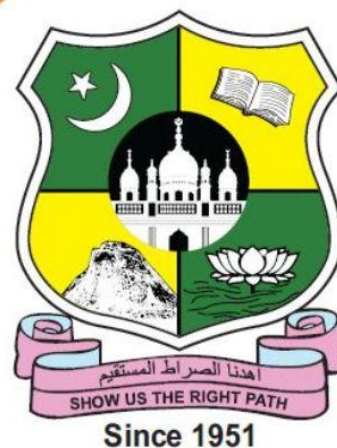


OUTCOME BASED EDUCATION (OBE) MANUAL



JAMAL MOHAMED COLLEGE (AUTONOMOUS)

Accredited (3rd Cycle) with A Grade by NAAC

(Affiliated to Bharathidasan University)

TIRUCHIRAPPALLI - 620 020

CURRICULUM DEVELOPMENT CELL

Contents

Introduction	1
Outcome Based Education (OBE)	1
Benefits of OBE	1
Framework for OBE	2
Process of OBE	2
Vision and Mission of the College	3
Programme Outcomes (PO) for Undergraduate Arts	3
Programme Outcomes (PO) for Postgraduate Arts	3
Programme Outcomes (PO) for M.Phil. Arts	3
Programme Outcomes (PO) for Undergraduate Science	4
Programme Outcomes (PO) for Postgraduate Science	4
Programme Outcomes (PO) for M.Phil. Science	5
Programme Outcomes (PO) for B.Voc. Programmes	5
Programme Specific Outcomes (PSO)	5
Course Outcomes (CO)	26
CO – PO and PSO mapping	27
Criteria for the attainment of CO, PO and PSO	27
Awareness of OBE	29

Outcome Based Education (OBE) Manual

Jamal Mohamed College (Autonomous), Tiruchirappalli

Introduction

The vision of the College is to become a world class, highly acclaimed, innovative and competitive centre of academic and extra academic excellence in Higher Education by offering value added and socially relevant programmes to the students including minority, backward and socially disadvantaged sections of the society. With the introduction of autonomy in the year 2004, **Choice Based Credit System (CBCS)** has been followed to suit the needs of students to keep pace with the developments in higher education and the quality assurance expected of it in the light of liberalization and globalization in higher education align it with the institutional mission.

Outcome Based Education (OBE)

Quality assurance developments and evaluation reforms in higher education have motivated us to move towards outcome based approach in teaching, learning and evaluation.

OBE advocates the importance of establishing a clear picture of what is important for students to be able to do, organizing a curriculum, instruction and assessment to make sure that learning ultimately happens. This is a change from the more traditional approach where teachers define courses in terms of what is thought, rather than what the student can do at the end of a course or a programme. OBE focusses on **life skills, basic skills, professional and vocational skills, intellectual skills, interpersonal and intrapersonal skills**.

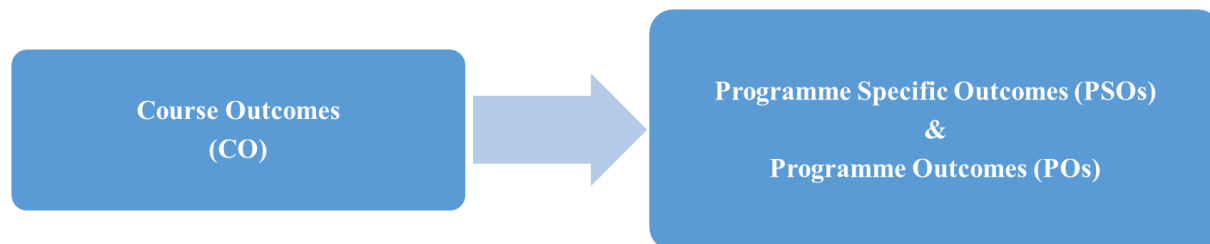
A student-centered paradigm in higher education entails a shift from a more input oriented curriculum design based on the description of the course content, to outcome based education in which the course content is developed in terms of learning outcomes. Our college has implemented **Outcome Based Education with CBCS** as per the guidelines of UGC from the academic year 2020.

Benefits of OBE

- Student-centric learning model
- Clarity in designing and planning curriculum to reach the expected outcome
- Makes the students as well as teachers prepared for the academic journey undertaken
- Liberty for the teachers to opt from different methods for assessment
- Facilitate participative learning
- Determine the cognitive levels of individual student
- Enhance the employability of the students besides helping them to imbibe necessary skills
- Timely and accurate conduct of student evaluation
- Frequent and productive syllabus evaluation
- Analysing the attainment of POs, PSOs and COs
- Helpful for validating the performance of the institution in terms of vision, mission, POs, PSOs, and COs.

Framework for OBE

In order to implement OBE, Jamal Mohamed College has adopted the following indented outcomes.

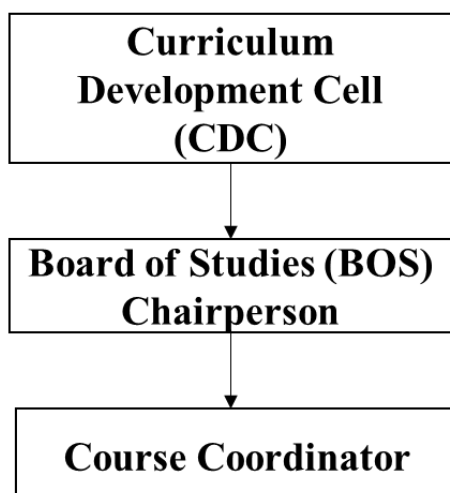


Process of OBE

OBE implementation involves the following:

- a) Identification of POs, PSOs and COs
- b) Designing the curriculum
- c) Designing methods for Teaching learning activities
- d) Developing strategies for assessment

The following chart shows the process of implementation of OBE at Jamal Mohamed College.



The Curriculum Development Cell (CDC) of the college in association with Dean of Arts and Dean of Science frame the POs for all the programmes offered by the College. The BOS will frame PSOs and COs. The BOS Chairpersons will constitute a department level committee involving the senior faculty members for designing Programme Specific Outcomes of their programmes concerned. A faculty member is deputed as a course coordinator for designing the Course Outcomes and content of each course. The Course Outcomes, Programme Specific Outcomes and syllabi framed by the members will be checked by department level committee and the same will be presented in the Internal BOS for discussion. After incorporating the suggestions made by the members, the contents will be presented in the External BOS. Suggestions of the external BOS members will be incorporated and the same will be presented in the academic council by the BOS Chairperson for the final approval.

Vision and Mission of the College

VISION

“Excellence and Beyond Excellence”

To become a world class, highly acclaimed, innovative and competitive centre of academic and extra academic excellence in Higher Education by offering value added and socially relevant programmes to the students including minority, backward and socially disadvantaged sections of the society.

MISSION

To provide a unique experience which will enable the student to realize their innate potential and mould their overall personality by

- Offering quality education at affordable cost
- developing skills and providing career opportunities
- inculcating and nurturing ethical, spiritual, moral and human values
- promoting consultancy activity, research and development
- creating interest and instilling confidence for achievements.

Programme Outcomes (PO)

Programme Outcomes are the statements that describe the qualities and capabilities the students are expected to obtain by the time of graduation. The College adopts five POs for arts and science programmes separately.

The following are the Programme Outcomes of **Arts Programmes** offered by the College

Undergraduate Programmes

At the end of the Programme, the Students will be able to

PO1: Discuss the fundamentals of facts and concepts of languages, literature, history, business education, managerial skills and economics and an interdisciplinary cohesion of these subjects in providing a knowledge base.

