-06	M.Com-Corporate Financial Accounting-I-2002	Student understands: 1. Corporate Accounting in conformity with the provisions of Companies Act and Accounting as per Indian Accounting Standards. 2. The conceptual aspect of corporate accounting. 3. Various skills about Computerized Accounting and Accounting Standards. 4. Various concepts related to companies i.e. liquidation, amalgamation, absorption, re-construction and holding company.
CO-07	M.Com- Corporate Law and Governance-I-2003	Student understands: 1. The knowledge of fundamentals of Company Law. 2. The provisions and the changes of the Companies Act of 2013. 3. New concepts involving in company law regime. 4. The duties and responsibilities of Key Managerial Personnel.
CO-08	M.Com- Operation Research-I-3001	Student understands: 1. Know the applicability and use of Operation Research. 2. Need for Operation Research in making effective decisions


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CO-09	M.Com-Research Methodology-I-3002	Student understands: 1. Various areas of Business Research Activities. 2. How to conduct the research in the field of business and social sciences. 3. How to develop the most appropriate methodology for their research studies. 4. The art of using different research methods and techniques
CO-10	M.Com-Strategic Management-I-3003	Student understands: 1. How to formulate, analyze and implement the strategy in organization. 2. Strategic Planning and how to make it effective. 3. How to formulate various functional strategies. 4. How to identify and assess a company's strengths and weaknesses, and match them with its opportunities and threats to suggest four alternative strategies.
CO-11	M.Com-Project Base Viva- Voce-I-3004	Student understands: 1. To acquire knowledge and skills to face the interview panel. 2. To Equip the students with analytical and evaluation abilities to respond to impromptu questions by the panel members. 3. To make the students to face the expert panel and present the knowledge, skills and problems in the most efferent way.
CO-12	M.Com-Managerial Economics-I-4001	Student understands: 1. The conceptual foundations of managerial economics. 2. How to analyze the behavior of consumers in terms of the demand for products. 3. How to evaluate the factors affecting firm behavior, such as production and costs. 4. How to analyze the performance of firms under different market structures.
CO-13	M.Com- Security Analysis and Portfolio Management- I-4002	Student understands: 1. Various aspects of foreign exchange market and financing of foreign trade. 2. The Exchange rate mechanism and factors affecting exchange rates. 3. Development in foreign exchange market.
CO-14	M.Com-Securities Law & Capital market-I-4003	Student Understands: 1. To Make the learners aware of the prevailing securities laws. 2. To have an understanding of Indian capital Market
CO-15	M.Com- Marketing Management-I-4004	Student understands: 1. How to perform a market segmentation analysis, determine the organization's target market and define the consumer behavior of each segment. 2. How to develop an integrated advertising and


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		Marketing communications plan and persuasively present and defend it. 3. How to evaluate the effectiveness of integrated advertising and marketing communications initiatives. 4. How to develop creative solutions to address advertising and marketing communications challenges.
CO-16	M.Com-International Marketing-I-4005	Student Understands: 1. To make the students understand the conceptual framework of international business. 2. To familiarize the students with trends and developments in the international areas.
CO-17	M.Com- Human Resource Management-I-4006	Student Understands: 1. To provide expert knowledge of principles and practices of Human resource management required for management of business organizations.
CO-18	M.Com-Industrial Relations and Labor Laws-I-4007	Student Understands: 1. The basic concepts of Industrial Finance. 2. The major issues, growth & present position of IT Industries in India. 3. The labor policy reforms and its impact on industries. 4. Major environmental issues in the process of industrialization. 5. How to effects New Economic Policy on Indian industry.


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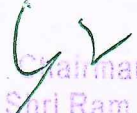
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Department of Journalism and Mass Communication

PROGRAMME OUTCOMES (POs) OF BAJMC

- PO1. Critical Thinking:** Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
- PO2. Effective Communication:** Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
- PO3. Social Interaction:** Elicit views of others, mediate disagreements and help reach conclusions in group settings.
- PO4. Effective Citizenship:** Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
- PO5. Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
- PO6. Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development.
- PO7. Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.


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119501: BASICS OF MASS COMMUNICATION & JOURNALISM

Course Outcome:

- CO-1. Students able to understand the psychology based course.
- CO-2. Students get familiar with different types of Communication and Journalism
- CO-3. Explain the need and importance of studying communication across life span
- CO-4 Course helps to Identifying the factors affecting Journalism.
- CO-5 Students learn basics of effective communication.
- CO-6 Students learn about the process of communication with various models of communication.
- CO-7 Student learn the various theories of communication and develop their critical thinking
- CO-8 Student learn the various types of journalism and understand the working process of media organization.

119502: GENERAL HINDI

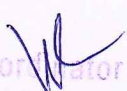
Course Outcome:

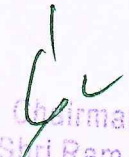
- CO-1. Students learn about the basic of Hindi language
- CO-2. Students learn the basic of Hindi grammar, its help them for developing their communication
- CO-3 Students able to develop their vocabulary.
- CO-4 It helps to develop the student's oral communication and effective writing skills.
- CO-5 Students learn professional writing skills.
- CO-6 Students able to learn critical and analytical thinking.
- CO-7 Students able to become competent with use the of Hindi language for journalistic Approach.
- CO-8 Students learn writing narration and story writing.

119503: DIGITAL JOURNALISM

Course Outcome:

- CO-1. Students able to understanding the basics of Digital Journalism
- CO-2. Students able to understand various digital media platforms.
- CO-3. Student learn about the search engine and websites.
- CO-4. Students learn about the Electronic mail and E-commerce websites.
- CO-5. Student able to understand about the e-newspaper
- CO-6. Student able to learn about the future aspect of e-newspaper and its limitations also.
- CO-7 Student learn the comparison between print and online journalism and effectiveness.
- CO-8. Student able to understand the reporting, writing, and editing for digital media.


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119504 :Advertising & Public Relations

Course Outcomes:

- CO-1.Students able to understand the basics concept of Advertising with evolution, types and function.
- CO-2. Students get familiar with different types of Advertising Agencies and its Function.
- CO-3. Students learn the marketing research, theories of advertisement and advertising appeal
- CO-4 Course helps to Identifying the affecting factors consumer behavior.
- CO-5 Students learn about the basics of advertising research.
- CO-6 Students learn about the basic concept of PR.
- CO-7 Student learn the about various tools of PR.
- CO-8 Student learn the various ethics of PR and PRSI theories of PR.

219501: Reporting & Editing

Course Outcomes:

- CO-1. Students understand the basic concepts news.
- CO-2. Students learn the basics of reporting with types of news beats.
- CO-3. Students learn the types reporting.
- CO-4. Students able familiar with the functioning of editorial department or news room.
- CO-5. Students learn the basics concept of print editing.
- CO-6. Students learn the basics of proof reading.
- CO-7. Students learn about the importance of translation of government official announcement
- CO-8. Students learn about the structure of editorial department.

219502: General English

Course Outcome:

- CO-1.Students learn about the basic of English language
- CO-2.Students learn the basic of English Grammar, it help them to develop communication skills.
- CO-3 Students able to re-write and find out the error in the sentences.
- CO-4. It helps to develop the student's oral communication and effective writing skills, with enhancing their vocabulary. It help to develop their critical and analytical thinking.
- CO-5. Students learn one word substitution and homonyms.
- CO-6. Students able to learn the composition and mechanism of writing.
- CO-7. Students able to become competent with use the of English language for journalistic.
- CO-8. Students learn article writing, letter writing and story writing.


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219503: Mass Media Writing Skills

Course Outcomes:

- CO-1. Students learn about the skills of writing for various mass media.
- CO-2. Course helps to the students for developing their creative, narrative and interpretive writing skills.
- CO-3. Student learn the basics ingredients of professional feature writing.
- CO-4. Course helps to the students for writing Print, TV, Radio and Digital Media.
- CO-5. Course helps to the students for Edit page writing.
- CO-6. Students learn to develop PR content writing skills.
- CO-7. Students able to develop their corporate writing skills.
- CO-8. Course able to make the student self dependant as freelance writer.

219504: Photo Journalism

Course Outcomes:

- CO-1 Students learn about the origin of photography and its history.
- CO-2. Student learn about the modernization of photography.
- CO-3. Students learn about the tools of photography.
- CO-4. Student develop the sense of photography and use of light.
- CO-5. Course helps to develop the critical thinking of students in various professional field.
- CO-6. Students learn about the wild photography, advertising photography and photo features.
- CO-7. Students able to understand about the Photo Editing and software.
- CO-8. Course helps the students for their future in professional photography.

319501: Value Education

Course Outcome:

- CO-1. Course able to develop the Values of students
- CO-2. Course helps to the students for critical thinking for the society.
- CO-3. Course helps the students of their self development and analysis.
- CO-4. Students understand the social issues, human values and challenges and social concern.
- CO-5. Course helps to develop national values among the students.
- CO-6. Students learn the demographic system of country for the integrity of India.
- CO-7. Students able to understand the value of media for the society.
- CO-8. Students learn the role of media for the social awareness.


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319502: Corporate Communication

Course Outcome:

- CO-1. Students understand the basic concept of corporate communication.
- CO-2. Student learn the functioning of corporate communication.
- CO-3. Course helps the students to understand the social responsibility of corporate communication and management.
- CO-4. Students able to understand the campaign planning and crisis management.
- CO-5. Course helps the students to understand media management and planning.
- CO-6. Students learn about to organizing the media event and press briefing.
- CO-7. Students able to understand the concept of brand and process of branding.
- CO-8. Students able to understanding about the process of branding and brand image.

319503: Broadcast Journalism (Electronic Media-I)

Course Outcome:

- CO-1. Students understand the history and concept of Radio.
- CO-2. Student learn the functioning Radio and organizational structure of AIR .
- CO-3. Course helps the students to understand the Radio programming.
- CO-4. Students able to understand radio feature, radio play, Radio Bridge and radio commentary.
- CO-5. Course helps the students to understand the radio language for various programs.
- CO-6. Students learn about the importance of educational and community radio.
- CO-7. Students able to understand the basics requirement of radio program.
- CO-8. Students able to understanding about the process of radio program production.

319504: Indian Political System

Course Outcome:

- CO-1. Students familiar with the Indian Constitution.
- CO-2. Student learn the fundamental rights and duties and directive principle of state.
- CO-3. Students able to understand constitutional post and their power.
- CO-4. Students able to understand about the procedure of legislature.
- CO-5. Course helps the students to understand the center and state relation and state legislature.
- CO-6. Students learn about the Panchayati Paj, Local Government and Judicial System of India.
- CO-7. Students able to understand political system and its nature .
- CO-8. Students able to understanding about the voting behavior and pressure groups and political participation.


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419501: Media Law & Ethics

Course Outcome:

- CO-1. Students familiar with the concepts of Press Law.
- CO-2. Student learn the importance of speech and expression.
- CO-3. Students able to understand Parliamentary privileges and contempt court.
- CO-4. Students able to understand about the various media law.
- CO-5. Course helps the students to understand the meaning of defamation and copy right act and working journalist act.
- CO-6. Students learn about the IT related law.
- CO-7. Students able to understand the importance of RTI, cable TV regulation act.
- CO-8. Students able to understanding about the various media association and organization and their function.

419502: Media and Cultural Studies

Course Outcome:

- CO-1. Students learn about the concept of Culture.
- CO-2. Student learn the importance of Religion and tradition in cultural integration.
- CO-3. Students able to understand different kinds of Media Culture.
- CO-4. Students able to understand intellectual change and mass media.
- CO-5. Students learn about to understand media culture.
- CO-6. Students get knowledge about the Nation Class and caste issues in Media.
- CO-7. Students able to understand gratification approach in Indian media Culture
- CO-8. Students able to understanding about the digital Media Sub-Culture.

