



MANGALORE UNIVERSITY
DEPARTMENT OF MARINE GEOLOGY
MSc GEOINFORMATICS

GIH 502: MARINE GEOINFORMATICS

Course Outcome: Students will be exposed to Coastal and Marine Environments, Classification of Coastal and Marine Environments.

- CO1: So many central Govt. jobs like CGWB, Hydrochemistry in UPSC, similarly mines and Geology Dept. (MGD), in Karnataka, Work with National Disasters Management agency and also private agencies for Groundwater detection teaching filed in both degree of Engineering College
- CO2: Understand various marine environments and its processes.
- CO3: Knowledge and confidence to work in the multidisciplinary field of marine science.
- CO4: Understand the concepts like coastal management, environmental modelling, geographic information science, ecological statistics, remotely sensed data analysis and marine and coastal law like Coastal Regulation Zones (CRZ).
- CO5: To solve real-world problems, and learn to tackle multifaceted problems concerning our coasts and the ocean.
- CO6: Understand theoretical and applied skills to connect.
- CO7: Marine processes and the challenges that is associated with managing such a dynamic environment.
- CO8: Monitoring of coastal and marine environment using remote sensing and GIS techniques.
- CO9: Know the life under the sea to understand how life develops, interacts, and adapts to its environment.
- CO10: Apply the knowledge of biology, chemistry, physics, geology, geophysics and the application of mathematics, engineering science as well as use computers for their work

Unit 1	Introduction: Introduction to Coastal and Marine Environments, Classification of Coastal and Marine Environments.	06 hrs
Unit 2	Introduction to Remote Sensing and GIS to Oceanography and Environmental studies. Data products and their acquisition	06 hrs
Unit 3	Coastal Environment: Concepts of Zonation, Rocky Shores, Sandy Shores, Cuspate Beaches, Spits and Beach Ridges, Back Shore Dune Environments,	06 hrs
Unit 4	Marine Environment: Mangrove Environments, Island Environments, Tidal Flat Environments, Intertidal Environments. Major Currents of the Oceans. Currents in Indian Ocean	06 hrs
Unit 5	Satellite Oceanography: History of Oceanographic Satellites. Satellites and their payloads for the retrieval of various coastal parameters. Technical Characteristics of Oceansat I & OCM/MSMR.	06 hrs
Unit 6	Outlines of Retrieval of Chlo-a; Dissolved organic substances and Total Suspended Matter. In situ recovery of Chlorophyll, SST, Wind Speed, Sea Surface Currents, Salinity, and TSM. Concepts of Biophysical Coupling. Prediction models of Sea Surface Temperature	06 hrs
Unit 7	Applied Oceanography: Satellites and their payloads useful for ocean related studies. Satellite Oceanography and GIS to identify Potential Fishing Zones. Use of GIS and Cartography to Map Morpho-ecosystems of the Coast.	06 hrs
Unit 08	Use of Cartography, GIS and Satellite Oceanography in site selection of Major and Minor Ports and Beach Recreational Environments.	06 hrs

References

1. Andy Mitchell, The ESRI Guide to GIS Analysis, Vol 1. ESRI Press. 11-21.
2. Balasubramanian, A. Ecology Environment & Pollution, Indira Publishers, Mysore. 11-17.
3. Castro, P., and Huber, M. H., 1997, Marine Biology, McGraw-Hill. 19-080.
4. Das, P.K. The Monsoons, Natl. Book Trust. 9-21.
5. Howard, A. D. and Irwin Remson, Engineering Geology in Environmental Planning. McGraw-Hill publ. 33-42.
6. Keda and Dobson, 1995, Oceanographic Applications of Remote Sensing. CRC Press. Tokyo. 131-367.
7. Michael Zeiler, Modelling Our World: The ESRI Guide to Geodatabase Design.
8. ESRI Press. 24-31.
9. Pinnet, P., 1992, Oceanography: An Introduction to the Planet Oceans. West Publ. Co., 57-513.
10. Richard A. Geyer, Marine Environmental Pollution, Elsevier Oceanography Series. 21-32.
11. Thomas G. Lane., Arc View -3D Analyst. ESRI, Press. 13-22.