PO2: Develop communicative skills, exchange of ideas through oral and written mode, also interpersonal and intrapersonal communication, a thirst for learning through experiential learning and inquiry based learning, and advancement to higher education.

PO3: Apply analytical skills, critical thinking, problem solving skills, decision making skills, in solving real life problems and meeting the needs of the society.

PO4: Demonstrate an integrated personality in facing interviews competitive exams, new challenges and entrepreneurship.

PO5: Recognize the social, political and cultural aspects of the society and exhibit societal and ethical concerns and global awareness.

Postgraduate Programmes

At the end of the Programme, the Students will be able to

PO1: Explain the advanced concepts, ideas of the concerned discipline such as languages, literature, history, business education, managerial skills and economics and appreciate the interrelatedness among the subjects.

PO2: Identify a problem, search literature, frame hypothesis, analyze it with relevant statistical tools, draw conclusions and interpret the results in written and oral form.

PO3: Exhibit respect to the world around them on ethical consideration and understand the creativity, diversity, contemporary issues in shaping the future of them and the society.

PO4: Integrate the learned skills and knowledge leading them to noticeable changes in their vision, goals, attitudes and skills.

PO5: Apply employability skills in viewing real world requirements, self-development and sustained living.

M.Phil. Programmes

At the end of the Programme, the Scholars will be able to

PO1: Develop intellectual creativity, passionate reading and innovative thinking.

PO2: Demonstrate a quest for lifelong independent learning and pedagogical skills.

PO3: Manage information in application of research methodology to the identified problems, library skills for literature search, and technical skills for statistical analyses, organize the ideas into a meaningful scientific report and present it in oral and written means of communication.

PO4: Apply advanced research techniques and demonstrate their understanding of the disciplinary concepts.

PO5: Exhibit commitment towards research and the society following the codes of ethics, practice and moral values.

The following are the Programme Outcomes of ***Science Programmes*** offered by the College ***Undergraduate Programmes***

At the end of the Programme, the Students will be able to

PO1: Discuss current scientific facts, concepts, fundamental principles and scientific theories in solving societal problems and make informed decisions in scientific contexts.

PO2: Transcribe scientific ideas, arguments and practical experiences and demonstrate laboratory skills in handling new scientific techniques and equipments safely and ethically.

PO3: Recognize the benefits and limitations of science and its application in technological developments.

PO4: Demonstrate an ability to pursue higher education as an independent learner and become entrepreneurs in the relevant discipline.

PO5: Devise strategies to meet community requirements and serve as responsible citizens.

Postgraduate Programmes

At the end of the Programme, the Students will be able to

PO1: Describe advanced and contemporary concepts, principle and theories in the appropriate field to solve real problems.

PO2: Apply skill of observation for scientific experiments, draw logical conclusions and present it as a report.

PO3: Employ intellectual, personal, interpersonal and societal skills in professional career to maximize professional growth.

PO4: Prepare themselves as capable administrators, educators, researchers and pursue higher education as lifelong learner.

PO5: Develop scientific attitude not only with respect to science subjects but also in all aspects related to life imbining ethical, moral and social values in personal and social life.

M.Phil. Programmes

At the end of the Programme, the Scholars will be able to

PO1: Critically evaluate information and ideas from multiple perspectives and synthesize newer thrusts of knowledge making a contribution to the field.

PO2: Develop communication skills in publicizing the findings of scientific study in oral and written mode.

PO3: Analyze creatively to propose novel ideas in explaining facts and providing new solution to real problems and understand the influence of science in other disciplines.

PO4: Demonstrate a pursuit of knowledge as a lifelong activity combining untiring efforts taking social moral and ethical values into consideration.

PO5: Adopt the results of the research to enhance their scientific integrity, acquire jobs, personal endeavors and live a life of a civilized society.

B.Voc. Programme

At the end of the Programme, the Students will be able to

PO1: The course opens diverse job scopes in various industries like food, fashion, interior designing, hotels and tourism – based industries.

PO2: Incorporates the requirements of various industries in a flexible manner which develops holistic and well-groomed graduates thus meeting the emerging needs of the economy.

PO3: Aiming at generating a critical mass of industry-employable –skilled-persons to meet the skill gap in different areas of work.

PO4: Recognize the benefits and limitations of science and its application in technological developments.

PO5: Ensure that the persons trained and skilled in accordance with the norms laid down are assured of employment at decent wages.

Programme Specific Outcomes (PSO)

Programme Specific Outcomes (PSO) describe what the graduates of a specific programme should be able to do by the time of graduation. PSO shall be in line with the vision and mission of the department. PSOs of various programmes are listed below

ARABIC**B.A. Arabic**

At the end of the Programme, the Students will be able to

PSO1: Appreciate classical and modern literature and poetry.

PSO2: Articulate knowledge of major literary, artistic and cultural works and figures associated with Arabic Language.

PSO3: Describe the nature, functions, evolution, linguistic concepts of Arabic Language pertaining to Listening, Speaking, Reading and Writing Skills.

PSO4: Translate and transcribe basic language structures from Arabic to English and Vice Versa.

PSO5: Integrate Arabic language proficiencies, technological skills to effectively perform tasks typical of today's globalised work environment and environmental issues.

M.A. Arabic

At the end of the Programme, the Students will be able to

PSO1: Recognize the role of Islamic legislation and Philosophy in Classical Arabic literature.

PSO2: Demonstrate the ability of communicating in Arabic language both in oral and written form.

PSO3: Translate and interpret Arabic literature into English language.

PSO4: Compare and contrast the classical literature with modern literature and Indo Arabic literature.

PSO5: Consolidate the Arabic Literature for competitive exams to acquire jobs in Arabic career.

M.Phil. Arabic

At the end of the Programme, the Scholars will be able to

PSO1: Summarize the history of Arabic literature.

PSO2: Outline the research methods, investigation procedures, use of statistical analyses to carry out research projects and publish papers in journals.

PSO3: Adapt and apply teaching learning skills in Arabic language.

PSO4: Investigate a research problem and formulate possible solutions pertaining to Arabic language and literature ethically.

PSO5: Evaluate the societal issues, problems prevalent in language learning for shaping a better learned society.

BIOTECHNOLOGY**B.Sc. Biotechnology**

At the end of the Programme, the Students will be able to

PSO1: Demonstrate a base of knowledge on the fundamentals of biotechnology and technical concepts in the field of biotechnology.

PSO2: Recognize the importance of bioethics, IPR, entrepreneurship, communication and managerial skills as instrumental to future biotechnologist.

PSO3: Discuss the domains of biotechnology and their applications in industrial research, scientifically and ethically.

PSO4: Employ basic laboratory skills for research in biotechnology and interdisciplinary aspects of biotechnology using scientific methods to explore natural phenomena.

PSO5: Combine the principles of biotechnology and its interdisciplinary concepts for finding solutions to contemporary biological questions.

M.Sc. Biotechnology

At the end of the Programme, the Students will be able to

PSO1: Discuss the principles and the applications of molecular biology, methods with an emphasis on the application of recombinant DNA technology to animals, plants and microbes.

PSO2: Explain the concepts and applications of monoclonal antibody technology, use of mammalian cells for the production of pharmaceutical products.

PSO3: Relate the applications of biotechnology and advances in the different areas like medical, environmental, agricultural, veterinary and forensic sciences.

PSO4: Apply technical skills necessary to support biotechnology research study.

PSO5: Extrapolate the scope for career in biosciences by getting through competitive exams or through research undertakings.

M.Phil. Biotechnology

At the end of the Programme, the Scholars will be able to

PSO1: Demonstrate critical understanding of advanced level of updated knowledge in the field of biotechnology.

PSO2: Apply the knowledge of teaching learning skills in personal and professional life.

