



## Goa University

### Programme Outcomes

PO1.

Expertise in specific areas of knowledge: Develop an ability to be specialist in at least one area of knowledge and apply the same in the day-to-day practices

PO2.

Problem analysis: Identify, formulate, research literature, and analyze complex problems in the area of specialization for reaching substantiated conclusions using fundamental principles

PO3.

Design/development of solutions: Design solutions for complex problems that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations

PO4.

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

PO5.

Modern tool usage: Create, select, and apply appropriate techniques, resources, and IT tools including prediction and modeling to complex activities with an understanding of the limitations

PO6.

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

PO7.

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

PO8.

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

PO9.

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

PO10.

Communication: Communicate effectively within the area of speciality as well as with the 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

PO11.

Project management and finance: Demonstrate knowledge understanding of the subject 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

PO12.

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

## Programme Specific Outcomes

### BC M.Sc. Biochemistry

- PSO 1: Attain knowledge and training in the field of Biochemistry with emphasis on biochemistry of human metabolism, microbial physiology and health, clinical and physiological aspects of the human system, analytical tools, biotechnology, industrial biochemistry and pharmaceuticals, amongst several other front line topics
- PSO 2: Gain confidence with hands-on training on state-of-the art technologies

### GB M.Sc. Biotechnology

- PSO 1: Explain and properly apply the scientific method by developing valid hypotheses, designing experiments, gathering relevant data using current technology, and interpreting quantitative and qualitative data
- PSO 2: Demonstrate proficiency in basic laboratory skills common to clinical and non-clinical research laboratories, making accurate and precise measurements using balances and macro- and micro-pipetting, using a microscope, preparing solutions, operating current instrumentation, preparing samples for various analyses, and maintaining a proper scientific laboratory notebook
- PSO 3: Design, perform, and analyze results of experiments using basic molecular biology methodologies and recombinant DNA techniques, including agarose and polyacrylamide gel electrophoresis, restriction enzyme digestion, bacterial transformations, plasmid DNA protein expression, PCR, and tissue culture
- PSO 4: Understand the foundational concepts of molecular biology, and how these impact biotechnology research and development in the diverse fields that span healthcare and agriculture

### BO M.Sc. Botany

- PSO 1: Understand the structure, function, organization and evolution of various plant groups; Identification of various plant groups with the literature
- PSO 2: Understand the interaction of plants with the environment
- PSO 3: Impart scientific skills to design and conduct the laboratory experiments in the branches of Botany
- PSO 4: Understand the sustainable use of natural resources and bio-prospecting and acquiring the skills of Bio-entrepreneurship

### CH M.Sc. Chemistry

- PSO 1: Think critically and analyze problems related to chemistry
- PSO 2: Present scientific and technical information resulting from laboratory experimentation in both written and oral formats
- PSO 3: Apply mathematical and statistical skills to solve problems related to materials science and chemical reactions
- PSO 4: Knowledge of physical principles and models determining chemical and electrochemical reactions
- PSO 5: Have understanding of good laboratory practices and safety measures, should be able to work in a team/independently
- PSO 6: Develop theoretical and research-oriented skills for higher studies in research institutions and to work in chemical industries
- PSO 7: Apply modern methods of analysis to chemical systems in a laboratory setting
- PSO 8: Learn the general concepts in all the branches of chemistry