419503: Television Journalism (Electronic Media- II)

Course Outcome:

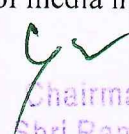
- CO-1. To make students aware about the nature and importance of Television.
- CO-2. Student learn the importance of TV then other mass media.
- CO-3. Students able to understand different TV program and their nature .
- CO-4. Students able to understand about the different types of television program.
- CO-5. Course helps the students to understand the elements and source of TV news.
- CO-6. Students learn about the TV news writing with various types .
- CO-7. Students able to understand the process of TV program production.
- CO-8. Students able to understanding about the qualities and skills of TV news Anchoring and importance of pronunciations.

419504: Indian Social System

Course Outcome:

- CO-1. Students learn about the Indian society.
- CO-2. Student learn about the types of society and its structure.
- CO-3. Students able to understand different family structure and culture of India .
- CO-4. Students able to understand about the different types of marriage in Indian Social System.
- CO-5. Course helps the students to understand the cast system of Indian Society.
- CO-6. Students learn about the culture and tradition of Indian society .
- CO-7. Students able to understand the social issues through the mass media .
- CO-8. Students able to understanding about the participation of media in society.


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519501: Communication Research

Course Outcome:

- CO-1. Course provide the basic knowledge of communication research.
- CO-2. Student learn the process and types and formulating the research.
- CO-3. Students able to understand various method and techniques .
- CO-4. Students able to understand about the methodology of research.
- CO-5. Course helps the students to understand the importance of data in research.
- CO-6. Students learn about the sampling and data analysis of research.
- CO-7. Students able to understand SPSS.
- CO-8. Students able to understanding about the scientific knowledge and techniques of communication research .

519502: New Media Technology

Course Outcome:

- CO-1. Student understand about the fundamental of multi media .
- CO-2. Student learn about the e-news paper.
- CO-3. Students able to understand about the Internet radio and TV .
- CO-4. Students able to understand about the cyber journalism.
- CO-5. Course helps the students to understand the types of websites and emails.
- CO-6. Students learn about the traditional and web journalism.
- CO-7. Students able to understand elements of web journalism.
- CO-8. Students able to understanding about the web journalism and law .

519503: Environment and Rural Communication

Course Outcome:

- CO-1. Student understand about the concept of Environment Communication.
- CO-2. Student learn about the need of international environment communication.
- CO-3. Students learn about the national and international environment polity.
- CO-4. Students able to understand about the various environment related national mission .
- CO-5. Course helps the students to understand the concept of rural communication .
- CO-6. Students learn about the role of Panchayati Raj, and rural journalism.
- CO-7. Students learn about the traditional media.
- CO-8. Students able to understanding about the role of media in rural communication .


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619501: Media Management

Course Outcome:

- CO-1. Student understand about the concept of Media Management.
- CO-2. Course helps the students to understand the formulation planning and control of media management .
- CO-3. Students learn about the various aspects of media management.
- CO-4. Students able to understand about the importance of budgeting, finance, advertising in media management.
- CO-5. Course helps the students to understand the planning and execution of media management.
- CO-6. Students learn about the function and role of Press Commission, Press Council, ABC INS, EGI PIB in media management.
- CO-7. Students learn about the maintaining the media record, media event management, and cost effective techniques.
- CO-8. Students able to understanding about the internal and external communication.

619502: Development Communication

Course Outcome:

- CO-1. Student understand about the concept of development.
- CO-2. Course helps to make aware about the characteristics of countries .
- CO-3. Students learn about the various theories of development of communication .
- CO-4. Students able to understand the role of NGO's in development .
- CO-5. Course helps the students to understand the development support communication.
- CO-6. Students learn about the development policies, strategies and action plan.
- CO-7. Students learn about the importance of agriculture in rural development.
- CO-8. Students able to understanding about problems of NGO's in development.


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Department of Journalism and Mass Communication

PROGRAMME OUTCOMES (POs) OF MAJMC

- PO1. Critical Thinking:** Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
- PO2. Effective Communication:** Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
- PO3. Social Interaction:** Elicit views of others, mediate disagreements and help reach conclusions in group settings.
- PO4. Effective Citizenship:** Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
- PO5. Ethics:** Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.
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119601: Communication Concept & Process

Course Outcome:

- CO-1. Students able to understand the advanced concept, elements and process of communication .
- CO-2. Students get knowledge about the mass communication and its nature and function.
- CO-3. Course explain the model of communication for enhancing the critical thinking of students .
- CO-4 Students learn the ideology and theories of mass communication.
- CO-5 Students learn about the media convergence.

119602: Fundamental Of Computer

Course Outcome:

- CO-1. Students learn about the history and characteristics of computer.
- CO-2. Students learn about the components of computer.
- CO-3 Students learn about the operating system of computer.
- CO-4 Course helps to the under student the MS Excel and Power Point. .
- CO-5 Students learn about history of internet and search engine of internet.

119603: History of Press, Laws and Ethics

Course Outcome:

- CO-1. Students able to understanding the history of press.
- CO-2. Students able to understand the regional press of India.
- CO-3. Student learn about the eminent journalist of India.
- CO-4. Students learn about the media laws.
- CO-5. Student able to understand the media organizations and ethics.

119604: Indian Social and Political System Of India

Course Outcome:

- CO-1. Students learn about the Indian society.
- CO-2. Student learn about the types of society, culture and its structure.
- CO-3. Students able to understand the role of media in Indian society .
- CO-4. Students able to understand about the Indian constitution.
- CO-5. Course helps the students to learn about the Indian economy, GDP Budget, Stock Market and FDI .


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219601: Development & International Communication

Course Outcome:

- CO-1. Students learn about the concept definition theories and paradigms of development.
- CO-2. Student learn about the development communication and its role.
- CO-3. Students learn about the role of media in communication .
- CO-4. Students able to understand about the International communication and its importance.
- CO-5. Course helps the students to understand the international information flow .

219602: Iconic Personalities of Media: Post Independence

Course Outcome:

- CO-1. Course introduce to the student with the iconic personalities of Indian media .
- CO-2. Student learn about the changing role of media after independence.

219603: Electronic Media-I (Radio)

Course Outcome:

- CO-1. Students understand the history and concept of Radio.
- CO-2. Course helps the students to understand the nature and types of Radio program.
- CO-3. Students able to understand radio news and types.
- CO-4. Course helps the students to understand the qualities of announcer.
- CO-5. Students learn about the radio format and production.

219604: IT and Computer Application in Mass Media

Course Outcome:

- CO-1. Students learn about the Information technologies in mass media .
- CO-2. Course helps the students to understand about the DTP software .
- CO-3. Students able to understand data communication and computer network.
- CO-4. Course helps the students to understand about the interactive communication.
- CO-5. Students learn about the social networking sites.

319601: Print Journalism (Editing & Layout)

Course Outcome:

- CO-1. Students learn about the news and news related organization and role of editor of news paper.
- CO-2. Course helps the students to understand the types and scopes of reporting .
- CO-3. Students able to understand the copy editing.
- CO-4. Course helps the students to learn about the photo journalism .
- CO-5. Students learn about the page layout and design.


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319602: Electronic Media- II (Television)

Course Outcome:

- CO-1. To make students aware about the introduction and importance of Television.
- CO-2. Student learn about the nature and importance of TV program.
- CO-3. Students able to understand different TV news reporting and TV news script writing.
- CO-4. Students able to understanding about the qualities and skills of TV news Anchoring and presentation.
- CO-5. Students able to understand the process of TV program production.

319603 :Advertising & Public Relations

Course Outcomes:

- CO-1.Students able to understand the basics concept of Advertising and introduction
- CO-2. Students get familiar with the production techniques of Advertising.
- CO-3. Students learn about the concept and introduction of PR.
- CO-4 Student learn about the role of PR different sector.
- CO-5 Student learn about the media management.

Special Paper any one of the Following

319604 (A): Online Journalism

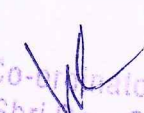
Course Outcomes:

- CO-1.Students able to understand about the internet journalism
- CO-2. Students learn about the introduction of on line journalism
- CO-3. Students understand about the writing for online media.
- CO-4 Student learn about the media convergence.
- CO-5 Student learn about the revenue ethics and law in online journalism

319604 (b): Environment Communication

Course Outcomes:

- CO-1. Student understand about the concept of Environment Communication.
- CO-2. Student learn about the protection of environment.
- CO-3. Students learn about the national and international issues of environment and policies.
- CO-4. Students able to understand about the various environment related national and international campaign .
- CO-5. Course helps the students to understand about the environmental moment in India


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419601: Communication Research

Course Outcome:

- CO-1. Course provide the introduction of communication research.
- CO-2. Student learn about the design and process communication research.
- CO-3. Students able to understand about the sampling and data collection techniques .
- CO-4. Students able to understand about the data analysis and report writing.
- CO-5. Course helps the students to understand about the ethics in communication research.


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Department of Business Administration
Program Outcomes (POs)

- PO1. Critical Thinking:** Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.
- PO2. Effective Communication:** Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.
- PO3. Social Interaction:** Elicit views of others, mediate disagreements and help reach conclusions in group settings.
- PO4. Effective Citizenship:** Demonstrate empathetic social concern and equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.
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Department of Business Administration
Course Outcomes

Semester	Course Code : Course Name	Course Outcome
1	168001: Fundamentals of Management	CO-1 Assume the roles and responsibilities associated with managerial functions. CO-2 Identify the key contributors and their contributions in the development of management thought. CO-3 Compare various approaches in management for problem solving. CO-4 Identify common organizational structures and the advantages and disadvantages of each. CO-5 Understand the complexities associated with management of human resources in the organizations and integrate the learning in handling these complexities
1	168002 : Organisation Behaviour	CO-1 Analyze the behavior of individuals and groups in organizations in terms of the key factors that influence organization behavior. CO-2 Critically evaluate the potential effects of important developments in the external environment on organizational behavior. CO-3 Analyze organizational behavioral issues in the context of organizational behavior theories, models, and concepts. CO-4 Manage conflict in organizational context and deal with stress. CO-5 Demonstrate how the organizational behavior can integrate in understanding the motivation (why) behind behavior of people in the organization.
1	168003 : Managerial Economics	CO-1 Analyze economic problems and can correlate scarcity with the requirements. CO-2 Evaluate demand and can analyse cost in order to optimise cost-production combination. CO-3 Recognize the existing market and can take appropriate decisions. CO-4 Understand theories and principles in microeconomics and to apply these principles to analyze economic issues CO-5 Acquire quantitative skills used in economic analyses
1	168004 : Accounting & Financial Analysis	CO-1 Understand and apply the essential numerical skills required for bookkeeping and accounting. CO-2 Understand and explain the relationship between the accounting equation and double-entry bookkeeping. CO-3 Record transactions in the appropriate ledger accounts using the double entry bookkeeping system. CO-4 Prepare a trial balance, balance sheet and a profit and loss account. CO-5 Apply critical thinking skills by identifying and analyzing accounting issues using relevant accounting frameworks
1	168005 : Business Laws	CO-1 Analyze contract and define the business transactions as valid contracts. CO-2 understand the nuance of Law of Indemnity & Guarantee, Contract of

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		Bailment, Contract of Pledge and Contract of Agency CO-3 Develop the idea of sale, distinguish sale and agreement to sell and can explain conditions and warranties. CO-4 Identify critical issues of partnership business and can recognize rights and duties of partners. CO-5 Rules related to Bills of Exchange, Promissory Note and Cheque. Legal process on Dishonour of Cheque and Penalties.
1	168006 : Business Organisation and Ethics	CO-1 Provides with the logic and working of organizations and outlines the major function of business organisation. CO-2 Enables students to acquire and exhibit knowledge skill and abilities needed to successfully manage the organization with different environmental situations. CO-3 Understand the concept of CSR in business organization CO-4 Understand Ethical issues in employer – employee relation CO-5 Analyze the Role of ethics for managers
2	268001 : Quantitative Techniques for Business	CO-1 Understand the Quantitative Approaches to decision making and general method of solving quantitative models. CO-2 Classification and tabulation of data. Different types of data. Diagrammatical and graphical representation of data. Measures of central tendency, Dispersion, Skewness and Kurtosis and Moments. CO-3 Concept of correlation, correlation coefficients - Karl Pearson's correlation coefficient, Spearman's rank correlation coefficient, multiple and partial correlation coefficients, Intraclass correlation. Concept of Regression, Principle of least squares, Linear and curvilinear regression. CO-4 Understand the basic components of sampling and have the knowledge on exact sampling distributions which are essential for estimating and testing hypothetical statements. CO-5 Concept of probability, different approaches to the theory of probability. Concept of events, mutually exclusive independent and exhaustive events. Sample space and its properties. Use the basic probability rules including addition and multiplicative laws, conditional probability and Bayes theorem.
2	268002 : Business Communication	CO-1 Relate to the various concepts and processes of managerial communication. CO-2 Identify the gap between current level of communication skills and the expected industry standards. CO-3 Develop essential communication skills required for managing a business. CO-4 Students develop the awareness about the various media of communication. CO-5 Students will learn different usage the business correspondence serve for effective communication.
2	268003 : Human Resource Management	CO-1 Demonstrate the understanding of theoretical concepts and framework required for effective Human Resource Management. CO-2 Develop an overview on various functions and processes of human resource management.