PSO3: Integrate life-long learning skills and academic advancements.

PSO4: Appraise biotechnological research using theoretical knowledge and practical application of laboratory equipments critically and systematically.

PSO5: Prepare research project reports for publication in journals and present them orally and in written form.

Post Graduate Diploma in Fermentation Technology

At the end of the Programme, the Students will be able to

PSO1: Describe the basic concepts in biomolecules and microbial biochemistry.

PSO2: Explain the principles of fermentation technology, use of biocatalysts and biotransformation involved in the bioprocess.

PSO3: Illustrate the process of industrial fermentation, bio process of animal and plant cell and the role of enzymes in fermentation.

PSO4: Summarize the steps in downstream processing.

PSO5: Evaluate the cost effective fermentation process and bioprocess in compliance with market demand.

Post Graduate Diploma in Bioinformatics

At the end of the Programme, the Students will be able to

PSO1: Explain the fundamental principles of Bioinformatics and statistical applications in bioinformatics.

PSO2: Outline the process of generation, manipulation and representation of molecules for drug modelling.

PSO3: Describe the basic structure of biological molecules, process of acquiring the structures and the interaction between the molecules.

PSO4: Develop and apply basic computer programming to build biological algorithms and models to study their relationships.

PSO5: Deduce the interrelationship between genomics and Proteomics, techniques involved in analyzing proteomics and its applications.

BOTANY

B.Sc. Botany

At the end of the Programme, the Students will be able to

PSO1: Recall the range of plant diversity in terms of structures, function, environment relationship and classification of plants.

PSO2: Develop basic knowledge to make a substantial contribution in environmental science for the biodiversity conservation and sustainable use of natural resources.

PSO3: Apply the practical skills of handling laboratory equipments in the field and in the laboratory, safely.

PSO4: Generate employment opportunities through self-employed entrepreneurial skill and competitive exams.

PSO5: Construct multidisciplinary and interdisciplinary knowledge for the promotion of communities, population and ecosystems.

M.Sc. Botany

At the end of the Programme, the Students will be able to

PSO1: Identify various group of plants, their functions, utilization and conservation aspects and give scientific explanation for the unity and diversity on earth.

PSO2: Demonstrate knowledge on primary and modern techniques in terms of theory and practical application and also handling of laboratory equipments for biological research.

PSO3: Combine the knowledge of interdisciplinary subjects such as molecular biology, Biotechnology, Bioinformatics and Biostatistics for the mitigation of biodiversity and environmental issues.

PSO4: Apply the cultivation of sea weeds, floriculture and plant tissue culture for entrepreneurship and commercialization.

PSO5: Appraise various analytical techniques for planning and execution of biological experiments, and drafting them as a report.

M.Phil. Botany

At the end of the Programme, the Scholars will be able to

PSO1: Outline the recent advances in Botany such as molecular taxonomy, sequence analysis, analytical, statistical methods for the specific areas of research.

PSO2: Illustrate the teaching learning skills by being proponent in the classroom and laboratory setup.

PSO3: Organize the laboratory practices and experimentation, compile and communicate, them into research report based on the principles of thesis writing and research publication.

PSO4: Approve changes in environment with high integrity and transport ethical professionals.

PSO5: Conceive opportunities for higher education and research career.

BUSINESS ADMINISTRATION

B.B.A.

At the end of the Programme, the Students will be able to

PSO1: Demonstrate basic understanding of underlying relationship of Management, Accounting Finance, Economics, Marketing and Management information systems.

PSO2: Associate knowledge on specialized areas such as Human resource management, Finance and Marketing to address global and local issues in business administration.

PSO3: Apply statistical, mathematical and technological tools for business presentations, solve business and marketing problems, decision making and for developing marketing plans and strategies.

PSO4: Express business issues, management concepts, plans and decisions both in oral and written form, exhibiting leadership and managerial skills blending ethical issues and social responsibilities.

PSO5: Employ cost accounting principles and techniques for analyzing the cost components to facilitate managerial decision making.

M.B.A.

At the end of the Programme, the Students will be able to

PSO1: Describe current theory and techniques of the business administration, varied management aspects such as financial management, operations management, marketing management, strategic management and human resource management.

PSO2: Integrate the tools and concepts of various functional areas of Management to investigate and solve the critical and specific business problems to bridge diverse perspectives, cultures, and disciplines.

PSO3: Explore new business opportunities, design and implement innovations in business organizations and lead entrepreneurial leadership and strategic ventures.

PSO4: Apply deontological and consequential views on solving management problems and decision making imbibing legal practices, social values and ethical reasoning.

PSO5: Develop the ability to communicate in a variety of contexts through different medium, assessing global opportunities and challenges for business growth.

M.Phil. Management Studies

At the end of the Programme, the Scholars will be able to

PSO1: Integrate management techniques to aid planning and control in changing global competitive environments, conflict management, leadership and team membership skills needed for implementing and coordinating organizational activities.

PSO2: Apply business analysis, management science, data management, diagnostic problem-solving skills and statistical tools for business solutions and decision making.

PSO3: Synthesize employment and business opportunities and become a business leader by means of self-employment, entrepreneurship, research quest or competitive examinations.

PSO4: Employ teaching and learning skills in the classroom and personal development through continuous learning.

PSO5: Validate a research problem in the relevant field using scientific methods of addressing a business problem and dissemination of results as report writing.

PGDIBFM

At the end of the Programme, the Students will be able to

PSO1: Explain basic concepts and theories in managerial Economics, Financial accounting, cost accounting and Banking.

PSO2: Identify the relationship between banking and Islamic law and connectivity within Islamic banking and finance.

PSO3: Analyze a problem in banking based on Islamic law and banking features, provide solutions and report them in writing.

PSO4: Formulate Islamic investment prospects and portfolio management guided by Islamic Shariah.

PSO5: Develop as socially responsible citizens with integrity and attending societal problems ethically.

CHEMISTRY**B.Sc. Chemistry**

At the end of the Programme, the Students will be able to

PSO1: Discuss the fundamental and application of current chemical and scientific theories in the core areas such as inorganic, organic and physical chemistry and applied areas of chemistry such as Agricultural chemistry, Nutritional chemistry, Drug Chemistry and Water Chemistry.

PSO2: Design, carry out chemical experiments in laboratory following using modern instruments and classical techniques safe use of equipments and chemicals, interpretation and documentation of the results and communicate through thesis writing and research publications.

PSO3: Apply appropriate techniques for the analysis of chemicals in research and development laboratories and industries, leading to employment opportunities in chemical industries as a chemist.

PSO4: Formulate solutions to address current problems through chemical principles in a variety of fields and evaluate the potential impact chemistry may have on society, health, and the environment.

PSO5: Explain, integrate and apply relevant knowledge to problems that emerge from the broader interdisciplinary subfields and probable solutions for environmental problems.

M.Sc. Chemistry

At the end of the Programme, the Students will be able to

PSO1: Explain advanced concepts of Inorganic, Organic and Physical Chemistry and integrate knowledge in discipline specific areas.

PSO2: Design chemical reactions and their mechanism using a variety of chemical instrumentation, laboratory techniques, statistical and computational methods and interpret it as scientific reports through oral and written means.

PSO3: Apply modern instruments and technologies and classical equipments in execution of chemical experiments, recognizing the uncertainties and error in experimental measurements following the ethical standards as chemists.

PSO4: Examine the importance of chemistry in dealing with political, social, environmental and societal problems due to chemicals and plausible remedial measures for sustainable society.

PSO5: Identify career prospects as chemists in research and development organizations or through entrepreneurial associateship.