- DL PG Diploma Clinical Genetics and Medical Lab. Techniques. (S.F)
- PSO1. Develop theoretical and practical understanding of Laboratory equipment and techniques and their usefulness
- GL M.Sc. Applied Geology
- PSO 1: Understand the science of the origin, composition and evolution of the Earth
  - PSO 2: Learn the processes that change the Earth and form the foundation of the existence of mankind
  - PSO 3: Specialize in one or more areas of the following: Exploration and exploitation of oil and gas, minerals and natural raw materials, groundwater; Water supply and pollution prevention
  - PSO 4: Learn origins, evolution and future of life; climate change
  - PSO 5: Develop ability to carry out research in natural and industrial materials and their technological application
- EC M.A. Economics
- PSO 1: Understand how markets organize core economic activities, such as production, distribution, and consumption, and the growth of productive resources
  - PSO 2: Know the determinants of macroeconomic conditions (national output, employment, and inflation), causes of business cycles, and interactions of monetary and fiscal policy
  - PSO 3: Apply economic theories and methodologies in analyzing economic issues in various sub-fields of applied microeconomics and international economics
  - PSO 4: Deduce reasonable predictions about possible economic outcomes based upon economic conditions and economic theories.
  - PSO 5: Collect and analyze data to support economic decision making using statistical and econometric techniques
- EL M.Sc. Electronics
- PSO 1: Capable of handling advanced instrumentation: Learn to carry out experiments in basic as well as certain advanced areas of Instrumentation, Field Programmable Gate Array Logics, Embedded System Technologies, Advanced Controller, IP Cores like Soft-core processors having applications in Control & Robotics, Smart Sensors, Data acquisition and Untether Technologies.
  - PSO 2: Use of theoretical knowledge and mathematical techniques: Understand Mathematical theories, Signal and System, Various Signal representation Domains and Transforms and Data Science to understand practical problems for efficient algorithms, Signal and Image Processing, and establish Deep Learning for understanding some physical system.
  - PSO 3: Be lifelong learners: As in present day electronics is essential for comprehending any man-made control phenomenon, the focus on physical Science in the arena of electronics will enable to understand the science behind such control systems and ease the lifelong learning experience of an individuals.
- EG M.A. English
- PSO 1: Learners will acquire knowledge of English language, literary theories, and texts.
  - PSO 2: Learners will have the knowledge of the canonical, as well as, contemporary texts, in terms of chronological development and regional criteria.
  - PSO 3: Students will be familiar with tools of literary analysis, criticism, and research methodology.
  - PSO 4: Students will be acquainted with the use of ICT in languages and literature.

- PSO 5: Students will be able to relate texts to social systems, folk studies, environment and ecology, through Culture Studies.
- PSO 6: Students will adhere to ethical principles in academic research.
- PSO 7: Learners will develop skills in undertaking translation, editing, journalism, and creative writing.
- PSO 8: Students will be able to do team work and share skills to foster a sense of community.
- PSO 9: Students will communicate effectively in terms of writing reports and making presentations.
- PSO 10: Learners will be formed into well-adjusted and socially conscientious individuals.

FR M.A. French and Francophone studies

- PSO 1: Develop literacy skills to read, write and interpret a variety of media, from newspapers to literary texts to formal academic texts in French
- PSO 2: Develop analytical skills to improve their understanding of French literary works, cultural phenomena, and linguistic structures
- PSO 3: Reach a broad understanding of key issues and debates in literary analysis, cultural studies, French intellectual history, language acquisition, and theoretical linguistics
- PSO 4: Use their proficiency in French language and culture to make pertinent comparisons with their own language and culture and thus demonstrate a critical understanding of the nature and function of both
- PSO 5: Participate in immersion opportunities, ideally study abroad or internships, with the goal of promoting growth in language skills, intercultural understanding, and academic achievement in French and Francophone studies

HN M.A. Hindi

- PSO 1: Develop ability to work anywhere in India, with a common medium of communication in Hindi - Our Official Language.
- PSO 2: Enable them to use employment opportunity in other countries where Hindi is used as an Official Language as well as second Language
- PSO 3: Develop translation skills from Hindi to English, Marathi, Konkani and vice versa
- PSO 4: Learn creative writing skills in Hindi using different forms of literature such as poetry, fiction, etc.
- PSO 5: Develop command over Hindi language to use it for oration or even be a good actor in the dramas and plays and present self ably to the masses.

