

Bachelor of Fisheries Science [B.F.Sc.]

Programme Outcomes

PO1:	The Faculty of Marine Sciences offers Bachelor of Fishery Science (BFSC) course along with other master program since this faculty is in ideal location covering marine and fresh water based ecosystems besides the expertise in the subject areas. This is being taught with updated and advanced technology, including the recent research in the area of fishery sciences
PO2:	The Faculty will continue to review, update and revise the curriculum to ensure the quality of syllabus in accordance with ICAR regulation and guidelines
PO3:	Students will be made fully skilled in Bachelor of Fishery Science (BFSC) with respect to aquaculture, fisheries management, formulating policies and making crucial developments in fisheries sector/ fishing community
PO4:	Students graduating in Bachelor of Fishery Science (BFSC) will be motivated for higher studies and involved in research program and will be trained to achieve in competitive exams and will be trained to become entrepreneurship and make use of government and non-government job opportunities.

Programme Specific Outcomes

At the end of the program, the students will be able to

PSO1:	The students will be able to learn about the basics of Taxonomy of fresh water and marine water fishes starting from lower trophic level organisms to higher trophic level organisms. Also will be able select the species which are feasible for fresh water brackish water and coastal water aquaculture
PSO2:	Gain the knowledge about the taxonomy of marine organisms by using the conventional method and advanced level of molecular methods and characteristic features of soil and water quality
PSO3:	The biology of aquatic organisms will be fully understood by the students and capable of distinguishing the biology of each group of organisms and the statistical approach of fishery science will be applied
PSO4:	The importance of microbes in the environment and their specific role in the ecosystem; classification will be understood and application of information technology in fishery science will be illustrated
PSO5:	The knowledge on finfish and shell fish taxonomy will be imbibed to the students and all features of limnology and marine biology will also be imparted
PSO6:	The basic principles of nutritional biology in finfish and shellfish will be gained by the students and the biochemical aspects of essential proximate composition will also be imparted
PSO7:	The efficacy and proper use of culture of marine and fresh water organisms, utilization of marine resources to make as an entrepreneur and national & international level researcher. Aquaculture practice will be taught with structural and mechanical engineering etc.

B.Voc. Aquaculture

Programme Outcomes

PO1:	The Faculty of Marine Sciences will endeavor to continue a world class Bachelor vocational program in Aquaculture with experts in the subject areas being taught, including the recent research areas and are passionate when working with students in undergraduate and post graduate levels.
PO2:	The Marine Science faculty will continue to review, update and revise the curriculum to ensure the quality of syllabus in commendable level.
PO3:	Students graduating with a Bachelor degree in Aquaculture should be skilled in the advance level of marine sciences.
PO4:	Students graduating with a Bachelor degree in Aquaculture will be trained to involve in higher education and other job opportunities.
PO5:	Students graduating in Aquaculture with bachelor level dissertation work/pre research experience will ensure their future become a good Researcher and also Field Experts.

Programme Specific Outcomes

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

PSO1:	Impart the complete knowledge about the fundamentals of Marine Sciences including the Farm Engineering, Biology of Cultivable Species and Marketing techniques.
PSO2:	Explore the basics of Marine Biology along with aquaculture and also Disease management in Aquaculture, Fish Processing Technology.
PSO3:	Taught the Hatchery Technology in Aquaculture, Aquatic organisms in both Fresh and Marine Water, Culture of Live Fish food organisms and also Feed Management in Aquaculture.
PSO4:	Gain the knowledge about the taxonomy of marine organisms by using the conventional method and advanced level of molecular methods.
PSO5:	Prepare the students not only the biological information and train the various techniques/instruments viz., Samplers, different nets, Soil Sampler, pH meter, DO meter, Seichi disc, Spectrometer, Gel Doc, HPLC, FTIR etc.
PSO6:	Carry out the various experiments for water quality, enumerate the primary producers, different disease diagnostic techniques in Aquaculture, different types of feed and their palatability tests, probe development and microbial identification.
PSO7:	Practice the students with proficient in culture of marine organisms, utilization of marine resources to make as an entrepreneur and also to learn about Food technology aspects.