M.Phil. Chemistry

At the end of the Programme, the Scholars will be able to

PSO1: Identify current topics of chemical research, and perform either basic, applied or transdisciplinary research based on theoretical concepts and facts.

PSO2: Examine the possibilities of solutions to societal problems caused through hazardous chemicals through scientific research conducted with appropriate use of safety measures and ethical considerations.

PSO3: Apply the teaching learning knowledge for personal and professional growth in the classroom and affiliated setup.

PSO4: Describe the instrumental and computational methods of chemical research.

PSO5: Devise employment openings, foundational on theoretical and applied understanding of chemicals and chemical reactions by getting through competitive exams or as an entrepreneur.

COMMERCE

B.Com.

At the end of the Programme, the Students will be able to

PSO1: Discuss principles and concepts in the areas of accounting and use of them in different types of business organizations and acquaintance with the procedure of preparation and analysis of financial statements for external users and managers for business transactions and managerial decision making.

PSO2: Explain the types of business organizations, office management, regarding legal frame work governing the business world management of human resources within the organization, marketing strategies, insurance, industrial relations and corporate ship.

PSO3: Create, select, and apply appropriate techniques, resources, and modern statistical tools & software for economic problems and for the cultural, societal, and environmental considerations.

PSO4: Exhibit entrepreneurial skill through knowledge in the finance institution, project report incentives and subsidies and adapt to the ever changing business environment.

PSO5: Analyze the impact of the professional accounting solutions in societal and environmental contexts.

M.Com.

At the end of the Programme, the Students will be able to

PSO1: Discuss application oriented knowledge and understanding of contemporary trends in business and the techniques of managing the business with special focus on the functional areas of management both at domestic and international level.

PSO2: Employ skills and strategies in the chosen field at different capacities for the successful functioning of the Industries, Finance and Investment, logistics, distribution channel management and application of information technology in business to meet the well trained manpower requirements.

PSO3: Create employment possibility in management sectors as managers, financial accountants, cost accountants, auditors, company secretaries, teachers and bank managers with an ethical awareness.

PSO4: Apply different research methodologies of research and proficient use of statistical methods and tools for modelling and analysis of data management, accounting techniques on undertaking research in varied fields of commerce.

PSO5: Prepare and analyze financial statements, financial reports, and the provisions of Income Tax Act and their applications in computations of taxable income of an individual under different heads of income.

M.Phil. Commerce

At the end of the Programme, the Scholars will be able to

PSO1: Explain the functional areas of management.

PSO2: Design, develop and execute specific research problems in commerce and adjoining areas and present a technical report in oral and written form.

PSO3: Apply teaching learning skills in the classroom and for personal advancement.

PSO4: Recognize the employment opportunities in alliance with commerce subject on attempting entrepreneurship, getting employed in companies or qualifying national level examinations.

PSO5: Recommend solutions to business world problems and thereby meeting the demands of society in the cultural, social, economical and environmental contexts.

COMPUTER APPLICATIONS**B.C.A.**

At the end of the Programme, the Students will be able to

PSO1: Discuss the programming languages C, C+, Java, Python and other operating systems and database management systems.

PSO2: Apply the numerical and statistical methods and the principles of accountancy for computation and operations research and communicate them in written and oral mode.

PSO3: Illustrate scripting languages and practical application of data analytical tools and software testing tool to solve problems in computer operating systems.

PSO4: Employ multimedia, data communications, networking principles, office automation, image editing tools and the concept of software engineering in business contexts.

PSO5: Recognize the social and ethical issues in media operated systems and apply the knowledge of Mathematics and management in computer applications to advance in studies and professionalism.

M.C.A.

At the end of the Programme, the Students will be able to

PSO1: Express computing fundamentals, basic Mathematics, Computing specialization, and domain Knowledge of proper computing models for defined problems.

PSO2: Develop and apply computer based applications to solve real problems and recognize the technological developments in the usage of modern design and development tools to design a variety of applications.

PSO3: Recall management principles and apply them to develop software as a team member and manage projects efficiently for multidisciplinary environments.

PSO4: Associate multidisciplinary knowledge through real-time projects and industry training and providing a sustainable competitive edge in R&D and meeting industry requirements.

PSO5: Choose career prospects in industry, government sectors, academia, research, consultancy firms and entrepreneurship pursuit.

PGDCA

At the end of the Programme, the Students will be able to

PSO1: Explain the programming in C, principles of accountancy, office automation, visual programming, shell programming and web designing.

PSO2: Compute practical application of editing, programming, web designing and visual programming using domain knowledge.

PSO3: Demonstrate creativity, develop innovative ideas and to work in teams to accomplish a common goal.

PSO4: Define and solve problems individually and with groups, using a variety of resources and methods, including technology and scientific reporting.

PSO5: Conceive employability and entrepreneur skills bearing ethics and social responsibility.

COMPUTER SCIENCE

B.Sc. Computer Science

At the end of the Programme, the Students will be able to

PSO1: Discuss the fundamental theories, concepts, Algorithms, Data Structures, Programming Languages, Compilers and Computer hardware and architecture and their applications in computer science.

PSO2: Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline and evaluate the impact of technological advances in the society and the social, legal, ethical and cultural ramifications of computer technology.

PSO3: Appraise computation and programming, the theoretical basis of the mathematics and symbolic concepts that underlie computing and communicate in a collaborative environment, present ideas, and document work at all stages of software development.

PSO4: Analyze problems and design algorithms, execution of programs written in C++ language, identify the components of a computer and the organization of those components, map statements and constructs in a high-level language into a sequence of machine instructions to solve real life problems.

PSO5: Use current techniques, skills, and tools necessary for computing practice for acquiring job in the field of computer science and its allied areas, engaging in continuous professional development through lifelong learning.

M.Sc. Computer Science

At the end of the Programme, the Students will be able to

PSO1: Exhibit proficiency in basic computer applications, theoretical dimensions and its application in various fields.

PSO2: Analyze the local and global impact of computing on individuals, organizations and society, blending analytical, logical and technical aspects and become lifelong learners and contributors to society.

PSO3: Apply analytical and computational approaches on changing societal and technological challenges to meet desired needs within realistic constraints with positive attitude and develop computer applications using modern tools and techniques.

PSO4: Discover employment possibilities through self-employed entrepreneurs, jobs in computer and related companies or by qualifying competitive examinations.

PSO5: Transcribe concepts and results to a technical audience in the form of a technical report and/or an oral presentation on recognizing the professional, ethical, legal, security and social issues and responsibilities

M.Phil. Computer Science

At the end of the Programme, the Scholars will be able to

PSO1: Express the social, cultural and ethical impact of the latest computer technologies on the society and the impact of research in environmental contexts that promotes societal developments.

PSO2: Apply and analyze research-based knowledge and research methods to provide valid conclusions and decisions and prepare a scientific report.

PSO3: Apply the modern concepts of computer science in research by utilizing the latest and advanced tools of computation concerning the moral, ethical and social values.

PSO4: Appraise the theoretical knowledge of teaching learning skills inside the classroom and personal development.

PSO5: Select employment provisions in the relevant field either through research or competitive exams and engage in independent and lifelong learning in the broadest context of technological change.

ECONOMICS

B.A. Economics

At the end of the Programme, the Students will be able to

PSO1: Deduce reasonable predictions about possible economic outcomes based upon economic conditions and economic theories.

PSO2: Analyze data to support economic decision making using technologically advanced statistical tools and econometric techniques proceeded by economic evaluation and presentation of the results in a professional setting

PSO3: Describe how economic trade-offs and social values impact public/private social policy, and the success or failure of policies to achieve intended outcomes.