HS M.A. History

- PSO 1: Assess the historical background of religion and society of the country and the regions of India
- PSO 2: Establish the relationship between past and the present
- PSO 3: An ability to draw maps, create historical models, write articles on historical topics, read primary documents
- PSO 4: Understand the historiographical, epistemological and methodological issues related to the subject
- PSO 5: Develop ability and aptitude concerning historical research in the future
- PSO 6: Frame, communicate and present historical arguments

HT IMBA Hospitality, Travel & Tourism

- PSO 1: Apply the concepts and skills necessary to achieve guest satisfaction
- PSO 2: Demonstrate leadership and teamwork to achieve common goals

- PSO 3: Conduct self in a professional and ethical manner, and practice industry-defined work ethics
- PSO 4: Communicate effectively and confidently in the classroom, community and industry
- PSO 5: Demonstrate knowledge of multicultural perspectives to meet the needs of the guests and employees
- PSO 6: Lead with the knowledge that the foundation of tourism is based on the respect for the host culture with the responsibility to perpetuate the unique values, traditions, and practices
- PSO 7: Use knowledge of best practices to further sustainability (economic, environmental, and cultural/social) in the industry
- PSO 8: Demonstrate ability to perform basic and supervisory level job functions in hotel and restaurant careers

IR M.A. International Studies

- PSO 1: Demonstrate interdisciplinary knowledge and critical thinking related to global issues, policies, processes and trends
- PSO 2: Familiarize with the historical evolution of India's foreign policy since independence, both in terms of the conceptual underpinnings and philosophical moorings on the one hand, as also the vent of diplomatic practice
- PSO 3: Understand the complexities and interplay of international politics and economics
- PSO 4: Clearly articulate, consider, and argue issues through the use of diverse frames of reference and engagement with concepts of cultural relativity
- PSO 5: Develop an insight into the historical evolution and development of the Latin American region paying special emphasis on the larger countries of Brazil, Argentina and Mexico
- PSO 6: Use knowledge and skills to develop and advocate for informed, appropriate action to solve complex problems
- PSO 7: Demonstrate an intermediate-level competency in Spanish language

KK M.A. Konkani

- PSO 1: Develop a command over the Konkani language for communication in masses
- PSO 2: Expose self to the old and modern Konkani language and literature
- PSO 3: Know the personalities that helped in evolution and growth of the language and literature
- PSO 4: Understand how the language can act as a medium to study the social structure and framework

BL B.L.I.Sc. Library and Information Science (.BL.I.Sc)

- PSO 1: Understand the needs and use of libraries, information sources, their contents and features, document acquisition processes and practices, document and knowledge organization methods and procedures, library and information services, financial and human resource management, etc.
- PSO 2: Gain and use practical skills for carrying out works such as classification, cataloguing, circulation, using information and communication technologies for automating the library housekeeping operations, searching information from reference sources, Internet and electronic databases

ML M.L.I.Sc. Library and Information Science (M.L.I.Sc)

- PSO 1: Perform administrative, service, and technical functions of professional practice in libraries and information centres by demonstrating skills in information resources; reference

and user service; administration and management; organization of recorded knowledge and information

- PSO 2: Use existing and emerging technologies to meet needs during management of information
- PSO 3: Integrate relevant research to enhance their work in libraries and information centres
- PSO 4: Demonstrate professionalism as librarians or information specialists

CS MCA Computer Applications

- PSO 1: Apply the knowledge of mathematics and computing fundamentals to various real life applications for any given requirement
- PSO 2: Design and develop applications to analyze and solve all computer science related problems
- PSO 3: Design applications for any desired needs with appropriate considerations for any specific need on societal and environmental aspects
- PSO 4: Integrate and apply efficiently the contemporary IT tools to all computer applications
- PSO 5: Utilize the computing knowledge efficiently in projects with concern for societal, environmental, and cultural aspects
- PSO 6: Create and design innovative methodologies to solve complex problems for the betterment of the society
- PSO 7: Apply the inherent skills with absolute focus to function as an successful entrepreneur

CO M.Com. Commerce

- PSO 1: Enable the student to take up the job in teaching, or in the industry such as banking, insurance, securities market, IT enabled services and manufacturing at managerial level positions in the areas of accounting, finance, taxation, marketing and human resources or start their own enterprise