MASTER OF SCIENCE IN OCEAN SCIENCE AND TECHNOLOGY

Programme Outcomes

On successful completion of program, the students will be able to gain the following knowledge and skills

PO1:	Domain knowledge: Demonstrate basic knowledge on the marine environment, their existing organisms and their structural, functional as well as ecological behaviour
PO2:	Resource Utilization: Promote the learning and practical skills with the help of appropriate learning resources including library, e-learning resources and by arranging a trip to visualize the existing organism in the marine environment.
PO3:	Analytical and Technical skills: Develop the ability to handle/use the appropriate tools/techniques/ instruments and to work practically on the softwares which related to
PO4:	Creative thinking and troubleshoot the problems: Identify and critically analyse the pertinent problems in the relevant discipline using appropriate tools and techniques as well as to troubleshoot the problems arising during the analytical part.
PO5:	Individual and Effective team work: To effectively accomplish the task independently either as a member or teamwork and to achieve the results with respect to the work
PO6:	Effective Communication: Communicate effectively in spoken as well as written form which help to improve the ability to write dissertations, reports and will be helpful for more effective presentation and documentation
PO7:	Project Development Programme: Ability to get more number of projects in the relevant field and perform with the good dedication and improve the progress with statistical

Programme Specific Outcomes

At the end of the programme, the student will be able to

PSO1:	Understand the ecological and economical importance pertaining to marine vertebrates and invertebrates
PSO2:	Understand the basic concepts of elasticity, Surface tension and viscosity their practical applications as well as explain the behaviour of thermal expansion of solids, liquids and gases.
PSO3:	Acquire knowledge on the marine microbes, non-flowering and flowering plants of the coastal and marine environments.
PSO4:	To get a good exposure to the basic concepts of chemistry to enable them to pursue careers related to chemistry
PSO5:	Communicate on the physical, chemical and biological oceanography and the statistical tools to determine the remote sensing and GIS tools

**MARINE BIOLOGY AND OCEANOGRAPHY
(Two – Year) Programme**

Programme Outcomes

PO1:	The Faculty of Marine Sciences will endeavor to continue a world class master program in Marine biology and oceanography with experts in the subject areas being taught, including the recent research areas and are passionate when working with students in undergraduate and post graduate levels.
PO2:	The Marine Science faculty will continue to review, update and revise the curriculum to ensure the quality of syllabus in commendable level.
PO3:	Students graduating with a Master degree in Marine Biology and Oceanography should be skilled in the advance level of marine sciences.
PO4:	Students graduating with a Master degree Marine Biology and Oceanography will be trained to involve in research program and other job opportunities.
PO5:	Students graduating in a Marine Biology with master level dissertation work/pre research experience will ensure their future become a Scientist, R&D experts, teachers and field experts.

Programme Specific Outcomes

At the end of the programme, the student will be able to

PSO1:	Impart the complete knowledge about the fundamentals of Marine Sciences including the biological, chemical and physical oceanography.
PSO2:	Explore the basics of oceans in terms of waves, tides, current and chemical properties of sea water.
PSO3:	Taught the origin of ocean and diversity of marine organisms which including the marine microbes, marine flora and fauna.
PSO4:	Gain the knowledge about the taxonomy of marine organisms by using the conventional method and advanced level of molecular methods.
PSO5:	Prepare the students not only the biological information and train the various techniques/instruments viz., Knudsen sampler, Bathy meter, hydrometer, Seichi disc, Spectrometer, Gel Doc, HPLC, FTIR etc.
PSO6:	Carry out the various experiments for water quality; enumerate the primary producers, monitoring the marine pollution, biodegradation, probe development and microbial identification.
PSO7:	Practice the students with proficient in culture of marine organisms, utilization of marine resources to make as an entrepreneur and national & international level researcher.

Marine Biotechnology (Two – Year) Programme

Programme Outcomes

PO1: **Vital Assessment:** Make the students to assess themselves to proceed upon to acquire knowledge to bridge the gap between under graduation and post graduation.

PO2: **Rational:** Interpret the themes of the curriculum to suit to ideologies and compose inferences.

PO3: **Sampling, Scientific Logic and Communication:** Gather biological and environmental samples from different niches of marine and adjoining provinces during diurnal, nocturnal and prevailing seasonal conditions to comprehend the abundance of bio-materials in reference to environmental parameters. Validate the inferences with scientific reasoning to imbibe the knowledge and exhibit the skills by conversing, reading and writing.

PO4: **Central Dogma of Being:** Gain fundamental awareness of molecular and cellular processes that regulates the life of an organism.

PO5: **Harness Biology for Technology and Sophisticated tool usage:** Categorize biological materials based on their taxonomical and environmental significance of sustainability and distinguish for utilizing them as animal model, ecological component, food, fertilizer and pharmacological product. Understand the scientific principles of devices for analyses, evaluations, processing, syntheses, determination, examination, pathology, diagnoses and product scaling up.