PSO4: Explain basic economic concepts such as GDP, unemployment, supply & demand, comparative advantage, opportunity cost and micro-economic concepts such as elasticity, monopoly and price discrimination, fiscal and monetary policies and measures of economic change and indicators of growth and development.

PSO5: Discuss the nuances of Public Finance and Environmental Economics, and correlate ideas from interdisciplinary areas such as Marketing, Human Resource Management, Managerial Economics, Financial Economics and Entrepreneurial development.

M.A. Economics

At the end of the Programme, the Students will be able to

PSO1: Explain new developments and contemporary issues in the field of economics and advanced theories in micro, macro and monetary economics.

PSO2: Identify economic problems and apply empirical evidence to economic arguments, by collecting evidences using appropriate statistical techniques, and interpret the results of such analyses imbibing research ethics.

PSO3: Organize global and disciplinary knowledge and practical skills for professional development in higher education and for obtaining job.

PSO4: Transcribe in diverse audiences and situations using equations and graphs and demonstrate skills in business and accounting.

PSO5: Apply pragmatic, principles-based policies to enhance economic well-being and promote social justice.

M.Phil. Economics

At the end of the Programme, the Scholars will be able to

PSO1: Apply empirical evidence to evaluate the validity of an economic argument, use statistical methodology, interpret statistical results and conduct appropriate statistical analysis of data.

PSO2: Prepare a scientific report based on evidences and disseminate convincing statements through oral and written mode for current economic problems and intended economic crisis.

PSO3: Develop teaching and learning skills in the relevant field and practice it in the classroom and for self-development.

PSO4: Recognize advanced theories in economics and the technical application in addressing real world problems for the economic and social wellbeing of the masses.

PSO5: Identify career in the field of economics and its adjoining sectors through self-employment or competitive exams.

ENGLISH

B.A. English

At the end of the Programme, the Students will be able to

PSO1: Explain the classic, contemporary and modern literary forms in relation to the salient features and literary traditions of the historical age of writing and state the proximity of life and literature.

PSO2: Demonstrate English language skills in listening, speaking, reading and writing by engaging learners in a range of communicative tasks and activities including business settings.

PSO3: Transcribe the history of English literature and English language and various literary genres along with world literature.

PSO4: Discuss the place of Indian writing in English and the exponents of Indian writing and their literary works.

PSO5: Evaluate the concepts of literary critics and their contribution to English literature and English language teaching in India.

M.A. English

At the end of the Programme, the Students will be able to

PSO1: Analyze works of literature in one or more interpretive contexts or frameworks and use one or more theoretical approaches for literary interpretation.

PSO2: Outline basic functions in literary texts with historical, social and political contexts writing techniques, constitutive of individual genres.

PSO3: Express literary movements, favoured genres and the development of literary forms.

PSO4: Integrate learned skills and knowledge leading them to noticeable changes in their vision, goals, attitudes and skills.

PSO5: Recognize employment requiring application of language and literature skills and evolve as a lifelong learner for professional development.

M.Phil. English

At the end of the Programme, the Scholars will be able to

PSO1: Transcribe analytically in a variety of formats, including essays, research papers, reflective writing, and critical reviews of secondary sources.

PSO2: Identify, analyze, interpret and describe the critical ideas, values, and themes that appear in literary and cultural texts and understand the way these ideas, values, and themes inform and impact culture and society, in contemporary and ancient times.

PSO3: Explain the ideals and conditions for literary research, common and basic scholarly requirements of logical and empirical rigor in undertaking a research based on research ethics and socially responsible citizens.

PSO4: Adopt the teaching learning skills in teaching English language and literature and in personal improvement for academic excellence.

PSO5: Outline the contemporary literary theory and its relatedness to literatures of the past.

FASHION TECHNOLOGY & COSTUME DESIGNING

B.Sc. Fashion Technology & Costume Designing

At the end of the Programme, the Students will be able to

PSO1: Express the basic concepts of designing, drafting, methods of pattern making and its alteration with techniques for garment construction and skills on Photoshop and Corel Draw.

PSO2: Explain the conceptual theories of textile science and fabric construction and to expertise in merchandising, quality control and its specification in apparel industry.

PSO3: Illustrate draping and visual display of merchandise.

PSO4: Analyze recent trends and design market friendly, sustainable, ethnically and viable design textile products and use modern design in apparel product and process development.

PSO5: Identify employability as a fashion designer either self-employed or work in fashion designing sectors.

M.Sc. Fashion Technology & Costume Designing

At the end of the Programme, the Students will be able to

PSO1: Analyze and develop their own style in designing fabrics and designing of different brands.

PSO2: Adapt new eco-friendly technologies in textile designing and skills for professional growth and transform into able administrator and educators with enriched social and ethical values.

PSO3: Apply the theories and skills to solve real time problems in apparel design and work as a team in an organization and become accomplished successful designers, entrepreneurs or industry ready professionals.

PSO4: Discuss fashion styling in the design world, explore and learn new sketching in unique theme.

PSO5: Demonstrate knowledge in fashion designing software such as rich peace fashion studio, rich peace pattern making CAD, Photoshop and Corel Draw.

B.Voc. Apparel and Fashion Design

At the end of the Programme, the Students will be able to

PSO1: Discuss design process, clothing psychology, fabric manufacturing, marketing and functioning of a fashion industry.

PSO2: Demonstrate sewing techniques, and apparel designing for girl's wear, boy's wear, women's wear and men's wear.

PSO3: Apply technical knowledge in making accessories, apparel draping, materials selection, embroidery and fabric painting.

PSO4: Employ computer technologies in fashion designing and develop an entrepreneurial skill to meet market demands.

PSO5: Assess market and consumer factors that influence apparel and textile merchandising and marketing decisions.

HISTORY

B.Sc. History

At the end of the Programme, the Students will be able to

PSO1: Outline the past socio-cultural, political and economic condition of the people in the world and the change that occurred in the due course of time.

PSO2: Discuss concepts related to Archaeology, Journalism, Human Rights, Tourism and Political Science, and social political religious and economic condition of India through the ages.

PSO3: Analyze the socio-political, economic and philosophical thoughts of personalities that helped to shape the mankind in the modern world and constitutional development of the countries around the world and India in particular.

PSO4: Transcribe the basic concepts, theories and principles of geographical phenomena and environment and climatic conditions, reflect on the life of the people and the past glory of Tamil culture and the social, political, religious and economic condition of Tamil Nadu through the ages.

PSO5: Identify employment and/or advance in higher education on application of basic understanding of historical perspectives of India and the world.

M.Sc. History

At the end of the Programme, the Students will be able to

PSO1: Express terms, concepts, events, ideals, personalities and principles in Indian History.

PSO2: Analyze the various ways of life, belief, political, economic, social and cultural development of the world and particularly the socio-cultural heritage of Arabs.

PSO3: Explain international relations, origin of war and the maintenance of peace, the executive power, character of state and non-state actor, contemporary global issues and importance of world peace.

PSO4: Identify ancient monuments, inscriptions, literature and the glorious past of Tamil Nadu and appreciate its historical richness.

PSO5: Apply historical research method and present the findings as a project report and get through competitive exams proposing career openings.

M.Phil. History

At the end of the Programme, the Scholars will be able to

PSO1: Recognize the diversity of human experience, including ethnicity, race, language, sex, gender, as well as political, economic, social, and cultural structures over time and space.

PSO2: Demonstrate historical research skills in conceptualizing and executing original research work and expressing their thoughts clearly and coherently both in writing and orally.

PSO3: Exhibit mastery in teaching and learning skills inside classroom teaching and involves in life-long learning for self-growth.

PSO4: Outline the historiography of world history and India history and connectedness of the past and the modern world.