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		CO-3 Identify the human resource needs of an organization and plan accordingly. CO-4 Students will gain information on different situations & issues regarding various aspects that are related to H.R.M. CO-5 Case studies help students to understand proper solutions to run an organization successfully.
2	238004 : Marketing Management	CO-1 Explain the core concepts of marketing and the goals of the Marketing function CO-2 Analyze the environment and recommend appropriate Segmentation, Targeting and Positioning Strategy for a product and analyze the buying behavior of a given target market segment CO-3 Recommend suitable product, pricing, distribution and Marketing Communication strategies for a brand to achieve the Marketing objective CO-4 Students will demonstrate effective understanding of evolution and development of marketing over time. CO-5 Students will demonstrate effective understanding of relevant functional areas and tools of marketing and its applications.
2	268005 : Business Environment	CO-1 Know and analysis different business environment. CO-2 Evaluate the major factors which affect the business. CO-3 Understand and analyze various political, technological and economic environment in the business. CO-4 Students would describe and discuss Corporate Social Responsibility, Corporate Governance and Social Audit. CO-5 Students would be acquainted with various strategies of Global Trade. They would also discuss Foreign Trade in India, Foreign Direct Investments and its implications on Indian Industries.
2	268006 : Fundamentals of Computer	CO-1 Understand basic concepts and terminology of information technology. CO-2 Have a basic understanding of personal computer and acquire knowledge about generation of computers and types of computers. CO-3 Identify uses of spreadsheets in Managerial application. CO-4 Understand an operating system and its working, and solve common problems related to operating systems. CO-5 Learn basic word processing, Spreadsheet and Presentation Graphics Software skills.
3	368001 : Advertising Management	CO-1 Describe different types of advertisement and to identify key players in advertising industry CO-2 Identify and make decisions regarding the most feasible advertising appeal and media mix. CO-3 Conduct pre-testing, post testing and concurrent testing of ads to determine their effectiveness. CO-4 Devise effective advertising and brand strategies for consumer and business goods and services. CO-5 Describe the purpose and methods of effectively managing brands including how to build brand equity and establish brand identity.
3	368002 : Team Building and Leadership	CO-1 recognise the difference between groups and teams and understand when each is more appropriate

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		CO-2 understand issues in team constitution (team roles) CO-3 identify the different stages of team development and how a manager can support the team at each stage CO-4 understand and identify team processes (inputs, throughputs and outputs) and the manager's role CO-5 understand and manage conflict.
3	368003 : Indian Economy	CO-1 To understand the condition of Indian economy. CO-2 The role of planning process and how it has changed over the years. CO-3 Sectoral composition of GDP and role that different sectors have played in India's growth process. CO-4 List out the importance, causes and impact of population growth and its distribution, translate and relate them with economic development. CO-5 Not only be aware of the economy as a whole, but also be able to understand the role of financial institutions in helping the unfunded and the role of small scale industries in promoting entrepreneurship in the country.
3	368004 : Customer Relationship Management	CO-1 Able to understand and explain Introduction to customer relationship management CO-2 Understand relationships and identify organizational and customer relationship management issues, plan and implement customer relationship management projects, and develop, manage and use customer related databases. CO-3 Apply the concept of CRM, the benefits delivered by CRM, the contexts in which it is used, the technologies that are deployed and how it can be implemented. CO-4 Implement various technological tools for data mining and also successful implementation of CRM in the Organizations. CO-5 Design customer relationship management strategies by understanding customers' preferences for the long-term sustainability of the Organizations.
3	368005 : Management Information System	CO-1 To describe the role of information technology and decision support systems in business. CO-2 To provide the theoretical models used in database management systems to answer business questions. CO-3 Understand the concept Methods and Procedures of MIS in Decision making. CO-4 Develop and implement MIS, in organization, and analyze the factors of success and failure of MIS in Organizations. CO-5 Explain the role of Decision Support System, Artificial intelligence (AI) System and Knowledge based expert system (KBES) in Integrated MIS.


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3	368006 : Income Tax	CO-1 Introduces students to the basic concepts of Income Tax like Assessment year, previous year, cannons of taxation and Gross Total Income CO-2 Briefs on computation of income from salary, Income from house property, profits and gains from business and profession and computation of total income and various deductions and exemptions. CO-3 Assess the total income of an individual, HUF and Firm. CO-4 Know the procedure, types and penalties etc of Filing of Return along with Tax Planning. CO-5 Calculate incomes under the various head of Incomes under Income Tax Act, 1961.
4	468001 : Consumer Behaviour	CO-1 Identify the major influences in consumer behaviour. CO-2 Distinguish between different consumer behaviour influences and their relationships. CO-3 Establish the relevance of consumer behaviour theories and concepts to marketing decisions. CO-4 Differentiate between consumer buying behaviour and industrial buying behaviour. CO-5 Comprehend different dimensions of consumer decision making as well as its' impact on consumer decision making.
4	468002 : Financial Management	CO-1 Able to explain accounting statements and can analyse the financial statement with the help of ratio analysis CO-2 Apply the concept of time value of money for any investment decision. CO-3 Assess the capital structure of a firm and state its impact on firm's profitability. CO-4 Discuss the concepts of Management of Working Capital. CO-5 Explain the various Dividend Models and Dividend Policy.
4	468003 : Production Management	CO-1 Decide the purchase procedure and analyse and execute store management functions. CO-2 Design suitable strategy of inventory control by applying concepts of EOQ and ROP, Value analysis etc. CO-3 Develop and forecast production and sales and make facility layout decisions. CO-4 Describe the concept of inventory control and quality control etc. CO-5 Diffrentiate between different type of manufacturing systems.
4	468004 : Sales and Distribution Management	CO-1 Identify the dealer oriented promotion techniques, customer oriented promotion techniques and the salesmen oriented promotion techniques. CO-2 Describe different types of sales persons CO-3 Explain the steps involved in sales force management. CO-4 Illustrate the fundamentals of Distribution channels, Logistics and Supply Chain Management. CO-5 Differentiate between different type of sales executives.
4	468005 : Research Methodology	CO-1 Describe the research process and list the characteristics of various types of research. CO-2 Formulate Research Problem, Research Objectives and Hypothesis from a given research problem.

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		CO-3 Describe various research designs and methods of data collection. CO-4 Acquire problem solving techniques and to be able to use appropriate statistical methods and test and prepare report. CO-5 Prepare graph, charts on the basis of given data and prepare a research report.
4	468006 : Entrepreneurship & Small Business Management	CO-1 Understand the importance of entrepreneurs in growth and development of the economy. CO-2 Analyze the importance of small-scale industries in growth and development of the country. CO-3 Create a business plan that articulate and apply financial, operational, organizational and sales knowledge. CO-4 Illustrate various aspects of Project design, appraisal and types of plant layout. CO-5 Describe the steps to be followed for setting up a Small Scale Industry in India and the schemes available to SSIs by the Government of India.
5	568001 : Arithmetic Aptitude	CO-1 The main aim of introducing "Quantitative Aptitude" for mathematics students is to develop skill to meet the competitive examinations for better job opportunity. CO-2 Effort has been made to accommodate fundamental, mathematical aspects to instill confidence among students. CO-3 Enrich their knowledge and to develop their logical reasoning thinking ability. CO-4 Solve the problems easily by using Short-cut method with time management which will be helpful to them to clear the competitive exams for better job opportunity. CO-5 Analyze the Problems logically and approach the problems in a different manner.
5	568002 : Aptitude Reasoning	CO-1 Understand the basic concepts of quantitative ability CO-2 Understand the basic concepts of logical reasoning Skills CO-3 Acquire satisfactory competency in use of reasoning CO-4 Solve campus placements aptitude papers covering Quantitative Ability, Logical Reasoning Ability CO-5 Compete in various competitive exams like CAT, CMAT, GATE, GRE, GATE, UPSC, GPSC etc.
5	568003 : General Business Awareness	CO-1 Graduates will demonstrate knowledge of the legal and ethical environment impacting business organizations and exhibit an understanding and appreciation of the ethical implications of decisions. CO-2 Graduates will demonstrate the ability to communicate effectively both orally and in writing. CO-3 Graduates will demonstrate an understanding of and appreciation for the importance of the impact of globalization and diversity in modern organizations. CO-4 Graduates will demonstrate an ability to engage in critical thinking by analyzing situations and constructing and selecting viable solutions to solve problems.

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		CO-5 Graduates will demonstrate an ability to work effectively with others.
5	568004 : General English	CO-1 Students should enhance their language skills especially in the areas of grammar and pronunciation. CO-2 Students can read and understand any text in English listening to the inputs given by the teacher in the classroom. CO-3 Students imbibe the rules of language unconsciously and tune to deduce language structure and usage. CO-4 Students write paragraphs, essays, and letters. CO-5 Students decipher the mechanism of language and use it for success in competitive examinations and job related speaking and writing tasks.
5	568005 : Rural Marketing	CO-1 Explore the various aspects of rural marketing and develop an insight into rural marketing regarding different concepts and basic practices in this area. CO-2 Identify the challenges and opportunities in the field of rural marketing for the budding managers and also expose the students to the rural market environment and the emerging challenges in the globalization of the economies. CO-3 Acquaint the students with the appropriate concepts and techniques in the area of rural marketing. CO-4 Apply adaptations to the rural marketing mix to meet the needs of rural consumers. CO-5 Understand the concept and methodology for conducting the research in rural market.
5	568006 : Corporate Taxes – Direct and Indirect Tax	CO-1 Computation of tax liability of individual. CO-2 Understand the powers and functions of income tax authorities and procedures of assessment of income tax. CO-3 Understand basic concepts of GST and its implication on individuals and business with regard to taxation. CO-4 Analyse the rate of GST, payment and refund of tax. CO-5 Apply the provisions of GST laws for supply of goods intrastate and interstate
5	568007 : Service Marketing	CO-1 Implement the best practices of the Services Marketing CO-2 Apply knowledge of Customer Relationship techniques in the corporate world CO-3 Analyze, interpret and solve problems in service Recovery. CO-4 Perform lifelong learning and professional development to enrich the services marketing strategies. CO-5 Visualise future changes in the Services Industry
5	568008 : Financial Institutions and Investment Management	CO-1 To familiarize with the Indian financial system through knowing the types of various financial institutions, instruments and financial markets. CO-2 To understand the various constituents of capital markets, functioning of capital markets and regulatory mechanisms associated with capital markets. CO-3 To understand the various types of Financial Services and to appreciate the role of financial services in economic development. CO-4 To understand the various types of Non-Banking Financial Companies (NBFCs) and to appreciate the role of financial services in economic development. CO-5 To know various legislations relating with financial sector and the

