

# **Syllabus**

## **Maritime / Under Water Archaeology**

### **1. INTRODUCTION TO UNDER WATER ARCHAEOLOGY**

- 1) Definition and scope: Definitions of Nautical/ Underwater/Marine/maritime Archaeology, Pros and cons, why UWA studies.
- 2) Development of underwater Archaeology in India
- 3) Achievements in underwater archaeology
- 4) Maritime culture landscape, coastal archaeology
- 1) Submerged pre-historic site and harbors
- 2) Shipyards, ship abandonment, Anchors and Anchorages, Navigational Investigations and instruments
- 3) Maritime communities and ethno-archaeology
- 4) Riverine archeology
- 5) UWA in Global perspectives

### **2. METHODOLOGY AND TOOLS**

- 1) Types of surveys, methodology techniques, use of maps, literature, instrumentation, trenches, interpretations and collection of data, Process and fixing survey strategy, Application of model, boring, and sampling.
- 2) Integrated geo-scientific studies for underwater archaeological explorations.
- 3) Geophysical and magnetic surveys for marine archeological explorations
- 4) GPR Survey in coastal archaeological exploration
- 5) Coastal processes: definitions, Tides, waves, Currents, flow types, coastal sediments, sediment transport, erosion/accretion processes,
- 6) State-of-the-art technology for marine archaeology: Camera and Videography, Systems for short term monitoring of underwater documentation
- 7) Underwater excavation
- 8) Diving techniques: Basics physics of diving, Divers safety ; tracking and guidance

- 9) Digital library perspectives. Synthesis and storage, mapping and documentation of maritime archaeological data, spatial geomatics.

### **3. PORTS AND HARBOURS**

- 1) Introduction, Definitions, scope and importance, Historical background, explorations and excavations. Some case histories in India
- 2) Ports along the west coast: Gujrat (Dwarka, Bet-Dwarka, Somnath, Kodivar, Gulf of Khambat, Kucchh area); Maharashtra (Chaul, Sindhudurga, Vijayadurga, Kelshi, Dabhol, Palshet, Murud Janjira); Goa (Gopikapattanam ); Karnataka (Karwar, Mangalore); Kerala (kollam, Muzris, Cochin)
- 3) Ports along the east coast : Tamil Nadu, Andhra Pradesh Orissa
- 4) Ports of Ganga and Indus delta

### **4. MARITIME TRADE AND COMMERCE**

Introduction, Importance

- 1) Harappan period
- 2) Early Historic period
- 3) Historic period
- 4) Medieval period
- 5) Colonial period :

### **5. SHIP WRECK ARCHEALOGY AND BOAT BUILDING**

- 1) The archaeology of shipwrecks : Definition of ships, wreck sites formation process, , documentation and in-situ recording process, ship reconstruction
- 2) Wreck sites and their environments
- 3) Historical naval architecture practices as a guide to ship reconstruction.
- 4) Early Traditional ship building, sea faring activity, medieval and post-mediaval ship building activity.

### **6. SCIENCE IN MARINE ARCHAEOLOGY**

1. Geomorphology: Geomorphology of coast, seabed, Depth zones,
2. Sea level fluctuations,
3. Submerged settlements
4. Application of paleontological studies to reconstruct the palaeoclimate,
5. coastal erosion

6. Petrological and Geochemical studies
7. Sediment characteristics at different zones, depositional sedimentary environments.
8. Stratigraphy of coastal sediment (Litho, Bio and Chronostraphic studies).
9. Different Lab techniques in earth sciences: Isotope analysis, DNA Studies, Scanning Electron Microscope(SEM), Petrographic studies of pottery, antiquities, artifacts etc.
10. Geo-instrumentation, destructive and non-destructive techniques
11. Sea level and Environmental Parameters
12. Littoral process and their relevance to the submergence of ancient ports.
13. Topography and surface sediment distribution.
14. Impact of climate and sea level variation in historical contexts
15. Conservation and dating of underwater Archaeology
16. Conservation of antiquities.
17. Dating of Pottery(TL), Wood and organic material (C14).
18. Factors affecting the preservation of underwater archaeological sites.
19. Sea currents, tides and trade winds along the shores of coastal India
20. Corrosion of ship wrecks metals.

## **7. LEGISLATION AND FUTURE DEVELOPMENTS**

- 1) Legal aspects of preservation of UW cultural heritage
- 2) Ethics, UW cultural heritage and international land national laws
- 3) Creating awareness of UW archeology,
- 4) Multi media information system for maritime archeology
- 5) The archaeological role of conservation in maritime archaeology.
- 6) Management of maritime cultural resources
- 7) Museums and maritime archeology
- 8) Heritage tourism and maritime archeology
- 9) Future directions

## **8. DISSERTATION**