PSO5: Appraise employment probabilities through application of research skills or qualifying competitive examinations enduring life-long learning.

HOTEL MANAGEMENT & CATERING SCIENCE

B.Sc. Hotel Management & Catering Science

At the end of the Programme, the Students will be able to

PSO1: Discuss the basic of cookery and variety of cookeries such as Asian cookery, European Cookery, Food and beverage services.

PSO2: Outline the entry level management operations with a specific focus on individual, social and environmental perspectives and professional preparation, presentation and service of quality food.

PSO3: Evaluate and apply vocationally relevant concepts of operational and strategic management.

PSO4: Integrate human, financial and physical resources for in providing service to the customers and food service operations practicing industry defined work ethics.

PSO5: Identify problems in the work field and management strategies to work with people from diverse cultural background

B.Voc. Programme (Tourism and Hospitality Management)

At the end of the Programme, the Students will be able to

PSO1: Understand and demonstrate the core technical, analytical and conceptual skills appropriate for tourism and hospitality

PSO2: Comprehend and articulate the written and oral communication as appropriate for tourism and hospitality environments.

PSO3: Develop fundamental in-depth knowledge and understanding of the techniques, principles, concepts, values, substantive rules and development of the core areas of tourism and hospitality.

PSO4: Apply the work-readiness knowledge and skills in different levels of management operations with a specific focus on individual, social and environmental perspectives relevant to Tourism and Hospitality.

PSO5: Function effectively as an individual and as a member or leader in teams, and in multidisciplinary settings by demonstrating life skills, coping skills and human values.

INFORMATION TECHNOLOGY

B.Sc. Information Technology

At the end of the Programme, the Students will be able to

PSO1: Apply modern technical concepts and practices in the core information technologies and integrate IT based solutions into the user environment.

PSO2: Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer based systems and solve business world problems using information technology.

PSO3: Recognize the professional, ethical, legal, security and social issues and responsibilities and creation of an effective project plan.

PSO4: Transcribe in business environments in a variety of contexts and make effective presentations.

PSO5: Demonstrate working knowledge of programming, data structures, computer network paradigms, data mining, software testing and multimedia animation.

M.Sc. Information Technology

At the end of the Programme, the Students will be able to

PSO1: Demonstrate foundational knowledge on .NET technology. Data structures, Algorithms, Java programming, Web services and software testing.

PSO2: Develop and implement optimal solutions to complex computing problems using industry-recognized best practices and standards.

PSO3: Apply ethical decision making and societal concerns in the development, implementation, and management of IT systems and cyber security.

PSO4: Combine analytical logical and technical aspects to resolve issues in artificial intelligence, machine learning and real time problems.

PSO5: Identify employment prospects in local and international companies or business enterprise and/or competitive exams.

MATHEMATICS

B.Sc. Mathematics

At the end of the Programme, the Students will be able to

PSO1: Discuss the foundation and history of mathematics, perform computations in calculus, Trigonometry, Algebra and number theory.

PSO2: Apply analytical and theoretical skills and mathematical ideas to solve mathematical problems and to model real-world problems.

PSO3: Recognize a variety of examples where mathematics or statistics helps accurately explain abstract or physical phenomena.

PSO4: Utilize technology to address mathematical ideas, and mathematical programming using C++ and statistical calculations.

PSO5: Demonstrate an ability to use working knowledge of mathematics in their careers and progress to higher education.

M.Sc. Mathematics

At the end of the Programme, the Students will be able to

PSO1: Describe the origin of Graph Theory, different types of graph theory and advanced operations on graphs.

PSO2: Discuss the topology in mathematics, differential equations, numerical analysis and fuzzy analysis and their applications to perform mathematical calculations.

PSO3: Recognize and appreciate the connections between theory and applications and mathematical methods in Biology and Python programming.

PSO4: Apply quantitative methods such as the modern probability theory, measure theory fluid dynamics and integral equations to solve mathematical and real world problems.

PSO5: Create employment prospects through application of mathematical concepts and work independently and be a perpetual learner.

M.Phil. Mathematics

At the end of the Programme, the Scholars will be able to

PSO1: Analyse and judge the validity of rigorous mathematical arguments and carry out research in mathematical problems and formulate complete, concise, and correct mathematical proofs.

PSO2: Utilize a variety of teaching techniques and classroom strategies to positively influence student learning and also for one's own development.

PSO3: Transcribe mathematical ideas, terminology and notation as a report and oral also make oral presentations.

PSO4: Apply domain knowledge, conceptual and practical knowledge of mathematics in various fields and real time situations and execute a research study ethically.

PSO5: Conceive employability and professional development through problem solving skills and become a continual learner.

MICROBIOLOGY

B.Sc. Microbiology

At the end of the Programme, the Students will be able to

PSO1: Demonstrate a rational understanding of the diversity of microorganisms, structure, functions, their role in the biosphere, bioinformatics and biostatistics.

PSO2: Identify the microorganisms, classify them based on their morphological characteristics and the relationship between them and the environment.

PSO3: Explain the fundamental concepts, processes, core theories and practices within microbiology, immunology and clinical microbiology.

PSO4: Apply the tools, technologies and scientific methods for laboratory and conventional investigations safely and formulate valid conclusions based on the results in the field of microbiology and its associated areas.

PSO5: Describe the role of microbes in human, food and dairy technology, agriculture, the process of heritable information in microorganisms and forming new genetic combinations through recombinant DNA

M.Sc. Microbiology

At the end of the Programme, the Students will be able to

PSO1: Describe the cell structure, functions, their characteristics, cultivation methods, concept of culture, type of culture and microbial techniques.

PSO2: Construct the use of microbial knowledge in genetics, genetic engineering, fermentation technology, medical microbiology and waste management.

PSO3: Identify the ways microorganisms play an integral role in disease, and microbial and immunological methodologies, are used in disease treatment and prevention.

PSO4: Devise and execute safe laboratory experiments following the research ethics and presentation of reports.

PSO5: Locate career options in and related field of microbiology either through competitive examinations or entrepreneurial activities.

M.Phil. Microbiology

At the end of the Programme, the Scholars will be able to

PSO1: Recognize and critically use the theoretical understanding of the subject in questioning and plausible explanations.

PSO2: Design and implement effective strategies in carrying out a research in microbiology, possible solutions for the benefits of the biosphere.

PSO3: Transcribe research reports for the advancement in career and journal publications.

PSO4: Utilize the knowledge of teaching learning skills into one's own professional life.

PSO5: Locate the use and implementation of modern technologies in research.

NUTRITION AND DIETETICS**B.Sc. Nutrition and Dietetics**

At the end of the Programme, the Students will be able to

PSO1: Recognize the interrelationship between food, nutrition and health and the food choices to make that will optimize the health and prevents diseases.

PSO2: Utilize nutrition care process to make decisions to identify nutrition-related problems, and determine and evaluate nutrition interventions.

PSO3: Describe the governance of nutrition and dietetics practice, such as the Scope of Nutrition and Dietetics Practice and the Code of Ethics for the Profession of Nutrition and Dietetics; and describe inter-professional relationships in various practice settings.

PSO4: Organize the translation of food, nutrition and diet towards promotion of health and nutritional wellbeing of society, bearing social responsibility and ethics.

PSO5: Deduce careers opportunities as caring, innovative nutritionists, dietitians and entrepreneurs and meet the complex needs of the evolving health care system.

M.Sc. Nutrition and Dietetics

At the end of the Programme, the Students will be able to

PSO1: Explain the concepts of Nutrition and Dietetics in enhancing health among the people and diet planning and counselling for general and specific diseases as a dietitian.