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		recommendations of various committees suggesting financial reforms.
6	668001 : Strategic Management & Business Policy	CO-1 Analyze strategy implementation alternatives for effective decision making. CO-2 Understand the strategic requirements and correlation between business plans with strategic plans. CO-3 Identify and evaluate different alternative strategies for effective decision making. CO-4 Describe how business strategy is formulated and evaluated along with the fundamental aspects of synergy. CO-5 Differentiate between Corporate Planning, Corporate Strategy and Business Policy.
6	668002 : Operation Research	CO-1 Resolve the equations related to Linear programming. CO-2 Identify the specially structured programming of transportation and assignment CO-3 Analyze the decision making problems under uncertainty and competitive situations CO-4 Understand and identify the resources required for project and generate a plan and work schedule. CO-5 Formulate and solve mathematical models for a physical situation like production, distribution of goods etc. that will provide quantitative solutions for the situations.
6	668003 : Fundamental of E-Commerce	CO-1 Examine the features , functions and common practices of e-Commerce CO-2 Debate on the advantages and disadvantages of various e-Commerce models along with the infrastructure requirements CO-3 Identify areas of application along with contemporary issues arising in the field CO-4 Know about Electronic Payment Systems and networking infrastructure of EDI CO-5 Differentiate between internet, Intranet and extranet.
6	668004 : Economic & Industrial Law	CO-1 Understand establishing & maintaining a sound relationship between the worker & the employer. CO-2 Identify and rectify the simmering issues which might take the form of a dispute in the workplace. CO-3 Clarify the use & importance of various Acts & their uses in Industrial Relations. CO-4 Show evidence of the ability to analyze, manage and problem solving to deal with the challenges and complexities of the practice of laws CO-5 Demonstrate knowledge of practical application of penalty imposed on employer due to Legislation
6	668005: Retail Management	CO-1 To give a perspective of the Indian retail scenario. CO-2 To identify the paradigm shifts in retailing business with increasing scope of technology and e-business. CO-3 Students will exhibit a good understanding of Indian retail scenario. CO-4 Students will demonstrate strong conceptual knowledge of all the functional areas of retailing. CO-5 Students will develop insights into the scope of technology and e-business in retailing.

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6	668006 : Cost and Management Accounting	CO-1 Apply costing methods and costing techniques appropriately as per the nature of business and the requirement of the firm CO-2 Treat direct and indirect costs as per the costing techniques and from control purposes CO-3 Prepare cost sheet for the firm and develop insights on the use of budgets for cost control. CO-4 Understand methods & techniques of costing & installation of costing system. CO-5 Analyze and evaluate informations for cost ascertainment.
6	668007 : Digital Marketing	CO-1 Understand the concept of digital marketing and its real-world iterations CO-2 Articulate innovative insights of digital marketing enabling a competitive edge CO-3 Understand how to create and run digital media based campaigns CO-4 Identify and utilise various tools such as social media etc. CO-5 Understand behaviour of online consumers.
6	668008 : Company Accounts	CO-1 Account for the various adjustments related to share capital CO-2 Prepare the final accounts of Joint Stock companies CO-3 Prepare the accounts of companies undergoing amalgamation and external reconstruction CO-4 Fundamentally & Technically maintain Company Accounts. CO-5 Compute managerial remuneration.


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Methodology to Evaluate Course & Program Outcomes

Direct Assessment (External + Internal)	70%
Indirect Assessment (AT +Assignment+ TA)	30%

Direct Assessment Benchmark		40%			
Level 1	60%	60% Students secure more than 40% marks	Points	1	
Level 2	70%	70% Students secure more than 40% marks	Points	2	
Level 3	80%	80% Students secure more than 40% marks	Points	3	

Indirect Assessment Benchmark		40%			
Level 1	60%	60% Students secure more than 40% marks	Points	1	
Level 2	70%	70% Students secure more than 40% marks	Points	2	
Level 3	80%	80% Students secure more than 40% marks	Points	3	


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FACULTY OF TEACHER EDUCATION

(SHRI RAM COLLEGE, MUZAFFARNAGAR)

NAME OF THE PROGRAMME: B.Ed.

PROGRAMME OUTCOME:

B.Ed. Programme aims at preparing professionally trained teachers. The programme will develop teachers who have knowledge on socio and psychological perspectives of the learner, pedagogical know how and skills for effective teaching learning process. It aims at building requisite attitude and values of teaching profession among its students. The programme outcomes can be listed as:

- To develop teachers with the knowledge on socio and psycho perspectives of learner, expertise on curricular and pedagogical concerns of the learner.
- To develop teachers who are professionally equipped with skills and competencies for changing technological needs and global concerns
- To build the right attitude, values needed for teaching profession

SPECIFIC PROGRAMME OUTCOME:

The B.Ed. Programme is a professional course. The B.Ed. curriculum facilitates all round development of pupil teachers. The specific programme outcomes can be listed as follows:

- To develop critical thinking among pupil teachers on psychological, social and philosophical perspectives so that they can build future citizens with critical and scientific mind.
- To develop Social awareness and skills in pupil teachers who can be leaders and agents of social change and transformation in society.
- To develop scientific temperament and ICT know how in pupil teachers for changing technological challenges and globalization demands.
- To develop humanitarian values and ethics who can shape future generations with competencies as well as values.


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DETAILS OF COURSES AND COURSE OUTCOMES

COURSE 1- CONTEMPORARY INDIA AND EDUCATION:

This course will enable student-teachers to engage with studies on Indian polity, society, education and policy frameworks for public education in contemporary India and enable them to shape their perspective to act as an effective teacher.

COURSE OUTCOME:

After going through this course prospective teachers will be able to:

1. Understand the socio-political-educational movements related to making of contemporary Indian society.
2. Be able to observe and critically analyze the diversity in the Indian society and reflect on the utility of contemporary educational policies and programs highlighting the impediments in achievement of constitutional values.
3. Identify the major crisis in elementary and secondary education particularly stratification of education and ponder over necessary social and political interventions to meet those challenges
4. Be able to develop vision and practice of education in light of constitutional aspirations of the Indian society and shape one's attitude and skills as a teacher for future course of action in school and society.

COURSE 2- GROWING UP AS A LEARNER:

This paper is related to the changes in physical and psychological domains that occur in infants, children, adolescents and adults. It also focuses on how biological inheritance and particular experiences influence psychological characteristics such as intelligence, morality, interests and social relationships.

COURSE OUTCOME:

1. To develop an understanding of Educational psychology in western and Indian context.
2. To enable the student-teachers to understand the concepts and principles of growth and development.
3. To orient student-teachers to the importance of nature-nurture controversy.
4. To develop an understanding of various stages and theories of human


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development.

5. To enable the student-teachers to understand the nature, crises and various issues related to adolescents.
6. To develop an understanding of the various theories of intelligence and the role of teacher in fostering creativity.
7. To develop an understanding of the concept of personality in Indian Context.
8. To develop an understanding of the mental health, hygiene and defence mechanisms.
9. To develop an understanding of the role of teacher in promoting mental health of students.
- 10.

COURSE 3- PHILOSOPHICAL & SOCIOLOGICAL PERSPECTIVES OF EDUCATION:

This course shall mainly introduce the vision and practice of education from the perspective of Indian philosophical, social and cultural traditions and educators. However, it will also introduce with educational perspectives of some other thinkers who have influenced Indian society owing to diffusion of other philosophical, social and cultural traditions in India from other parts of the world.

COURSE OUTCOME:

To engage the prospective teachers to read and acquaint themselves with the meaning of terms like Vidya, Avidya, Shiksha, Education, Ilm and Talim etc. and to facilitate them to understand them through reflections on the set terms.

1. To facilitate prospective teachers to engage themselves in peer groups for sharing of their real life reflective experiences regarding social living and facilitate them to conceptualize the meaning of terms like philosophical, social and cultural traditions in Indian context.
2. To orient and engage prospective teachers to read and understand the vision of some great educators and categorically reflect on vision/aim, process of education and the contemporary relevance in their own words.


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COURSE 4- TEACHER, TEACHING & TECHNOLOGY OUTCOMES -

- Identify, describe, and apply emerging technologies in teaching and learning environments
- Demonstrate knowledge, attitudes, and skills of digital age work and learning
- Plan, design, and assess effective learning environments and experiences
- Implement curriculum methods and strategies that use technology to maximize student learning
- Develop technology-enabled assessment and evaluation strategies
- Compare and contrast social, ethical, and legal issues surrounding technology
- Facilitate instruction in the new literacies that emerge within digital / interactive learning environments

COURSE 5-PEDAGOGY OF MATHEMATICS COURSE OUTCOME:

At the end of the course, the pupil teacher will be able to:

- Understand the concepts and principles of mathematics and select appropriate methods of teaching to teach mathematics
- Understand the importance, purpose and basic element of planning /lesson planning
- Develop and design appropriate (innovative and indigenous) teaching aids, remedial and enriched programs.
- Understand and Practice the application of core teaching skills
- Understand the application of appropriate evaluation techniques in mathematics.

COURSE 6-PEDAGOGY OF PHYSICAL SCIENCE COURSE OUTCOME:

At the end of the course, the pupil teacher will be able to:

1. Understand the structure and nature of science as a discipline.
2. Understand the aims and curriculum framework of physical science teaching at secondary level.
3. Understand the importance, purpose and basic element of unit planning /lesson planning
4. Develop and design appropriate (innovative and indigenous) teaching aids, remedial and enriched programs.
5. Understand and Practice the application of core teaching skills


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6. Understand the application of appropriate evaluation techniques in Physical Science.

COURSE 7- PEDAGOGY OF BIOLOGICAL SCIENCE COURSE

OUTCOME:

At the end of the course, the pupil teacher will be able to:

Student teacher will be able to:

- Understand the concepts and principles of Biological Science and select appropriate methods of teaching to teach Biological Science.
- Understand the importance, purpose and basic element of planning /lesson planning
- Develop and design appropriate (innovative and indigenous) teaching aids, remedial and enriched programs.
- Understand and Practice the application of core teaching skills
- Understand the application of appropriate evaluation techniques in Biological Science
- Manage instructional activity in such a way that the vast majority of the learners attain most of the objectives.

COURSE 8-PEDAGOGY OF SOCIAL SCIENCE COURSE

OUTCOME:

After undergoing this course, the student teacher will be able to:-

1. Gain insight in the meaning, nature, scope and objectives of History and outline the objectives of teaching history at the secondary level.
2. Debate issues related to the curriculum of history at the secondary level.
3. Do curriculum planning and select learning material in history appropriate to different classes at this level.
4. Relate history with other school subjects and utilize this understanding for teaching history.
5. Differentiate among various methods of teaching history and utilize this understanding in lesson planning for effective teaching.
6. Describe various devices for teaching history and adopt them for teaching.
7. Describe, design and select instructional materials essential for effective teaching of history. Organize History room, library and museum.


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8. Describe the importance of time and chronology in history and utilize the principles and techniques of teaching chronology in teaching history.
9. Effectively handle the teaching of controversial issues in history.
10. Effectively utilize computer's power of animation and graphics, power-point presentation and multi-media presentation for teaching history.
11. Prepare lesson plans by integrating the above for effective teaching of various topics of history.
12. Construct appropriate assessment tools and report cards for evaluating social science learning, (CCE based social science learning)

COURSE 9-PEDAGOGY OF COMMERCE COURSE

OUTCOME:

Student teachers will be able to understand following content and context in the light of discipline based pedagogy in Commerce-

1. Understand the concepts and principles of Commerce and select appropriate methods of teaching to teach Commerce
2. Understand the importance, purpose and basic element of planning /lesson planning
3. Develop and design appropriate (innovative and indigenous) teaching aids, remedial and enriched programs and make use of traditional and modern instructional materials in classroom teaching
4. Understand and Practice the application of core teaching skills and classroom transactional strategies
5. Understand the application of appropriate evaluation techniques in Commerce.