PO6: **Data Processing, Computing, IPR and Bioethics:** Compile numerical output as data for processing, appreciation and understanding of scientific values through computing. Critically analyze the intellectual property rights and their implications on biological research and product development and learn bio-safety and risk assessment of products derived from biotechnology and regulation.

PO7: **Project Outlook:** Demonstrate the knowledge by implying a novel research work for a scientific outcome.

PO8: **Entrepreneurship and Cognition:** Acquire skills to undertake entrepreneurship including identifying a winning business opportunity, gathering funding and launching a business, growing and nurturing the organization and harvesting the rewards. Self motivate for lifelong learning to update and practice the knowledge to the need in real time for enrolling in the scientific community.

Programme Specific Outcomes

PSO1: Build upon knowledge over the undergraduate platform on principles of Biochemistry comprising major nutrients, and factors of metabolic pathways. Gain fundamental knowledge of molecular and cellular processes: epigenetics, gene regulation, RNA transcription, protein targeting and trafficking and cell signalling.

PSO2: Familiarize with the aquatic environment, dynamics of oceanography and aquatic living resources, besides knowledge in taxonomical features, adaptations, sustainability in relevance to the aquatic ecosystem. Identify the types of marine microbes and their habitats and sensitize the interaction with the ecosystem.

PSO3: Quantify the marine animal population abundance in reference to the marine environmental conditions and record major fishery resources in the province. Apply the analytical tools to verify the biochemical and biophysical principles of marine ecosystem.

PSO4: Accustom the conceptual overview of the cellular system and functioning and to get aware of the cellular development and factors regulating the process of cell growth, besides understanding the importance of stem cell biology. Analyze different types nucleases, role of nucleases, types of DNA vectors, amplification of gene of interest, strategies of cloning, selectable markers, expression of the gene, cDNA construction, gene product, protein expression, gene editing and silencing.

PSO5: Learn culture technique of viable aquatic organisms in a defined environmental conditions for human conception. Understand the fin and shellfish immunology in order to foresee the infection caused by different pathogens and manage the health of the reared animals for sustainable aquaculture.

PSO6: Predict aquatic environmental changes by experimental investigation and also apply biosensors for precise validation of the same. Utilize marine organisms for the production of high value products and understand the applications of enzyme technology in food processing by various fermentors for scaling up of product through down stream processing.

PSO7: Apply bioinformatics tools for interpreting biological data and analyze bio-molecular assemblage through docking for drug development. Acquire knowledge in the field of IPR, biosafety and bioethics to protect our Indian subcontinent natural resources and concern holistic approaches for managing an industry.

PSO8: Imbibe the skills to start entrepreneurship after learning the biotechnological knowhow. Build capability to critically and systematically integrate knowledge to recognize issues that must be addressed within framework of specific dissertation.

M.Sc. Coastal Aquaculture (Two Year) Programme

Programme Outcomes

PO1: The Faculty of Marine Sciences will endeavor to continue a master program in Coastal Aquaculture with experts in the subject areas being taught, including the recent research areas and are passionate when working with students in undergraduate and post graduate levels.

PO2: The Marine Science faculty will continue to review, update and revise the curriculum to ensure the quality of syllabus in commendable level.

PO3: Students graduating with a Master degree in Coastal Aquaculture will be skilled in the advance level of marine sciences.

PO4: Students graduating with a Master degree in Coastal Aquaculture will be trained to involve in research program and other job opportunities.

PO5: Students graduating in Coastal Aquaculture with master level dissertation work/pre research experience will ensure their future become a Scientist, R&D experts, teachers and field experts.

Programme Specific Outcomes

PSO1: Impart complete knowledge about the fundamentals of Marine Sciences including the Farm Engineering, Biology of cultivable species, marketing techniques.

PSO2: Explore the basics of aquarium keeping and management

PSO3: Teach the physiology, cytology and genetics discipline to some extent

PSO4: Gain knowledge on the taxonomy of marine organisms by using the both conventional and molecular methods.

PSO5: Preparing the students not only on the biological information and train the various techniques/instruments viz., Knudsen sampler, Bathy meter, hydrometer, Seichi disc, Spectrometer, Gel Doc, HPLC, FTIR etc.

PSO6: Carrying out various experiments for water quality; enumerate the primary producers, monitoring the marine pollution, biodegradation, probe development and microbial identification.

PSO7: Practicing the students with proficient in culture of marine organisms, utilization of marine resources, to learn food technology aspects.