PSO2: Identify problems associated with nutrition and health and evolve strategies to overcome them within appropriate ethical, legal limits and food safety measures.

PSO3: Generate efficient methods for providing information, advice and professional opinion to individuals, groups and communities on nutrition and dieting for healthy living.

PSO4: Illustrate the role of microorganisms in creation or contamination of food and preservation of food products using latest advancements.

PSO5: Devise employability in various sectors such as food industry, hospitality industry or independent workers as nutritionists.

B.Voc. Programme (Food Processing and Safety)

At the end of the Programme, the Students will be able to

PSO1: Increases employability of the graduates and meet industry demand for human resources.

PSO2: Provide a robust and vibrant eco-system for students with excellent skills in the Food Processing Sector in the country

PSO3: Demonstrate an ability to pursue higher education as an independent learner and become entrepreneurs in the relevant discipline.

PSO4: Devise strategies to meet community requirements and serve as responsible citizens. Increases the scope for self-employment as small, medium or large scale entrepreneur in food industry

M.Phil. Nutrition and Dietetics

At the end of the Programme, the Scholars will be able to

PSO1: Integrate knowledge of research principles and methods associated with nutrition and dietetics practice in solving problems in the disciplinary area.

PSO2: Utilize the principles of nutrition and dietetics, identifying appropriate literature, execute data collection and interpretation and dissemination of the findings as a project report.

PSO3: Apply various teaching and learning techniques for effective teaching in the classroom and obtain career prospects in the specific discipline, qualifying competitive exams and/or self-employment.

PSO4: Outline the recent trends and advancements in Nutrition and dietetics and examine ways to improve food products for societal wellbeing.

PSO5: Develop as responsible citizens with ethics and societal concerns.

PHYSICS

B.Sc. Physics

At the end of the Programme, the Students will be able to

PSO1: Demonstrate conversance in properties of matter, mechanics, relativity, thermal physics, atomic physics, nuclear physics, general physics and medical physics.

PSO2: Create scientific temperament and inquisitiveness and an awareness of the impact of Physics on the environment, society, and development outside the scientific community.

PSO3: Summarize interdisciplinary and relationship between the concepts of Physics with Chemistry, and Mathematics representing multiple representation of scientific information.

PSO4: Apply advanced tools, equipments and laboratory skills in Physics experiments draw logical conclusions and interpret the results into a research report.

PSO5: Adopt physics concepts to solve simple problems in electronic devices and perform jobs in the relevant field.

M.Sc. Physics

At the end of the Programme, the Students will be able to

PSO1: Describe the advanced concepts of classical Physics, General Physics, Nuclear and Particle Physics, Medical Physics, their corollaries and application of them in natural phenomena.

PSO2: Apply problem solving skills, computer programming and numerical simulations to solve problems and appreciate the innate beauty of Physics.

PSO3: Develop a spirit of scientific reasoning, undertaking scientific research beneficial for the world and people who live in and propagation of results as a written report.

PSO4: Devise leadership strategies and find ways to apply working knowledge of Physics in advancement to higher education and career coupled with desire to be a life-long learner.

PSO5: Evaluate the role of Physics in enhancing the life of the people and involve in community building activities.

M.Phil. Physics

At the end of the Programme, the Scholars will be able to

PSO1: Apply basic computational techniques for modelling physical systems, systematically explore physical phenomena by setting up experiments, collecting and analyzing data, and interpreting their results.

PSO2: Develop scientific reasoning and scientific outlook in addressing the problems of the society and evolving solutions on the theoretical foundation of Physics.

PSO3: Adopt Mathematical, analytical, simulation tools in carrying out basic, applied and interdisciplinary research and unravel scientific mysteries thorough conscientious efforts.

PSO4: Transcribe the results as a scientific report and propagate the scientific ideas through publication.

PSO5: Demonstrate an ability to handle the classroom teaching effectively, using teaching and learning skills and find employment through entrepreneurial endeavor and competitive exams.

SOCIAL WORK

M.S.W.

At the end of the Programme, the Students will be able to

PSO1: Discuss the nature of social work profession, ideals virtues of social work and effectual way of working as individual within groups and families.

PSO2: Demonstrate ethical, professional and social demeanor social workers and engage in lifelong learning and personality development.

PSO3: Apply knowledge of social systems and human behaviour to promote social change, problem solving in human relationships and the empowerment of people to enhance their well-being.

PSO4: Express knowledge of theory, legislation, policy, official inquiry reports and international conventions, to assessment and intervention planning in social work practice.

PSO5: Employ social entrepreneurship for sustained living, in changing society by engaging in action projects, research work, networking and Liasoning.

M.Phil. Social Work

At the end of the Programme, the Scholars will be able to

PSO1: Explain the contemporary issues in social work and the changing trends and global expectation from the social workers.

PSO2: Recognize teaching and learning skills adequate for classroom teaching and learning techniques for self-improvement in academics.

PSO3: Assess the requisite needs of individuals, groups and organizations, carryout a research study and emerge solutions for the welfare of the society following ethics, code of practices and virtues of research.

PSO4: Restate the research results in oral and written form and promote the study findings as publications.

PSO5: Apply the theories, concepts and knowledge of social issues in enhancing professionalism as an independent worker or through affiliation.

VISUAL COMMUNICATION

B.Sc. Visual Communication

At the end of the Programme, the Students will be able to

PSO1: Explain the scope of visual communication, its meaning, significance, basics of advertising, graphic design and communication theories with the sense of aesthetics.

PSO2: Create various art forms and develop as interactive designers, website developers, motion graphics designers and mobile app designers by way of effective transference of ideas.

PSO3: Discover and analyze visual persuasion, photography, graphic design, cultural and ethical issues, visualization of ideas within a specific historical, cultural, and commercial context.

PSO4: Utilize professional equipment and techniques to capture images and video adhering to industry standards, analysis of visuals, adding visual effects, production of audios and videos abiding to the media laws and ethics.

PSO5: Devise employment projection as media personnel, photographer, advertising agencies and any other position relevant to the field and/or pursue higher education.

B.Voc. Programme (Media Production)

At the end of the Programme, the Students will be able to

PSO1: Explain the scope of Media and Entertainment, its meaning, significance, basics of advertising, graphic design, visual communication, media production with the sense of aesthetics.

PSO2: Create various art forms and develop as interactive designers, social media managers, motion graphics designers and managing events by way of effective transference of ideas.

PSO3: Discover and analyze visual persuasion, photography, graphic design, cultural and ethical issues, visualization of ideas within a specific historical, cultural, and commercial context.

PSO4: Utilize professional equipment and techniques to capture images and video adhering to industry standards, analysis of visuals, adding visual effects, content creating for print, electronic, new media content by abiding to the media laws and ethics.

PSO5: Devise employment projection as media personnel, photographer, sound designer, social media manager, digital marketing manager, advertising agencies and any other position relevant to the field and/or pursue higher education.

ZOOLOGY

B.Sc. Zoology

At the end of the Programme, the Students will be able to

PSO1: Describe the basic concepts of animal science, biology of invertebrates and chordates, cell biology, molecular biology, and physiological features of animals.

PSO2: Correlate the complex interactions among the organisms in the environment, the microbes, animals and plants, explicates their relationship with the environment and enhance their employability by entrepreneurial skills and competitive exams.

PSO3: Perform laboratory experiments using observational and computational techniques appropriately for the specialized area in biology, safely and ethically.

PSO4: Apply the ideas and concepts of Zoology in various fields such as agriculture, medicine, apiculture, aquaculture for balancing ecosystems and sustainability of the environment.

PSO5: Integrate information on various sources, formulate arguments, claims the results scientifically and communicate the scientific information as research reports.