COURSE 10- PEDAGOGY OF COMPUTER COURSE

OUTCOME:

This course would attempt:

1. To develop broad understanding of principles and knowledge used in Computer Education.
2. To help students to know various approaches and methods of teaching computer.
3. To enhance capacities for effective lesson planning in Computer.
4. To acquaint students with approaches and tools for evaluation in Computer.


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COURSE 11-PEDAGOGY OF SOCIAL SCIENCE

COURSE OUTCOME:

- To aware the students with Aims and Objectives of Teaching of Economics.
- To develop the Economic Citizenship among the students.
- To enable the students to understand the importance Teaching of Economics in schools for National Development.
- To acquaint the students with concept and principles of curriculum. To acquaint the students with need and importance of correlation of Economics with other school subjects.
- To enable the students to understand the need and importance of Economics Teacher.
- To acquaint the students with role and qualities of Economics Teacher.
- To aware the students with social and economic problems of the country and prepare a Reports on these issues.

COURSE 12-PEDAGOGY OF ENGLISH COURSE

OUTCOME:

The pupil teacher would be able to:

- Understand the importance of teaching English in India
- Justify the place of English language in school curriculum.
- Understand the aims and objectives of teaching English language at Secondary and higher secondary stage.
- Understand and make use of principles of English language teaching.
- Be familiar with different methods and approaches of teaching English
- Understand the importance and concept of various skills of English language.
- Select appropriate teaching strategy for teaching various skills of English language.
- Understand and appreciate various qualities of an ideal English teacher and text book of English language.
- Design effective evaluation strategy for evaluating various language competencies of English languag


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COURSE 13-PEDAGOGY OF HINDI COURSE OUTCOME:

The pupil teacher would be able to:

- Understand the importance of teaching Hindi in India
- Justify the place of Hindi language in school curriculum.
- Understand the aims and objectives of teaching Hindi language at Secondary and higher secondary stage.
- Understand and make use of principles of Hindi language teaching.
- Be familiar with different methods and approaches of teaching Hindi
- Understand the importance and concept of various skills of Hindi language.
- Select appropriate teaching strategy for teaching various skills of Hindi language.
- Understand and appreciate various qualities of an ideal English teacher and text book of Hindi language.
- Design effective evaluation strategy for evaluating various language competencies of Hindi language.

COURSE 14-PEDAGOGY OF SANSKRT COURSE OUTCOME:

The pupil teacher would be able to:

- Understand the importance of teaching Sanskrit in India
- Justify the place of Sanskrit language in school curriculum.
- Understand the aims and objectives of teaching Sanskrit language at Secondary and higher secondary stage.
- Understand and make use of principles of Sanskrit language teaching.
- Be familiar with different methods and approaches of teaching Sanskrit
- Understand the importance and concept of various skills of Sanskrit language.
- Select appropriate teaching strategy for teaching various skills of Sanskrit language.
- Understand and appreciate various qualities of an ideal Sanskrit teacher and text book of Sanskrit language.
- Design effective evaluation strategy for evaluating various language competencies of Sanskrit language


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COURSE 15-PEDAGOGY OF HOME SCIENCECOURSE OUTCOME:

- Develop broad understanding of principles and knowledge used in Home Science Teaching.
- Explain the Scope and Importance of Home Science as a school subject.
- Specify the Aims and objectives of Teaching Home Science at secondary stage.
- Develop the understanding of Ideal curriculum in Home Science.
- Know various approaches, methods and Teaching Aids in Home Science Teaching.
- Prepare Effective lesson plan in Home Science.
- Explain various tools used in evaluation in Home Science.

COURSE 16-LANGUAGES COURSE OUTCOME:

At the end of the course, the pupil teacher will be able to:

- Understand the concept, nature and scope of disciplines & subjects.
- Appreciate the various perspectives that have their bearing on the emergence and evolution of Languages as a discipline.
- Understand the inter-link between Languages as a disciplines and as a school Subject.
- Understand the nature of Languages as a school subjects and the sources for their change.

COURSE 17-READING AND REFLECTIONS ON TEXTS

This course will serve as a foundation to enable B.Ed. students to read and respond variety of texts in different ways and also learn to think together, depending on the text and the purposes of reading. The course will enable prospective teachers to reflect on selected readings through identification of its purpose, addressing its relevance for self, society, nation and globe at large. The learners would also come out with their concrete reflections of texts in different forms like annotations, critical appreciation, poster, collage, oral presentation, debate, panel discussion, charts, reflective writing etc.


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COURSE OUTCOME:

- To develop the ability of making meaning from the selected text(s)
- To encourage thoughtful and balanced assessment of readings and form opinions about ideas presented in the text.
- To develop understanding of the texts by making connections between self observations, experiences, and opinions and critically reflecting through thoughtful and persistent inquiry.
- Enabling learners to demonstrate understanding, arising out of interrogation of own assumptions and knowledge to deepen text analysis and focusing assessment of the text.
- To offer an opportunity to recognize – and perhaps break down – learners assumptions which may be challenged by the text(s).
- To develop the ability of reflective writings in different forms.

COURSE 18-CREATIVECO-SCHOLASTIC ACTIVITIES

Transformational education involves reflection, introspection and action, with a deep relationship between the head, heart and hand. The National curricular Framework 2005 (NCF) reminds us that the school curriculum must integrate various domains of knowledge, so that the curriculum encompasses all, and is not separated from the co-curricular or extra-curricular. This has significant implications for the role of art, music and drama in education, to nurture children's creativity and aesthetic sensibilities.

Learning is enhanced through drama in education (John, Yogin and Chawla 2007) which helps learners to extend their awareness through multiple perspectives to look at reality through fantasy and to predict everyday situations in order to cope with unpredictable unsettling experiences.

The course on drama and art in education also helps in understanding the self and as a form of self-expression for enhancing creativity. The components of fine art aim to develop aesthetic sensibilities in students-teachers and learn the use of art in teaching learning. (Prasad, 1998).


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COURSE OUTCOME:

After undergoing this course, the students will:-

- Be oriented towards basic concept of Music, Drama, Fine Arts, Dance and other literary activities such as Elocution, Debate, Quiz etc.
- Develop understanding of local art forms, Music, Plays.
- Develop ability to organize various programs of music, drama and other literary activities like Quiz, Essay Writing, Debate.
- Enhance the aesthetic sense by means of these activities.
- Appreciate performance done by others and give proper feedback.
- Understand the need of Music, Drama and other creative, co-scholastic activities in individual and social life.

SECOND YEAR-

COURSE 19-CREATING AN INCLUSIVE SCHOOL

This course will highlight that inclusion involves the conviction that all children can learn and grow. Pupil teachers will be able to appreciate and respond positively to diversities and see individual differences not as problems, but as opportunities for enriching learning.

COURSE OUTCOME:

After completing this course, the student teachers will be able to...

1. Know diversities with reference to culture, language, gender and abilities in class and develop conviction that all children can learn and grow.
2. Treat each student as an individual and respect each student for what he or she is.
3. Get acquainted with philosophy of inclusion and understand the need of inclusion.
4. Learn about issues of inclusion in educational contexts; curriculum, textual materials across disciplines, pedagogical process and its intersection with class, caste, religion, and region.


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5. Develop basic understanding and familiarity with key concepts—gender, gender bias, gender stereotype, gender parity, equity and equality.
6. Explore the complex relationship of gender and education and understand how gender relates to education (in terms of access, curriculum and pedagogy).
7. Develop qualities of an inclusive teacher and organize an ideal inclusive classroom.
8. Respond to the changing needs of learner by using various teaching strategies.

COURSE 20-GENDER, SCHOOL AND SOCIETY COURSE

OUTCOME:

This course will enable student teachers to

- Develop basic understanding and familiarity with key concepts—gender, gender bias, gender stereotype, gender parity, equity and equality.
- Learn about gender issues in educational contexts; curriculum, textual materials across disciplines, pedagogical process and its intersection with class, caste, religion, and region.
- The gender discrimination in the construction and dissemination of knowledge
- Gain a critical perspective on the ways in which education maintains and legitimates gender relations in society and
- To explore the complex relationship of gender and education and understand how gender, power and sexuality relate to education (in terms of access, curriculum and pedagogy).

COURSE 21-ASSESSMENTFOR LEARNING COURSE OUTCOME:

The student teacher will be able to

1. Get acquainted with basic concepts and practices of assessment and evaluation in teaching learning.
2. Explain the requirement of assessment of learning and need of recording the assessment.
3. Examine different dimensions of learning and related assessment procedures, tools and techniques.
4. Develop different tools and task to assess learners performance.


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5. Analyze the issues and concerns of evaluation practices in schools.
6. Enhance technology based assessment practices to have quick and global results.

**COURSE 22-LANGUAGE, KNOWLEDGE AND CURRICULUM COURSE
OUTCOME:**

After going through this paper the students will be able to

1. Develop an understanding of the concept of knowledge, its construction and the process of knowing
2. Differentiate between Information, Knowledge, Belief and Truth
3. Know and relate the various facets of knowledge and the relationship between knowledge, discipline and subject.
4. Develop an understanding of the concept & need of curriculum, its determinants and principles of construction, development and evaluation of curriculum.
5. Understand the Concept and Need of Curriculum Frameworks as well as differentiating curriculum framework, curriculum and syllabus.
6. Critically examine the role of school and teacher in transacting the curriculum.

**COURSE 23-WORK EDUCATION, GANDHI'S NAI TALIM AND
COMMUNITY ENGAGEMENT COURSE OUTCOME:**

- Appreciate the concept of work and dignity of labour
- Sensitize the importance of the Gandhi's ideas on Nai Talim.
- Compatible with various curriculum frameworks related to Nai Talim.
- Analyze the school education programmes and policies, which incorporate local community engagement aspects.
- Reflect the various Nai Talim approaches in every walk of life.
- Participate efficiently in the local community services.

COURSE 24-ENVIRONMENTAL EDUCATION:

The purpose of this interdisciplinary theme for prospective teachers is to enrich their understanding about the natural and social surroundings, health, quality life and the values related to them. It will also enable them to analyze the relationship underlying


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them and restructure their perspective to support health, happiness and harmony inside and outside.

COURSE OUTCOME:

This course will enable pupil teachers to:

1. Acquire basic knowledge and conceptual understanding of interdisciplinary theme on environment, peace, health, quality life and values.
2. Understand man- nature relation, life-support system, health- happiness- harmony, oneness of life, harmony with social and natural environment.
3. Reflect on world around them, analyze the relationships underlying that and enrich life.
4. Understand structures and perspective to notice continuity of life and values which underpin them.
5. Enrich capacity to introspect as a means to develop self/self-awareness;
6. Establish peace as a necessary condition for reforming education.

COURSE 25-EDUCATIONAL MANAGEMENT AND ADMINISTRATION COURSE OUTCOME:

1. To enable the students to understand meaning, nature, scope, functions and principles of Educational Administration.
2. To develop an understanding of the role of various agencies in educational Administration in India.
3. To develop an understanding among the students about various components of school management.
4. To acquaint the students with different designs of school building.
5. To develop an understanding of leadership qualities and accountability to be maintained by the different school personnel like headmaster, teacher etc.
6. To orient students with the concept of supervision and finance in the field of education.
7. To acquaint the students with specific issues of school management.

