ACADEMIC COURSES:

1. M.Sc., Marine Biology - From 2014 - 15 onwards (Previously M.Sc., Sub-Aqua Marine Ecology and Toxicogemomics i.e., from 2005-06 to 2013 - 14 - Two Years Regular Course):

The University Grants Commission has sanctioned a PG (2 Years- Regular) Course on"M.Sc., Sub-Aqua Marine Ecology and Taxicogenomics" under its Innovative Programmes for Teaching and Research in Emerging and Interdisciplinary Areas during X Plan from 2004 to 2009. After the cessaton of the UGC funding, this course is undertaken by the University. From 2014 - 2015 onwards, this course was renamed as M.Sc., Marine Biology.

Minimum Eligibility: B.Sc., in any branch of Life Science (Biology / Biochemistry / Botony / Zoology / Microbiology / Marine Biology / Biotechnology or equivalent of a recognized Indian or Foreign University) Candidates should have secured a minimum of 55% marks in the subject (Part-III) and 50% marks for SC & ST categories.

2. M.Phil., Marine Biology - One Year Regular Course from 2020 onwards (Previously M.Phil., Marine Environmental Studies i.e., from 2012 - 2020):

This course is a research oriented programme where students need to undergo course work in the first semester and project work in the second semester. Marine Biology holds much scope both in research and teaching. The curriculum has been developed with emphasis to study coral reefs ecosystem in the Gulf of Mannar and Palk Bay regions.

Minimum Eligibility: A pass in Master's Degree in Sub-Aqua Marine Ecology / Marine Studies / Marine Biology / Ocean Science / Biotechnology / Zoology / Botany / Animal Science / Plant Science / Biochemistry / Microbiology and related subjects with a minimum of 55% marks scored in the PG examination or that recognized as equivalent thereto and 50% marks for SC & ST categories.

1. Theory classes for both M.Sc., and M.Phil., courses will be handled at Madurai Kamaraj University, Madurai Main Campus. Our Madurai Main Campus is equipped with separate hostel facilities for boys and girls.
2. Practical and field practicals will be conducted at Marine Field Research Faciligy located at Pudumadam, Ramnad District.

CURRENT RESEARCH AREAS:

- Sub-Aqua Marine Ecology and Underwater Exploration
- Coral Reef Ecology and Monitoring studies
- Marine Microbiology, Genomics and Toxicogenomics
- Marine Ecotoxicology and Pollution
- Marine Natural Products chemistry
- Marine Molecular Taxonomy & Nanotechnology
- Global Warming and Ocean Acidification

Contact:

Dr.M.ANAND, M.Sc., Ph.D.
HEAD i/c.,

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MADURAI KAMARAJ UNIVERSITY

(University with Potential for Excellence)

Re-accredited by NAAC with 'A' Grade in the 3rd Cycle

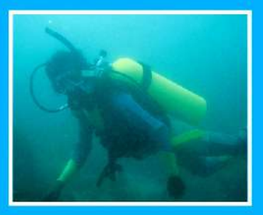
DEPARTMENT OF MARINE AND COASTAL STUDIES

SCHOOL OF ENERGY, ENVIRONMENT AND NATURAL RESOURCES
MADURAI KAMARAJ UNIVERSITY
MADURAI - 625 021. TAMILNADU. INDIA

Madurai Kamaraj University, established in 1966, has 20 Schools comprising 77 Departments. The Directorate of Distance Education of the University has student strength of about 1.30 lakhs. In addition to the Departments and Schools, the University has 21 academic centres and 21 quasi academic supportive units. It has 24 autonomous colleges, 14 aided colleges, 33 self financing colleges, 18 approved institutions, 4 evening colleges, 6 constituent colleges and one University College catering to the higher education needs of large number of students from rural and urban areas. There are Centres which promote research potential of teachers. Extension activities are carried out through Department of Youth Welfare, NSS, SC/ST cell and Adult Education Programmes. The campus has grown into a beautiful University township with an extensive area of about 750 acres, appropriately called in Tamil "Palkalainagar". Madurai Kamaraj University got "University with Potential for Excellence" status from the University Grants Commission.

School of Energy, Environment and Natural Resources of Madurai Kamaraj University is an Inter-disciplinary School started in the year 1981 includes five Departments: Bioenergy, Solar Energy, Environmental Science, Natural Resources and Marine and Coastal Studies and two Centres: Regional Solar Testing Centre and Centre for Biodiversity and Forest Studies.

Department of Marine and Coastal Studies: Madurai Kamaraj University instituted the Centre for Marine and Coastal Studies (CMCS) in 1998 for the establishment of a Marine Field Research facility. Then the Centre has been converted / upgraded into Department of Marine and Coastal Studies from October 2009 In 2003, "Marine Ecotoxicology Laboratory Facility" was established at Pudumadam through the Ministry of Earth Sciences (MoES) grants. This facility is situated at Pudhumadam, a small fishing village on the shores of the Gulf of Mannar, Southeast coast of India. Marine Field Research Facility at Pudhumadam in Ramanathapuram District is an ideal location for conducting marine based research and academic programmes. The campus is located at close proximity to Mulli and Musal Islands of Gulf of Mannar region. Ecologically sensitive marine habitats like Coral reefs, Mangroves, Seaweeds and Seagrass ecosystems are situated within a short distance from our campus. The Gulf of Mannar region and the outer coastal areas are extremely rich in marine biodiversity and offer extraordinary opportunities for marine biological studies.



OUR VISION

Provide world-class education and research facilities in the field of marine sciences with particular reference to coral reef environment and management for everyone's future prosperity.

