

GANPAT UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

TEACHING AND EXAMINATION SCHEME

Programme	Bachelor of Technology	Branch/Spec.	Marine Engineering																
Semester	V																		
Effective from Academic Year		2017-18	Effective for the batch Admitted in											July-2016					
Subject Code	Subject Name	Teaching scheme												Examination scheme (Marks)					
		Credit						Hours (per week)						Theory			Practical		
		Lecture(DT)			Practical(Lab.)			Lecture(DT)			Practical(Lab.)			CE	SEE	Total	CE	SEE	Total
		L	TU	Total	P	TW	Total	L	TU	Total	P	TW	Total						
2MR501	Ship Fire Prevention & Control	2	0	2	1	0	1	2	0	2	2	0	2	40	60	100	25	25	50
2MR502	Machine Design and Drawing	2	0	2	1	0	1	2	0	2	2	0	2	40	60	100	25	25	50
2MR503	Naval Architecture I	2	0	2	0	0	0	2	0	2	0	0	0	40	60	100	0	0	0
2MR504	Dynamics of Vibration	3	0	3	1	0	1	3	0	3	2	0	2	40	60	100	25	25	50
2MR505	Marine Electro Technology	2	0	2	1	0	1	2	0	2	2	0	2	40	60	100	25	25	50
2MR506	Electronics	2	0	2	1	0	1	2	0	2	2	0	2	40	60	100	25	25	50
2MR507	Marine Workshop I	0	0	0	2	0	2	0	0	0	4	0	4	0	0	0	50	50	100
2MR508	General Performance	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	50	50	100
2HS501	Aptitude Skill Building I	0	0	0	1	0	1	0	0	0	2	0	2	0	0	0	25	25	50
Total		13	0	13	8	1	9	13	0	13	16	0	16	280	420	600	250	250	500

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Programme	Bachelor of Technology	Branch/Spec.	Marine Engineering						
Semester	V	Version	2.0.0.0						
Effective from Academic Year		2016-17	Effective for the batch Admitted in						
			July 2014						
Subject code	2MR501	Subject Name	Ship Fire Prevention & Control						
Teaching scheme			Examination scheme (Marks)						
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	0	1	0	3	Theory	40	60	100
Hours	2	0	2	0	4	Practical	25	25	50

Pre-requisites:

Learning Outcome:

After successful completion of the course, student will be able to

- Comply with the TAR (Training Assessment Record – Appendix I) Book Competency number 12.1, 12.1.1, 2, 3 & 4

Theory syllabus

Unit	Content	Hrs
1	Theory of fire: <ul style="list-style-type: none"> • Introduction, Safety & Principles, Fire triangle, Spontaneous Combustion. Limits of flammability. Advantages of various fire extinguishing agents including vaporizing fluids and their suitability for ship's use. • Control of Class A, B and C fires. 	6
2	Fire Prevention: <ul style="list-style-type: none"> • SOLAS Convention (Class A, B bulkheads), fire detection and extinction systems, escape means, electrical installations, statutory requirements for firefighting systems and equipment on different vessels. 	7
3	Fire Detection and Safety Systems: <ul style="list-style-type: none"> • Fire safety precautions on cargo ships and tankers during working. Types of detectors, Selection of fire detectors and alarm systems and their operational limits. • Commissioning and periodic testing of sensors and detection system. Description of various systems fitted on ships. 	7
4	Fire Fighting Equipment (Fixed & Miscellaneous types): <ul style="list-style-type: none"> • Fire pumps, hydrants and hoses, Couplings, nozzles and international shore connection, Construction, operation and merits of different types of portable and non-portable fire extinguishers and fixed fire extinguishing installations for ships. CO2 systems. • Fireman's outfit, its use and care. Maintenance, testing and recharging of appliances. Breathing Apparatus – types, uses and principles. 	8
5	Fire Control, Firefighting & Shipboard Organization: <ul style="list-style-type: none"> • Action required and practical techniques adopted for extinguishing fires in accommodation, machinery spaces, boiler rooms, Cargo holds, galley etc. Firefighting in port and dry dock. • Procedure for re-entry after putting off fire, Rescue operations from affected compartments. First aid, Fire organization on ships. • Fire signal and muster. Fire drill and duties. 	8
TOTAL		36

Practical content

- Testing and operation of Jet and spray type nozzles and fire hoses.
- Study and operate total CO2 flooding of Engine room (Model)

- Operation of different types of fire detectors.
- Use of Potable Fire Extinguishers and refilling.
- Donning of Fire Mans Outfit

Training Manual Assignments:

Assignment No: 75

Firefighting system and Appliances

Text Books

- | | |
|---|----------------------------------------------|
| 1 | Commentary on SOLAS - Bhandarkar Publication |
|---|----------------------------------------------|

Reference Books

- | | |
|---|------------------------------------------------|
| 1 | SOLAS - IMO Publication |
| 2 | Marine Engineering Practices- IME Publication, |
| 3 | Fire Safety Code Book |
| 4 | Firefighting aboard ships - M.G.Stavitsky |

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Semester	V	Version	2.0.0.0						
Effective from Academic Year		2016-17	Effective for the batch Admitted in						
			July 2014						
Subject code	2MR502	Subject Name	Machine Design and Drawing						
Teaching scheme			Examination scheme (Marks)						
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	0	1	0	3	Theory	40	60	100
Hours	2	0	2	0	4	Practical	25	25	50

Pre-requisites:

Learning Outcome:

After successful completion of the course, student will be able to

- Comply with the TAR (Training Assessment Record – Appendix I) Book Competency number 4.4 & 9.6