COURSE 26-PHYSICAL EDUCATION, SPORTS AND YOGA IN SCHOOLS COURSE OUTCOME:


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After undergoing this course, the student teacher will be able to:

1. Tell the basic concepts of Physical Education, Sports, Games and Yoga.
2. Organize the various games and sports activities.
3. Prepare different playing grounds and courts.
4. Tell the rules, technique and skills of sports.
5. Follow the benefits of exercise, physical fitness and health related physical fitness.
6. Perform different Asanas and Pranayama

COURSE 27-CAREER GUIDANCE AND COUNSELING

COURSE OUTCOME:

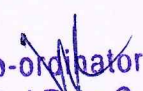
The teacher trainee will be able to-

- To develop a basic understanding for the meaning and need of guidance and counseling and its relation to education.
- Understand the need of counseling and its relation to education.
- To give an understanding of basic types of guidance viz. educational and vocational
- Get an idea of psychological measurement in guidance and counseling and its utility.

To develop an understanding to organize guidance program.

COURSE 28- COMPUTER EDUCATION COURSE OUTCOME:

1. Demonstrate fluency and competency in an object-oriented programming language.
2. Identify and analyze requirements and specifications for computing problems and plans strategies for their solution.
3. Apply concepts, principles, and theories relating to computer science to new situations.
4. Compare and evaluate design and algorithm choices used to solve computing problems.


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5. Identify appropriate practices within a professional, legal, and ethical framework.
6. Work effectively as an individual under guidance and as a member of a team.
7. Communicate technical problems and solutions to a range of audiences.
8. Integrate learning from other areas to solve computing problems.
9. Assess the quality, accuracy, and timeliness of data.
10. Apply relational database concepts, principles, and theories to designing and creating information systems.
11. Apply operating system and hardware concepts and principles to problem solving in the context of computer systems.
12. Apply knowledge of networking concepts and principles to solving problems related to networked computer systems.
13. Evaluate the impact and role of technology in the health care industry.
14. Apply principles, concepts, and structured techniques to assess, evaluate, and synthesize current information and trends in health informatics.

COURSE 29-UNDERSTANDING AND APPLICATION OF ICT COURSE

OUTCOME:

To enable the prospective teachers to:

- Develop an understanding of the concept of Computer and its components.
- Develop an understanding of the concept of ICT and its components
- Use ICT in the classrooms in line with educational aims and principles.
- Explore ICTs along three broad strands; teaching- learning, administrative and academicsupportsystemsthereby integrate technology tools for teaching learning, material development, developing collaborative networks for sharing and learning.
- Understand the evolution and impact of ICTs on society and in the education system.
- Understand the advantages and dangers of the internet, the new 'virtual world'.
- Access available resources, review resources created by peers, collaborate to create their own digital teaching-learning resources.


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In order to fulfill these objectives the pupil teachers will be engaged in 16 hours of perspective building through lectures and discussions on the following main areas. In addition, they will be given hands on experiences of working with computers so as to develop the ability to make use of ICT in their teaching learning and evaluation activities when in the profession.

COURSE 30- SCHOOL INTERNSHIP:

1. INTERNSHIP GOALS

The achievement of above aim of SIP will be done through the under mentioned goals, objectives and competencies:

Goal 1: TI will develop competence and professional identity as a reflective teacher.

OBJECTIVES:

1. Interns will demonstrate knowledge of the laws and regulations related to the professional practice of teaching, including any that specifically relates to State, Boards and NCTE.
2. Interns will interact professionally with their peers, supervisors (Mentor Teachers and Educators), Administrators, school students and all other individuals encountered daily during the course of internship and will demonstrate professional maturity through their behaviour, appearance and attitude.
3. Interns will engage in an ongoing exploration of their professional interests, strengths, and weaknesses.
4. Interns will demonstrate professional responsibility with 'self- classroom-school' management, proper documentation & reporting, timely submissions- correction-signature and time management.
5. Interns will be coe reflective practitioners through critical thinking about their own assumptions, the professional context and the problem that arises therein.

Goal 2: Interns will inculcate and demonstrate necessary skills (communicative-administrative-managerial) in different roles to excel as a professional teacher.


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OBJECTIVES:

1. Interns will demonstrate the ability to communicate as a teacher, administrator and manager of various activities in and outside the classroom as well as the ability to communicate with the self.
2. Interns will demonstrate knowledge of one's own limitations as a teacher, administrator and manager of various activities including acknowledgment of and inexperience with certain types of children, colleagues, situations and practical areas of weakness in understanding of theory and their applications.
3. Interns will effectively assess holistic aspects of students and record them thorough documentation. They will demonstrate the ability to effectively handle individual student and follow-up with individual crisis situations utilizing consultation and collaboration through professional knowledge of self and their mentors.
4. Interns will demonstrate involvement in all school processes through preparedness, punctuality, evidence of thoughtfulness, openness to feedback and exploration of issues, ability to articulate own position on a given issue, and willingness to share his or her own work in form of presentation of hand written reports/recordings/videotapes, case reports etc.
5. Interns will demonstrate a professional ability to refer individual, group or school issues for acknowledgement, reporting, discussion or solution to administrators, parents, community members or appropriate authorities as and when needed.

Goal3: Interns will develop skills and competencies for working diversities (individual, cultural, gender, special ability, etc.) in school and community hence learn to operate successfully and develop an inclusive setting.

OBJECTIVES:

1. Interns will demonstrate the ability to examine their own attitudes, assumptions, behaviours, and values in working with individuals with various types of diversity issues.
2. Interns will demonstrate the ability to provide services sensitive to individuals with various types of diversity issues.
3. Interns will demonstrate the ability and readiness to seek consultation with

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mentors/experts for dealing with individuals having various types of diversity issues prior to further engaging in teaching-learning.

Goal 4: Interns will demonstrate ability to outreach and liaison through collaboration with the school community and off-school campus community, interdisciplinary colleagues/ experts and Teacher Education Institutions. They will also ensure sharing of continuous and comprehensive assessment based performance of learners in Parent-Teacher Meetings for sustained growth of the learner.

OBJECTIVES:

2. Interns will demonstrate the ability to participate in community activities, collaborate with the Health Centre, Sports Centre, Student Affairs professionals, school staff, other school teachers, parents, University Departments, Teacher Education Departments, administrative units in and outside school (Boards, railways, roadways, NCC, etc.).
3. Interns will demonstrate competence in facilitation and presentation skills using appropriate technology and with proper documentation for ensuring efficient liaisoning.
4. Interns will actively participate in Continuous and Comprehensive Evaluation (CCE) and PTA meetings in the school.

COURSE31- WORKING WITH COMMUNITY, WORK EXPERIENCE, EXCURSION, ORGANIZING, SCOUT & GUIDE WITH FIRSTAID COURSE OUTCOME:

- To sensitize the pupil-teachers towards their connectedness and accountability to the society at large.
- To enable them to understand the importance of their profession (particularly in nation building by virtue of being custodians of the future).


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NAME OF THE PROGRAMME: M.Ed.

PROGRAMME OUTCOME:

M.Ed. Programme aims at preparing professionally trained teacher educators. The programme will develop teacher educators who have knowledge on socio and psychological and philosophical perspectives, pedagogical knowhow and skills for effective teaching learning process. Along with that it also aims at building requisite attitude and values of teaching profession among its students. The programme outcomes can be listed as follows:

- To develop teacher educators with the knowledge on sociological, psychological and philosophical perspectives, curriculum and pedagogical concerns.
- To develop teacher educators who are professionally equipped with skills and competencies for changing technological needs and global concerns
- To build the right attitude, values needed for teaching profession.

SPECIFIC PROGRAMME OUTCOME

The MEd. curriculum facilitates all round development of students in order to prepare teacher educators with requisite knowledge, skills and values . The specific programme outcomes can be listed as follows:

- To develop critical thinking among students on psychological, social and philosophical perspectives so that they can be teacher educators who can prepare teachers with critical and scientific mind.
- To develop Social awareness and skills among students who can be leaders and agents of social change and transformation in society.
- To develop scientific temperament and ICT knowhow for changing technological challenges and globalization demands.
- To develop humanitarian values and ethics who can prepare teachers with competencies as well as humane values.


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DIFFERENT COURSES UNDER MED. PROGRAMME

The M.Ed. Programme is of Two years duration divided into Four semesters. A student is required to offer courses in four semesters as per the details given below.

COURSE 1- PHILOSOPHICAL FOUNDATIONS OF EDUCATIONCOURSE OUTCOME:

After going through this course the learners will develop the following competencies:

1. Know the meaning of philosophy and philosophical foundations of education.
2. Comprehend the nature and functions of philosophy of education.
3. Logically analyze, interpret and synthesize various concepts, proposition and philosophical assumptions about educational phenomena.
4. Understand and use philosophical methods in studying educational data.
5. Develop philosophical insight for resolution of educational issues.
6. Critically appraise contributions of great educators to education and society.
7. Be able to compare (partially and holistically) concepts of education between/ among various philosophical schools/traditions.

COURSE 2- PSYCHOLOGYOF LEARNING AND DEVELOPMENT COURSE OUTCOME:

1. To enable the students
2. To understand the psychological orientation to education.
3. To develop an understanding about theories of learning
4. To develop an understanding about learners' cognitive, thinking and learning styles.
5. To develop an understanding about learners' development and the characteristics associated with it.
6. To develop an understanding of classroom as social group and Group processes.
7. To develop an understanding of concept, models and types of Intelligence
8. To develop an understanding of concept, models and types of Meta- cognition.
9. To develop an understanding of theories of personality and its measurement.


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COURSE 3- HISTORY OF INDIAN EDUCATION AND ECONOMIC ISSUES
COURSE OUTCOME:

1. Unit 1 & 2 of the course aims at providing an exposure to the historical development of the education system in India.
2. Drawing from the historical perspectives, the course would attempt to provide an understanding of the linkage between colonial political factors and forces which shaped modern institutional development of education.
3. Unit 3 of the course aims at providing an exposure to the political perspective and transformative role of education.
4. Drawing from the theoretical and philosophical perspectives, the course would attempt to provide an understanding of the linkage between education, state and democracy, role of education in citizenship building and in expanding the realm of freedom, rights, claims and entitlements.
5. Unit 4 of the course aims at providing an exposure to the issues of educational planning in its political perspectives and methods, modes of educational planning and issues in financing of education.

COURSE 4-FUNDAMENTALS OF RESEARCH METHODOLOGY
COURSE OUTCOME:

After undergoing this course the students will be able to:-

1. Identify a research problem and develop research questions.
2. Write a review of the literature and draw meaningful inferences.
3. Explain and describe the meaning of Scientific Method, Scientific Inquiry, Paradigm, Theory and their implications for educational research.
4. Describe characteristics of philosophical, psychological and sociological research paradigms as they apply to educational research.
5. Explain and adopt different strategies of research to solve educational problems.
6. Write scientific reports and research papers.
7. Acquire skills for evaluating and critiquing research in a meaningful way


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COURSE 5- EDUCATIONAL TECHNOLOGY AND ICT COURSE OUTCOME:

- 1) To enable the learner to understand the role of educational technology in education
- 2) To acquaint the learner with the challenges and opportunities emerging in integrating new technology in Educational process.
- 3) To enable the learner to understand ICT and its applications in Education
- 4) To make the learner familiar with new trends, techniques in education along with e-learning.
- 5) To enable the learner to become a good practitioner of Educational technology and e-learning.

COURSE 6- SOCIOLOGICAL FOUNDATION OF EDUCATION COURSE OUTCOME:

1. To acquaint students with sociological perspectives and concepts that deal with key aspects of social reality relevant to the study of education.
2. To enable students to understand how the 'Education' is embedded in social structure and culture;
3. To enable students to understand education as a social institution and its complex linkages with other major social institutions.
4. To enable students to understand educational problems and issues related to educationally excluded / disadvantaged groups, deriving out of intersections of gender, caste, class, culture, ethnicity, disability.
5. To enhance capacities of students for the critical evaluation of the role of education in social change and for sociological reflection on educational issues.