M.Sc. Zoology

At the end of the Programme, the Students will be able to

PSO1: Explain recent advances in developmental Biology, genetics, cell and molecular biology, microbiology and applied entomology.

PSO2: Adopt eco-friendly techniques to address biodiversity and conservation of the environment thereby solving real time problems with ethical consideration.

PSO3: Apply the theories and interdisciplinary approaches to access literature on the identified problem, formulate hypothesis and employ statistical techniques and present the results as scientific description in oral and written form.

PSO4: Examine the use of fundamental zoological sciences in other related disciplines such as Biophysics, Nanotechnology, Bioinstrumentation, Bioinformatics and Farm management to structure growing, population, pollution and other environmental issues.

PSO5: Develop scientific personality, a pursuit for continuous learning and capture employability as independent worker or as enriched researchers and teachers.

M.Phil. Zoology

At the end of the Programme, the Scholars will be able to

PSO1: Express the advances in Biological research, latest equipments, technical tools used in zoological experiments and handling of animals as model organisms.

PSO2: Identify, analyze and propose newer solutions to problems in the biological systems based on the legislation of animal research and ethics.

PSO3: Adopt teaching and learning skills in the classroom for efficient teaching and in their own life for professional development and to excel in academics.

PSO4: Extend the knowledge of zoological sciences for career advancement on entrepreneurship, scientific undertaking or qualify competitive exams.

PSO5: Transcribe the scientific information, execute the findings orally in professional settings and grow as socially responsible citizens.

Course Outcomes (CO)

Course Outcomes (COs) are statements that describe the cognitive levels, the students are expected to possess on the successful completion of the respective courses. Five COs are designed for each course with reference to the revised Bloom's Taxonomy (K1 through K5), however the liberty is given for the Course Coordinators to decide the cognitive level with relevance to the CO.

CO – PO and PSO Mapping

All the COs are mapped with the related POs and PSOs using course articulation matrix as shown in the following table

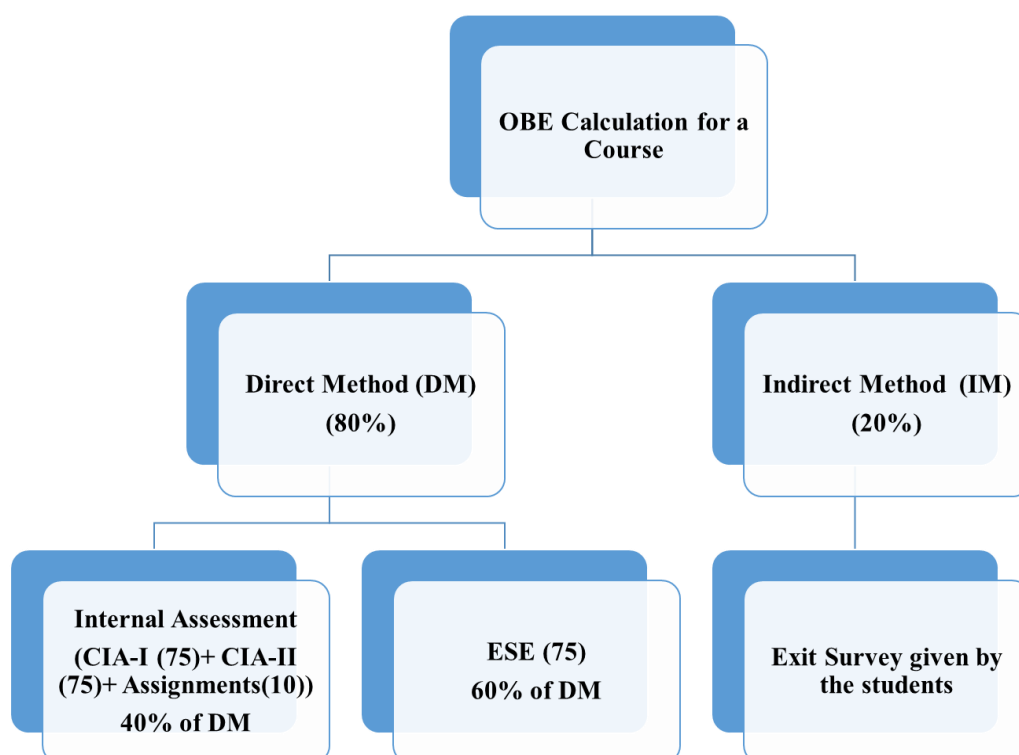
CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1										
CO2										
CO3										
CO4										
CO5										

Mapping	1-29%	30-59%	60-69%	70-89%	90-100%
Matches	1-14	15-29	30-34	35-44	45-50
Relationship	Very Poor	Poor	Moderate	High	Very High

A course will be selected if it satisfies at least 60% relationship in mapping with POs and PSOs. Care should be taken to prepare the COs in such a way that the COs of all courses put together matches with all POs and PSOs.

Criteria for the attainment of CO, PO and PSO

The course attainment is calculated by direct and indirect methods with a weightage of 80% and 20% respectively.



Direct methods (80% Weightage)**1. Continuous Internal Assessment (CIA)**

40% weightage is assigned to various components of CIA.

The distribution of CIA components comprises of **two** CIA Examinations with **15% weightage each**, which are equally phased out with 40 working days before the commencement of each test. The **other component** (Assignment / Seminar / Class Quiz / Paper Presentation / Paper Publication / MCQ Based Test / Debate / Media Appreciation) has a **weightage of 10%**.

2. End Semester Examination (ESE)

60% weightage is assigned to the marks secured in the End Semester Examinations.

The question paper pattern for the CIA and ESE for all the programmes are shown in the following table

Section – A	20x1 (Multiple Choice Question)
Section – B	5x5 (Internal Choice - either or type questions)
Section – C	3x10 (Open Choice – 3 out of 5 questions)

Both CIA and ESE are conducted for 75 Marks.

The calculations of attainment of course outcome are shown in the following table

Weightage allotted for each component of learning outcomes

CIA 40% & ESE 60%

Component	Maximum Marks		Maximum Weightage in %
	Assessed	Awarded	
CIA – I	75	7.5	15
CIA – II	75	7.5	15
Other Components	10	10	10
ESE	75	75	60
Total			100

Model Calculation of Score for attainment of Course Outcome is shown in the following table

Component	Marks obtained	Maximum Marks	$\frac{\text{Marks obtained}}{\text{Max. Marks}} \times \text{Max. Weightage in \%}$	Score
CIA Test 1	55	75	$(55/75) * 15$	11
CIA Test 2	50	75	$(50/75) * 15$	10
Other Components	8	10	$(8/10) * 10$	8
ESE	60	75	$(60/75) * 60$	48
Total				77

Assessment of Outcomes

Weightage obtained by students and scale used to assess the attainment are shown in the following table

Weightage obtained	Scale used	Level of attainment of Outcome
0 - 49	1	Low
50 - 74	2	Moderate
75 – 94	3	High
95 - 100	4	Excellent

Indirect Method (20% Weightage)

In this method, a feedback is collected at the end of each semester from the students and it is taken into consideration to check the efficacy of the syllabus prescribed and its related outcomes.

Awareness of OBE

Awareness of OBE is created among the staff through Faculty Development Programmes (FDPs) to formulate appropriate POs, PSOs and COs.

During the Students Induction Programme at the beginning of the academic year, an **orientation** is given to all new students to acquaint themselves with the concept of OBE. POs and PSOs are displayed on the college website and prominent places in the College campus. The COs are printed at the beginning of syllabus of each course. The teachers-in charge of each course familiarizes these outcomes in the beginning of a course itself to the students. They prepare lesson plans and design instructional strategies as per the required outcomes.