THE MISSION

- To contribute in the conservation, protection and management of coral reef resources of the Gulf of Mannar and Palk Bay in the Southeast coast of India through teaching, research and environmental education activities.
- To assess the status of reef resources users, their social, cultural and economic aspects for the uplift of poor fishing communities along the Gulf of Mannar and Palk bay coasts.
- To develop human resource in the area of marine and coastal studies that would be ultimately of benefit to coastal communities.
- To conduct Interdisciplinary Teaching and Research activities to facilitate conservation and sustainable utilization of reef resources.
- To conduct job oriented training programmes and courses such as SCUBA Diving, Ecotourism, and Marine Ornamental Fish Maintenance for the benefit of all stakeholders.
- To interact with and involve local people viz., fishermen, students, and professionals, as stakeholders to participate in the process of conservation and protection of the marine environment and its resources

RESEARCH & DEVELOPMENT

1. From 1990 onwards, the centre / the department has actively engaged in marine research activities in the Gulf of Mannar, one of the first formed Marine National Park in South Asia for its unique Marine Biosphere Reserve.
2. The following are the major research activities carried out for the conservation of coral reefs of Gulf of Mannar region:
   a. Monitoring the status of Coral reefs and associated organisms.
   b. Monitoring the Socioeconomic status of reef resource users.
   c. Monitoring marine and coastal pollution.
3. Marine Ecotoxicology Research facility is of national importance since the major objective of this facility is to develop marine water quality criteria for critical coral reef ecosystems of Gulf of Mannar, Southeast coast of India.
4. The Department has been recognized by its work and has been supported by international organizations such as IOC/UNESCO, UNDP, WHO, IFS, GCRMN and by national organizations such as the MoES (DOD), MoEF, ISRO, ICMR, CSIR, Planning Commission and the UGC.
5. The National Coordinating Agency for GCRMN South Asia has recognized the Department of Marine & Coastal Studies for collecting data at periodic intervals on the status of corals in the southeast coast of India.
6. The GEF/UNDP has also identified and included this Department as a member institution to carry out research activities in the Gulf of Mannar Marine Biosphere Reserve to protect and conserve the coral reefs in collaboration with Gulf of Mannar Biosphere Reserve Trust.

STUDYING THE MARINE SCIENCES

The ocean covers more than 70% of the Earth's surface. India has 7,516 km coastline, 1197 islands and an Exclusive Economic Zone (EEZ) spanning 2.02 million sq km. As the majority of the Indian population lives in the coastal zone, an understanding of the processes and hazards associated with the coastal and oceanic environment is essential. DMCS offers a unique opportunity to study the underwater marine environment and understand the response of genes and proteins of marine organisms with reference to marine pollution. Unlike other fields of science which involve full time laboratory work, studying marine sciences throws open real challenges to the young minds to prove their capabilities to work with nature.

SIGNIFICANCE OF THE DEPARTMENT

- The department has the following facilities at Pudumadam in Ramnad District, Tamilnadu, India.
- Total extent of the Department - 9.0 acres of coastal land.
- Near shore laboratory facilities with 3800 sq.ft. area for wet lab including coral reef ecology, analytical research lab etc.
- Another building facility with more than 9000 sq.ft. areas with classrooms, marine genomics, microbiology, SCUBA, research laboratories including library and seminar hall facilities.
- Established a Marine Museum with the financial support of DOD, New Delhi.
- Established a Marine Ecotoxicology Laboratory facility with the financial support of MoES, New Delhi.
- Well equipped marine underwater SCUBA Diving equipments and infrastructure facilities for conducting marine underwater ecology and monitoring studies.
- Well equipped with marine biotechnology: marine genomics, marine microbiology, toxicogenomics, marine ecotoxicology and pollution, marine natural products chemistry etc.
- Seawater storage and intake facility.
- In-situ underwater monitoring / analysis facility

RESEARCH ACTIVITIES

The department has been monitoring, on continuous basis, the status of coral reefs and ornamental as well as food fishes around the 21 islands in the Gulf of Mannar coast and reef areas of Palk Bay regions. This includes the status of corals, coral bleaching, coral diseases, algal growth, quantity of ornamental fishes etc. SCUBA diving, snorkeling and skin diving techniques are used for under-water reef ecology studies. The information gathered will help in the conservation and management of coral reef ecosystem in the Gulf of Mannar Marine Biosphere Reserve. In addition to the ecological research, the department has been undertaking research in the areas of coastal marine pollution monitoring and marine toxicological research. These studies will assess the status of coastal marine pollution along the Gulf of Mannar and Palk Bay coasts. The oceans provide new opportunities for the discovery of marine-based medicines/drugs. Marine organisms may play an increasingly important role in biotechnology and medicine as a result of their biochemical components. Isolation and identification of natural biological compounds such as repellents, toxins, antifoulants and antibiotics from marine organisms are also being carried out in this department.

Equipment Facility-Underwater Ecology Research:

1. FRP Boat with OBM
2. Digital Still & Video Cameras with Underwater Housing
3. Underwater Remotely Operated Vehicle (UWROV)
4. SCUBA Air Compressors
5. SCUBA Diving Gears and accessories
6. Water Quality analyzer

Instrument / Equipment Facility-Biotechnology & Environmental Research:

PCR, UV Transilluminator, Luminometer, Gel Documentation, Fluorometer, UV-Visible Spectrophotometers, Hitachi High Speed cooling centrifuge, Semi-micro analytical balances, Microbiological Chamber, BOD Incubator, Ultrapure Water Purification System, Fluorescence and Trinocular Microscopes with Digital Cameras & Image Analysis software, ICE Maker, Ultra Low Temperature Freezer (-82°C) & Deep Freezer (-40°C), Rotary Evaporator, Microtome, Automatic Tissue Processing Unit, Digital pH Meters, Automatic Weather Station, LiCor 1500 GPS PAR Underwater sensors, Hanna Multiparameter Meter with GPS.