COURSE 7- TESTING, MEASUREMENT AND EVALUATION IN EDUCATION COURSE OUTCOME:

Subsequent to going through this course the understudies will actually want to:-

1. Develop different kinds of examination instruments for information assortment.


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2. Develop a comprehension of standards of quantitative and subjective examination techniques
3. Develop an understanding of principles of data analysis and understanding
4. Develop the vision to do subjective and quantitative examination.
5. Apply important qualitative and quantitative statistical techniques for investigating and deciphering research information.
6. Use PCs to code and investigate information.

COURSE 8- CURRICULUM DEVELOPMENT COURSE OUTCOME:

The student teacher will be able to-

1. Be acquainted with basic concept of curricular content of various courses and its contribution to education.
2. To develop understanding of basic principles of curriculum design and construction.
3. To develop and evaluate a model curriculum when required.
4. Be oriented towards latest issues, trends and researches in area of curriculum construction.

COURSE 9- RESEARCH DESIGN, STATISTICS AND REPORT WRITING COURSE OUTCOME:

After undergoing this course the students will be able to:-

1. Develop various types of research tools for data collection.
2. Develop an understanding of principles of quantitative and qualitative research methods
3. Develop an understanding of principles of data analysis and interpretation
4. Develop the vision to carry out qualitative and quantitative research.
5. Apply important qualitative and quantitative statistical techniques for analyzing and interpreting research data.
6. Use computers to code and analyze data.


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COURSE 10- EDUCATIONAL STUDIES AND SYSTEMCOURSE OUTCOME:

This course aims to help students to

1. Encompass education as social phenomena, practice and field of study.
2. Orient the students to the institutions, systems and structures of education in India and world

Understand the contemporary concerns of education policy and practice

COURSE 11- ACADEMIC WRITING COURSE OUTCOME:

This paper will have the following objectives:

1. To enable the students to understand and develop a good academic writing style
2. To enhance their ability to listen, converse, speak, present, explain and exposit ideas in groups and before an audience
3. To train them in effective presentation styles using available ICT resources.

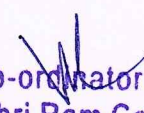
COURSE 12-SELF DEVELOPMENT AND COMMUNICATION SKILLSCOURSE OUTCOME:

This paper will have the following objectives:

1. To develop a holistic and integrated perspective about oneself –the self as a person and as a professional.
2. To develop sensibilities, dispositions, and skills that will later help them in facilitating the personal growth
3. To develop social relational sensitivity and fair, tolerant and just perspectives about various issues.
4. To develop effective communication skills, including the ability to listen and observe
5. To build resilience within to deal with conflicts at different levels to ensure mental and physical wellbeing
6. To develop the habit to inculcate in self reflection leading to self development

COURSE 13- PRE-SERVICE AND IN-SERVICE TEACHER EDUCATION COURSE OUTCOME:

Students will be able to understand Pre-Service & In- Service Teacher Education Programmes with reference to-


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- (i) Curriculum framework
- (ii) Modes
- (iii) Organization of components
- (iv) Transactional approaches
- (v) Skill & Competency development
- (vi) Planning, Organization & Evaluation of Teacher Education Programme

COURSE 14-ISSUES AND CONCERNS OF SECONDARY AND SENIOR SECONDARY EDUCATION

COURSE OUTCOME:

After pursuing this course the learners will be able to:

1. To enable the students to comprehend and critically examine the changes in policies and practices in secondary level curriculum in Independent India.
2. To enable the students to analyze the policies and practices in secondary level curriculum after independence with regard to national aspirations (Indian Constitution).
3. To enable the students to compare the policies and practices in secondary level curriculum of South East Asian countries, (China, Japan), European countries (Norway) and USA.
4. To analyze the status of secondary education in India
5. To trace out the prevailing hindrances in universalization and quality sustainance.
6. To identify the issues and concerns in secondary education and qualitatively trace out the reasons and visualize their solutions.

COURSE 15- PERSPECTIVES, RESEARCH AND ISSUES IN TEACHER EDUCATION COURSE OUTCOME:

1. Students will be able to understand Perspectives & Policies of Teacher Education Programmes with reference to—
 - (i) Approaches
 - (ii) Policies
 - (iii) Structure, Management of Teacher Education & factors influencing quality of Teacher Education

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2. Students will be able to review the researches conducted on effectiveness of teacher education programme & analyze its trends
3. Students will be able to know about various challenges in professional development of teachers & partnership involve in secondary teacher education

COURSE 16-GUIDANCE & COUNSELLING

Course Outcome:

Course content in this paper will enable the students:

- To understand the meaning, principles, needs and types of guidance and counseling
- To understand Theoretical approaches of guidance and counseling
- To organize guidance and counseling program
- To develop counseling skill in conducting counseling sessions
- To prepare case history, doing case analysis and preparing profile of the case.
- To understand online counseling services
- To understand various intervention programs
- To understand Applications of Guidance and Counseling

COURSE 17-ENVIRONMENTAL EDUCATION

Course Outcome:

1. To help learners acquire an awareness of and sensitivity to the total environment and its allied problems(**Awareness**).
2. To help learners acquire a set of values and feelings of concern for the improvement and protection(**Knowledge, Attitude**)
3. To help learners acquire the skills for identifying and solving environmental problems(**Skills**).
4. To enable learners to develop environmental education (EE) curriculum, teaching methods and evaluation procedures for students at various levels of school education, teacher education and non-formal/informal education.
5. To provide learners with an opportunity to be actively involved at all levels in working toward resolution of environmental problems (**Participation**)


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COURSE 18- EDUCATIONAL MANAGEMENT , ADMINISTRATION & LEADERSHIP

COURSE OUTCOME:

After going through this course prospective teachers will be able to:

- Understand school as a society and role of collective and shared responsibilities in its betterment.
- Understand the paradigm shift in School Based Management.
- Understand the impact of teacher leadership.
- Develop an awareness and understanding of Standard official procedures for disaster management.
- Develop an understanding of the concept and theories of classroom management and discipline.
- Develop the ability to adopt effective classroom managerial skills and strategies
- Develop the competency to use and apply different disciplinary models.
- Develop the ability to propose methods to enhance students' sense of belongingness and responsibility towards their behaviour and learning

Build productive relationships with students and parents.

COURSE 19- YOGA AND HEALTH EDUCATION COURSE OUTCOME:

After undergoing this course the student will be able to: -

- Describe the need and importance of health Education for schools
- Identify issues related to poor health of students
- Take appropriate decisions and adopt measures for good health of students.
- Contribute actively in the prevention of infections and their related diseases.

COURSE 20-TEACHER EDUCATION INTERNSHIP

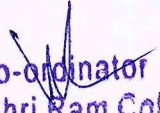
Course Outcome -

- To train teacher interns to conduct Interview of practicing teachers to identify the nature of in service teacher education received and the felt needs.
- To acquaint teacher interns the process of evaluation of courses of pre- service teacher education


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- To train teacher- interns to observe & supervise practice teaching done by Bed Interns .
- To develop the capability and provide knowledge to study the teacher education institution on instructional and evaluation practices.


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B.SC.-HOME SCIENCE

Home Science is an interdisciplinary field of study that provides scientific and systematic knowledge about various aspects of family and community living. As a discipline, Home Science integrates components from the sciences, social sciences and technology to facilitate the study and apply this knowledge to enhance the quality of human life. It is an interdisciplinary field which prepares the students to take up professional roles in multiple career fields. Adopting a right behavioural approach which is so important for a developing nation like India, the field of Home Science has contributed immensely in shaping lives of children, women and communities at large.

Home Science has contributed a great deal towards national development by training students to take up leadership roles in extension and community outreach programs. The students are encouraged to develop a scientific temper, familiarizing them with the use of innovative technologies for linking community towards judicious and sustainable use of resources for societal development.

The B.Sc. Home Science course is a 3-year Choice Based Credit System curriculum course which is multidisciplinary in nature and imparts knowledge of Social Sciences, Biological and Physical Sciences in addition to all the five areas of Home Science namely: Food and Nutrition; Development Communication and Extension; Resource Management Design Application; Human Development Childhood Studies and Fabric and Apparel Science. The CBCS system allows students the flexibility of selecting the subjects of their choice.

The programme includes Core/Major Courses and Minor elective courses. The Major courses are all compulsory courses. Elective courses can be taken from interdisciplinary fields based in student's interest and abilities. Compulsory co-curricular courses are mandatory for all UG programs according to NEP guidelines. To enhance the skills of students Vocational courses will be offered according to the student's choice as well as availability in campus. In the B.Sc. Home Science also, the students are exposed to all the five areas of Home Science in the first three semesters, they can choose specific subjects in third and fourth semesters. As part of the course, the students undergo theoretical as well as practical training. Field visits, trainings.


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community and extension work, internships and placements are an integral part of the programme.

In contemporary times, Home Scientists can promote capacity building of individuals and communities for social and economic development especially towards women empowerment. They train youth and women from various strata of society for fostering entrepreneurship. Many home scientists have exceptionally done well in different fields at national and global level. Our students are now being transformed from job seekers to job creators. They gain and provide employment in research organizations, food and textile industries, dietetic practice, education and child development domains, accreditation of green buildings, strategic planning and communication technologies. At the completion of the course, the students can either seek jobs directly or can opt for a Master's degree in the five streams of Home Science, Social Work, Mass Communication, Development Studies, Journalism, Human Resource Management, PG diploma in Dietetics, Fashion Designing, Interior Designing, Counseling, Special Education, Early Childhood Development, Gender Studies, Disability Studies and Entrepreneurship Development etc.



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PROGRAMME OUTCOMES FOR B.SC. HOME SCIENCE COURSE ARE AS FOLLOWS:

- PO 1-** Understand and appreciate the role of interdisciplinary sciences in the development and wellbeing of individuals, families and communities.
- PO 2-** Enable students with knowledge, skills, attitudes and values to do community work in all areas of Home Science.
- PO 3-** Understand the sciences and technologies that enhance the quality of life of people.
- PO 4-** Acquire professional and entrepreneurial skills for economic empowerment of self in particular and community in general.
- PO 5-** Develop professional skills in food nutrition, textiles, housing, product-making, communication technologies and human development.
- PO 6-** Take science from the laboratory to the people.
- PO 7-** Improve living standard with healthy life style.

LEARNING OUT COME BASED APPROACH TO CURRICULAM PLANNING
Nature and Extent of the Programme in B.Sc. Home Science

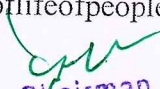
The degree is awarded on the basis of demonstrated achievement of outcomes of knowledge, skill and community interventions and academic standards expected from Home Science. Learning outcomes specify what graduates completing a particular programme of study are expected to know, understand and be able to do at the end of their program of study. This approach allows for flexibility and innovation in program design and syllabi development, teaching learning process, student assessment at different levels and periodic program review.

Aims of Bachelor Degree Programme in B.Sc. Home Science

The aims of the B.Sc. Home Science is to:

- a) Enable students with knowledge, skills, attitudes and values to do community work in all areas of Home Science
- b) Ensure global competitiveness and excellence in the or y and research.
- c) Prepare the students for master's program in their respective specialization.
- d) Train the students to take science from lab to community to improve quality of life of people.


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COURSE OUTCOMES OF B.SC. HOME SCIENCE SEMESTER I

1. ENGLISH LANGUAGE & COMMUNICATION SKILLS

Paper code: 0128201

Course Outcome:

CO1- Introduction to Communication

CO2- Aids to correct writing

CO3- Letter Writing

CO4- Report writing

2. COMMUNICATION AND INSTRUCTIONAL TECHNOLOGY

Paper code: 0128202

Course Outcome:

CO1- To understand extension education and identify the key stakeholders and partners involved in extension education.