MR M.A. Marathi

- PSO 1: Develop competency in literary forms of Marathi such as poetry, autobiography, novel, short story, drama & performing prose
- PSO 2: Develop reading, writing and communication skills in Marathi
- PSO 3: Be informed about the history of saints writings that form a prominent place in Marathi, with special emphasis on the literature from Goa
- PSO 4: Be informed about the literary theories and history of modern Marathi literature
- PSO 5: Apply the study of Marathi linguistics & grammar in their life
- PSO 6: Develop skills for writing in media, translation to other languages, etc.

MB M.Sc. Marine Biotechnology

- PSO 1: Gain advanced knowledge about processes for use of molecules with unique characteristics and skills in genetic, biotechnological and molecular biological techniques that could be applied to solve specific tasks in industry and public administration
- PSO 2: Develop understanding for ethical responsibility for sustainable resource utilization, industrial practice and innovation
- PSO 3: Develop multidisciplinary skills that enable students to combine different disciplines so that they can analyse and solve a wide range of technical problems

MM M.Sc. Marine Microbiology

- PSO 1: Gain knowledge in the niche areas of microbiology in the marine and coastal ecosystem

- PSO 2: Develop expertise in the field of marine microbiology with focus on marine microbial diversity, bioprospecting and applications of marine microbes in the production of various biologically significant metabolites, and in bioremediation of polluted environments

MS M.Sc. Marine Sciences

- PSO 1: Demonstrate understanding of fundamentals of oceanography and at least one of the following specialty areas: Physical, Biological, Chemical, Geological Oceanography
- PSO 2: Master laboratory, theoretical, and/or computational techniques necessary to contribute to knowledge in one of the above research area
- PSO 3: Demonstrate science teaching skills

MT M.Sc. Mathematics

- PSO 1: Demonstrate basic skills in real analysis, algebra, topology, calculus and functional analysis
- PSO 2: Apply the underlying unifying structures of mathematics (i.e. sets, relations and functions, logical structure) and the relationships among them
- PSO 3: Demonstrate proficiency in writing proofs
- PSO 4: Communicate mathematical ideas both orally and in writing
- PSO 5: Investigate and apply mathematical problems and solutions in a variety of contexts related to science, technology, business and industry, and illustrate these solutions using symbolic, numeric, or graphical methods
- PSO 6: Investigate and solve unfamiliar math problems

MB MBA Business Administration

- PSO 1: Demonstrate foundational knowledge in accounting, economics, finance, management, and marketing in application of concepts and theories
- PSO 2: Develop an ability to integrate the concepts of the core areas of business
- PSO 3: Familiarize with the importance of the ethical requirements of business activities

FS MBA Financial Services

- PSO 1: Create and develop conceptual, operational and managerial skills for manpower requirements of Financial Services industry
- PSO 2: Provide advanced knowledge and training on various facets of financial services such as Banking, capital markets, corporate finance and other related areas
- PSO 3: Create self-employment opportunities in Financial Service industry

MI M.Sc. Microbiology

- PSO 1: Build capacity of the student in the field of Microbiology with a focus on microbial diversity, bioprospecting and applications of microbes for obtaining various biologically significant metabolites and in bioremediation of polluted environments
- PSO 2: Enable students to work with state-of-the art technologies

PY M.A. Philosophy

- PPSO 1: Enrich the potential of learners by creating a critical, logical and analytical perspective on knowledge and beliefs as well as to encourage the capacity of inquiring mind to generate creative thought
- PSO 2: Enhance the capacity to think beyond the structural boundaries and to develop out of box thinking.
- PSO 3: Develop the skill of philosophizing to connect with the contemporary world in which we live.

