

# GUJARAT TECHNOLOGICAL UNIVERSITY

## MARINE ENGINEERING

### B. E. SEMESTER: VII

Subject Name: **Marine Machinery System Design**

Subject Code: **171803**

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	University Exam (E)		Mid Sem Exam (Theory) (M)	Practical (Internal)
				Theory	Practical		
2	4	0	6	70	30	30	20

Sr. No	Course Content	Total Hrs.
1.	<b>Manufacturing methods, Castings, Forgings, Fabrication &amp; Plastic Moulding :</b>  Machining Tolerances, surface Finishes: Application to basic design principles in respect of function, Available materials, Production methods, Economics, Aesthetic appeal. Initial and Servicing costs, Analysis of force, Flow through on Assembly and it effect on the design. Design with reference to Repairs and reconditioning specially "at sea" work with its normal restrictions and limitations.	04
2.	<b>Marine Machinery component Designs :</b>  Design and Drawing of marine machinery components subject to combined bending, twisting and direct loading like Crankshafts etc., Design and Drawing of flywheel, safety valves, Reducing valves, Compression & Torsion springs, Journal bearings, Thrust bearings etc., Design of lifting equipment e.g. Engine room overhauled crane, Mechanical Pilot etc.	07
3.	<b>Advanced Design of Marine Systems :</b>  Design and Drawing of Water cooling systems including Pumps, filters, Heat exchangers for diesel and Steam engine plants. Lubricating Oil systems including Pumps, Purifiers Pressure bypass valves. Electro-hydraulic Steering gear system including Rudder, Rudder stock, Tiller arm & rams etc. Marine Diesel Engine Air starting systems including air receivers, Compressors and Air starting valves. Marine Diesel Engine Scavenge and Exhaust system. Marine Diesel Engine fuel Injection system including Fuel pumps and Fuel- injectors. Power Transmission system including Thrust Blocks, Intermediate shaft and Tail-End shaft.	15
4.	<b>Computer aided design:</b>  Analysis of stress ,strain, vibration ,thermal stress, deflection through method of Finite Element Analysis by use of various software	04

**Text Books:**

1. Machine Design By M.F. Spotts , P.Sadhu, Terry Shoup and L.E.Hornberge, Tata McGraw Hill
2. Ship Design and construction by Thomas Lamb Sname Publishers 1980
3. Marine Auxiliary Machinery, 7/E Details by H. D. McGeorge Stirling Book House

**Reference book:**

1. Fundamentals of Machine Component Design by Juvinall Markshek, Wiley India
2. Machine Design By V.B.Bhandari, Tata McGraw Hill
3. Machine Design By Sharma and Aggrawal Kataria Publishers 2010