CO2- To develop and deliver educational programs and materials tailored to specific community needs.

CO3- To design implements and evaluate extension education programs.

CO4- To develop critical thinking skills to solve complex problems in extension contexts.

3. HUMAN DEVELOPMENT-I

Paper code: 0128203

Course Outcome:


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CO1- Definition and importance of human development. care of the new born

CO2- Developmental Stages

CO3- Growth and development. concepts and principals of development

CO4- Hereditary and environment, maturity and learning

4. FOOD SCIENCE

Paper code: 0128204

Course Outcome:

CO1- Understand the relationship between food, nutrition and health.

CO2- Understand the nutritional contribution of and effect to cooking on different food groups.

CO3- Understand ways of reducing nutrient losses during different methods of cooking and methods of enhancement of nutritional quality of foods.

CO4- Improving nutritional quality of food.

5. HUMAN PHYSIOLOGY

Paper code: 0128205

Course Outcome:

CO1- Familiarize students with specific terminology related to the human body.

CO2- Enable the students to learn the structure and functions of organs.

CO3- Prepare the students to understand the physiology-based course.

CO4- Elementary anatomy physiology and its functions

6. COMPUTER BASICS

Paper code: 0128206

Course Outcome:

CO1- To understand the basic components of a computer and their functions.

CO2- Students will learn the basic functions of an operating system.

CO3- Students will create, edit, and format using a word processing application (e.g. Microsoft word, Google docs).

CO4- To create and manipulate a spreadsheet application (e.g. Microsoft excel, google sheets)

CO5- To design and present a slide show, including the use of the message, transitions and multimedia elements.


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COURSE OUTCOMES OF B.SC. HOME SCIENCE

SEMESTER II

1. INTRODUCTION TO TEXTILES

Paper code: 0228201

Course Outcome:

- CO1-** To understand basic terminology and concepts of textiles.
- CO2-** To describe physical and chemical properties of natural and synthetic fibers.
- CO3-** To understand the process of yarn manufacturing.
- CO4-** To understand the impact of finishing on fabrics performance and aesthetics.

2. INTRODUCTION TO RESOURCE MANAGEMENT

Paper code: 0228202

Course Outcome:

- CO1-** To understand resource management and explain the importance of resource management in various contexts.
- CO2-** To understand the principles of sustainability in resource management.
- CO3-** To apply methods for optimizing resource use and minimizing waste.
- CO4-** To evaluate the benefits and challenges of adopting new technologies in resources.

3. APPLIED PHYSICS

Paper code: 0228203

Course Outcome:

- CO1-** Describe the major concepts in physics.
- CO2-** Demonstrate an appropriate level of competency in both computer and research laboratory skills.
- CO3-** Formulate hypotheses and devise and perform experiments to test a hypothesis as individuals and in a team.


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4. APPLIED CHEMISTRY

Paper code: 0228204

Course Outcome:

CO1- Introduction branches of chemistry, its terminology

CO2- Acid based and salt functions and its properties

CO3- A study of drugs

CO4- A study of Cosmetics

CO5- Paints and vanishes

5. SANITATION & HYGIENE

Paper code: 0228205

Course Outcome:

CO1- Concept of positive health

CO2- School hygiene and industrial hygiene

CO3- Infection diseases, symptoms, causes and care with treatment

CO4- Water, air, and food born diseases, viral infections, insects and rodent, direct contact diseases

CO5- Food sanitation and Public health organization

6. MEAL MANAGEMENT

Paper code: 0228206

Course Outcome:

CO1- Relationship of nutrition to human health, growth and human welfare and RDA.

CO2- Energy value of food and energy requirement basal metabolism

CO3- Basics principal and factors affecting of meal planning and its important

CO4- Nutrition during infancy preschool age, school age, adolescence, adults and elderly in various genders and income group

CO5- Nutrition during pregnancy and lactation



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COURSE OUTCOMES OF B.SC. HOME SCIENCE

SEMESTER III

1.FAMILY DYNAMICS

Paper code: 0328201

Course Outcome:

- CO1-** To gain the knowledge about the dynamics of contemporary marriage and family system in India
- CO2-** To know the concepts, goals and areas of adjustment in marital life.
- CO3-** To introduce the students to the key theories in family studies
- CO4-** Family at risk, marital disharmony, separation, violence and distress

2. HUMAN DEVELOPMENT-II

Paper code: 0328203

Course Outcome:

- CO1-** Early childhood period including all developments
- CO2-** Intellectual development
- CO3-** Late childhood period
- CO4-** Physically, emotionally and mentally challenged

3. CONSUMER ECONOMICS

Paper code: 0328205

Course Outcome:

- CO1-** To understand basic economic concepts.
- CO2-** To analyze consumer behavior.
- CO3-** To create detailed budget
- CO4-** To review and summarize key consumer protection laws and regulations.

4. NUTRITIONAL BIO CHEMISTRY

Paper code: 0328206


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Course Outcome:

CO1- Development of an understanding of the principles of biochemistry

CO2- Obtaining an insight in to the chemistry of major nutrients and physiologically important compounds.

CO3- Development of capability to apply the knowledge in the field of human nutrition and dietetics.

5. LAUNDRY SCIENCE & FINISHING OF FABRICS

Paper code: 0328207

Course Outcome:

CO1- To understand principles of laundering.

CO2- To understand properties of soaps and detergents.

CO3- To know techniques of blues and stiffing agents.

CO4- To gain knowledge about stains and their removal properties

6. APPLIED LIFE SCIENCE –I

Paper code: 0328209

Course Outcome:

CO1- Soil- importance and general knowledge of soil.

CO2- Plants and its classifications.

CO3- Elementary idea of the classification of plants kingdom.

CO4- Herbal and medicinal plants, kitchen garden.


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COURSE OUTCOMES OF B.SC. HOME SCIENCE

SEMESTER IV

1.INTRODUCTION TO CLOTHING CONSTRUCTION

Paper code: 0428201

Course Outcome:

- CO1-** To understand the basic terminology and concepts in clothing construction.
- CO2-** To choose appropriate fabrics for specific garments based on properties and end use.
- CO3-** To integrate creativity in designing and constructing unique garments.
- CO4-** To explore sustainable practices in fabrics selection and garment production.

2. HOUSE HOLD EQUIPMENTS

Paper code: 0428203

Course Outcome:

- CO1-** To understand basic types of household equipments.
- CO2-** To understand routine maintenance procedures for common house hold appliances.
- CO3-** To learn about energy efficiency of household appliances.
- CO4-** To evaluate the design and user friendliness of various house hold appliances.

3. FOOD MICROBIOLOGY

Paper code: 0428205

Course Outcome:

- CO1-** To understand the basic concepts and scope of food microbiology.
- CO2-** To classify different types of microorganisms found in food.
- CO3-** To identify common pathogens and the diseases they cause.
- CO4-** To explain the mechanisms and consequences of food spoilage.

4. APPLIED LIFE SCIENCE –II

Paper code: 0428206

Course Outcome:


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- CO1- Poultry keeping knowledge about housing, feeding and important breeds
- CO2- Apiculture- introduction and collection of honey
- CO3- Sericulture- introduction about silk worm and their rearing
- CO4- Insects pests, knowledge on organism
- CO5- Fish culture

5. HUMAN DEVELOPMENT-III

Paper code: 0428207

Course Outcome:

- CO1- Adolescence 13-18 years, definition and different views
- CO2- Physical development
- CO3- Definition construction of an identity
- CO4- Social relationships and heterosexual relationships
- CO5- Problem drugs and alcohol abuse STD and Aids

6. COMMUNITY NUTRITION

Paper code: 0428209

Course Outcome:

- CO1- To understand the basic concepts of meal planning in infancy to old age.
- CO2- To understand nutrition during pregnancy & lactation.
- CO3- To promote strategies and maintain healthy eating habits.
- CO4- To analyze the nutrition for adults and elderly.
- CO5- Assess the malnutrition problem at the community level.
- CO6- Plan and conduct nutrition programmes/intervention programmes so as to overcome malnutrition.


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COURSE OUTCOMES OF B.SC. HOME SCIENCE

SEMESTER V

1. THERAPEUTIC NUTRITION

Paper code: 0528201

Course Outcome:

- CO1-** Importance, types if diets, methods of feedings
- CO2-** Different Nutritional problems such as underweight, obesity, fevers
- CO3-** Diet in Gastro intestinal Diseases
- CO4-** Diet in C'V Disorders and Kidney diseases
- CO5-** Different types of diabetes mellitus and diet therapy

2. HUMAN DEVELOPMENT-IV

Paper code: 0528203

Course Outcome:

- CO1-** Young adulthood 20-35 years
- CO2-** Middle adulthood 35-50 years
- CO3-** Late adulthood 50-60 years
- CO4-** Old Age- 65 years onwards

3. COMMUNITY DEVELOPMENT

Paper code: 0528205

Course Outcome:

- CO1-** Community development, meaning definitions types and scopes
- CO2-** Goals, purpose and problems of community development
- CO3-** Evaluation structure and functions of Community development at different levels in India
- CO4-** Welfare programs- JRD, IRDP, ICDS, DWA and CRA, National Voluntry agencies and elected punchayats
- CO5-** Critical review of community development programs in 5 year plans


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4. FAMILY HOUSING

Paper code: 0528207

Course Outcome:

- CO1- Understand various structural components of a building.
- CO2- Critically evaluate the different types of plans on the basis of principles of planning.
- CO3- Gain skill in preparing house plans
- CO4- Identify different types of building materials and their characteristics.
- CO5- Comprehend building bye-laws and their applications in designing residential units.

5. ADVANCED CLOTHING CONSTRUCTION

Paper code: 0528209

Course Outcome:

- CO1- To understand the drafting and pattern making techniques.
- CO2- To have knowledge about principles of good design.
- CO3- To understand the importance of clothing.
- CO4- To analyze fashion cycle and trends.

6. NURSERY SCHOOL EDUCATION

Paper code: 0528211

Course Outcome:

- CO1- Gain knowledge and insight regarding principles of early childhood care and education
- CO2- Able to develop the skills and techniques to plan activities at ECCE centers
- CO3- Able to conduct activities in early childhood care and education and to work affectively with parents and community.



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COURSE OUTCOMES OF B.SC. HOME SCIENCE

SEMESTER VI

1.TEXTILE DESIGNING

Paper code: 0628201

Course Outcome:

- CO1-** To understand the elements and principles of design
- CO2-** To gain knowledge about dyes.
- CO3-** To know the methods of printing and their application.
- CO4-** To gain knowledge about traditional textiles of India.

2. INTERIOR DECORATION & ART PRINCIPLES

Paper code: 0628203

Course Outcome:

- CO1-** Understand elements and principles of arts and designs
- CO2-** Develop an understanding to the application of art principles in design
- CO3-** Develop skill in creating designs and making art objects.

3. FOOD PRESERVATION

Paper code: 0628205

Course Outcome:

- CO1-** To enable students to understand the basic chemistry, science of food and techniques involved in food processing.
- CO2-** To impart knowledge of sensory evaluation of food.
- CO3-** To understand the role of microorganisms in food processing, preservation and spoilage.

4. ENTREPRENEURSHIP & MOTIVATION

Paper code: 0628206

Course Outcome:

- CO1-** Concept and theories of entrepreneurship.
- CO2-** classification and types of entrepreneurship.
- CO3-** Creative innovation entrepreneurial trades and competencies.


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- CO4- Developing and motivating theories through entrepreneurship training.
CO5- Entrepreneurship and economic development

5. EXTENSION TRAINING MANAGEMENT

Paper code: 0628207

Course Outcome:

- CO1- To understand extension education principles.
CO2- To understand and identify educational objectives of extension education.
CO3- To formulate clear and measurable educational objectives.
CO4- To develop various educational materials including print, audio-visual aids and digital resources.

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