- PSO 4: Understand the present day problematics of life in its multidimensionality that consists of aspects of society, religion, ethics and aesthetics

PH M.Sc. Physics

- PSO 1: Demonstrate proficiency in mathematics and the mathematical concepts needed for a proper understanding of physics
- PSO 2: Gain the knowledge of classical and quantum mechanics, statistical mechanics and electromagnetism
- PSO 3: Understand the theorems and circuits in electronics and use them in various applications
- PSO 4: Apply the models describing the basic nucleon and nuclear properties and explain different forms of radioactivity and account for their occurrence
- PSO 5: Understand the structural, electrical, thermal, magnetic and optical properties of solids

PS M.A. Political Science

- PSO 1: Understand the nature and developments in national and international politics
- PSO 2: Analyse the Indian constitutional provisions, major legislations and reforms
- PSO 3: Develop ability to evaluate social, economic and political variables for a proper understanding of the plurality of Indian society
- PSO 4: Build overall consciousness regarding national political history, international relations and present Indian and Western political thinkers
- PSO 5: Develop a comprehensive, comparative understanding of governments and politics in South Asia and India's neighbours
- PSO 6: Develop knowledge of administrative studies with special reference to Indian administrative structures and practices

PR M.A. Portuguese & Lusophone studies

- PSO 1: Demonstrate advanced oral and written competence in Portuguese through the study of aesthetics and styles of the language in literary and non-literary texts. Acquire practical skills using different methodologies to teach Portuguese as a foreign language
- PSO 2: Develop skills to research Lusophone literature and analyse current debates in the Lusophone cultural production
- PSO 3: Understand historical, cultural and social movements and contributions to contemporary and modern Portuguese literature and find solutions to language acquisition in the Indian context
- PSO 4: Growth in academic and research based achievement in Indo-Portuguese Studies through interaction with international Visiting Research Professors
- PSO 5: Develop skills in usage of CAT-tools and specialized software for multimedia translation; up to date experience through studying in a Portuguese University through Exchange programmes
- PSO 6: Communicate pragmatically in Portuguese in any domain with the acquisition of techniques of production of multi-use texts: expositive-argumentative; scientific; administrative; business, journalism and advertising

SO M.A. Sociology

- PSO 1: Actively acquire the ability to analyze the origins and structure of sociological theory and demonstrate their grasp of theory through course writings, discussion, and presentations
- PSO 2: Understand disciplinary and interdisciplinary ideas on the sociology of Indian society as a preparation to discern the perspectives on Indian society and culture later



- PSO 3: Appraise sociological perspectives of Indian society and culture and utilize this knowledge in pursuing their own explanations and/or interpretations
- PSO 4: Understand the inequality and stratification in the society and apply the sociological theories to reduce the same in practical life

WS M.A. Women's Studies

- PSO 1: Understand the creation and perpetuation of inequalities in the society and also about feminism, feminist theories, recent developments in feminist thought
- PSO 2: Develop the capacity and skills to bring about change, create new areas of service and to ultimately impact policy and the discourse on women's development in the country
- PSO 3: Understand the growth of the women's movement in India and Goa in particular

ZO M.Sc. Zoology

- PSO 1: Develop aptitude for learning about the biology and significance of fauna ranging from single cell to multi-cellular systems
- PSO 2: Specialize in one or more of the areas of animal sciences such as faunal diversity, animal physiology and evolutionary biology, etc.
- PSO 3: Gain competence in various application areas of zoology such as animal tissue culture, fishery biology, entomology, immunology, human genetics and biochemical techniques

B.A. French

- PSO 1: Attain language proficiency in French with adequate listening, reading, writing skills
- PSO 2: Demonstrate a knowledge of French and francophone literatures and cultures

EM MBA Executive

- PSO 1: Perform the fundamental activities of business
- PSO 2: Communicate effectively in a business setting
- PSO 3: Comprehend global strategic issues
- PSO 4: Apply ethical reasoning to business situations
- PSO 5: Use analytics to assist in making strategic business decisions

B.A. Portuguese

- PSO 1: Attain language proficiency in Portuguese with adequate listening, reading, writing skills
- PSO 2: Demonstrate a knowledge of Portuguese and Lusophone literature and cultures

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