Theory syllabus

Unit	Content	Hrs
1	Introduction to machine design: <ul style="list-style-type: none"> • Meaning of Design, Introduction to machine design, Phases in design, Preferred Numbers & Standards, Codes for materials Properties & application of engineering materials and their selection. Factor of Safety and factors influencing it. 	4
2	Design considerations: <ul style="list-style-type: none"> • Direct stresses (Tensile and Compressive), stress-strain diagram, Bending stresses, Bearing stresses, torsion stresses, Eccentric loading, Principal stresses, Contact stresses, • Castiglione’s theory for determining deflections. Theories of failures. Limits, Tolerances and Type of fits. 	4
3	Design of Shaft, Keys & Couplings: <ul style="list-style-type: none"> • Design of shaft & axles on basis of bending, torsion & combined loading, Shaft design on the basis of rigidity, Effect of keyways, • Design of Square key, Rectangular key, Kennedy key, Splines • Design of Muff or Sleeve coupling, Clamp coupling, Flange coupling, Pin-bushed coupling, Universal Joint. 	5
4	Design of bolt and riveted joints: <ul style="list-style-type: none"> • Riveted joints: Types of riveted joints, Design of double and triple riveted butt joint with equal and unequal cover plates, Design of riveted joint as per IBR, Design of lap joint, Lozenge joint • Bolted joints: Definitions, Types of threads, screw fastenings, locking devices for nuts, washers, eye bolts, Efficiency of threads, Static stresses in screw fastenings Eccentric loading in riveted and bolted joints: a) Loading parallel to axis of bolts b) Loading perpendicular to axis of bolts c) Eccentric loading on circular base. 	5
TOTAL		18

Practical content

- Solve problems related to coupling, Also prepare detailed drawings of Different couplings (Muff Coupling, flange coupling)
- Design of shafts, keys and Couplings. Design of Screw jack and Toggle jack.

- Problems for design of joints using welding, riveting and fasteners.
- Problems related to Limits, fits and tolerances.
- Introduction to computer aided drafting tools.

Text Books

1	Machine design - By R.S. Khurmi
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Reference Books

1	Mechanical Engg Desgin - Joseph Shigley & Charles Mischlee from Tata Mcgrawhill
2	Design of Machine Elements - V.B. Bhanduri from Tata Mcgrawhill, 2nd Edn
3	Machine Drawing -N.D. Bhatta

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Semester	V	Version	2.0.0.0						
Effective from Academic Year		2016-17	Effective for the batch Admitted in						
			July 2014						
Subject code	2MR503	Subject Name	Naval Architecture - I						
Teaching scheme			Examination scheme (Marks)						
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	0	0	0	2	Theory	40	60	100
Hours	2	0	0	0	2	Practical	0	0	0

Pre-requisites:

Learning Outcome:

After successful completion of the course, student will be able to

- Comply with the TAR Book Competency numbers:11.1.1, 2, 3 & 11.4

Theory syllabus

Unit	Content	Hrs
1	Basics & Buoyancy: <ul style="list-style-type: none"> • Laws of floatation, Buoyancy, Reserve buoyancy, TPC, FWA, DWA. Form Coefficients. Use of displacement tables and curves. Terms such as Righting Lever (GZ), Righting Moment. Stable, unstable and neutral equilibrium etc. 	5
2	Geometry of Ship & Hydrostatic Calculations: <ul style="list-style-type: none"> • Ships lines, Displacement Calculation, First and Second moment of area, Simpson's rules, application to area and volume, Trapezoidal rule, mean and inordinate rule. Tonnes per Centimeter Immersion, Coefficient of form, wetted surface area, similar figures. • Centre of gravity, effect of addition and removal of masses, Effect of suspended mass. Location of Centre of Gravity (KG), Location of Centre of buoyancy (KB). 	6
3	Transverse Stability of Ships: <ul style="list-style-type: none"> • Statically stability at small angles of heel, Calculation of B.M. Metacentric height, Inclining experiment, Free surface effect, Stability at large angles of heel, curves of statical stability, dynamical stability, angle of loll; stability of a wall sided ship. • IMO recommendations concerning stability 	10
4	Longitudinal Stability and trim: <ul style="list-style-type: none"> • Longitudinal BM, Moment to change trim on Cm. Change of L.C.B. with change of trim, Change of trim due to adding or deducting weights, alteration of draft due to change in density, Flooding calculations • Floodable length curves, M.O.T. method for determination of floodable lengths, factors of subdivision, Loss of stability due to grounding, Docking stability. Pressure on chocks. 	10
5	Resistance & Powering: <ul style="list-style-type: none"> • Frictional, Residuary & Total resistance, Froude's Law of comparison, Effective power calculations, Ships Corelation Factor (SCF), Admiralty coefficient. • Fuel Coefficient and Fuel consumption. Effect of viscosity and application of ITTC formula 	5
TOTAL		36

Practical content

Text Books

1	Naval Architecture & ship construction - Vikran Gokhale & N Nanda
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Reference Books

- | | |
|---|-------------------------------------------------------------------|
| 1 | Ship and Naval Architecture - R. Munro-Smith |
| 2 | Naval Architecture for Engineers - Reeds' Vol - 6 |
| 3 | Introduction to Naval Architecture - Eric Tupper |
| 4 | Creative Naval Architecture - G. N. HATCH |
| 5 | Naval Architecture & ship construction - Vikran Gokhale & N Nanda |
| 6 | Principles of Naval Architecture - SNAME Publications |
| 7 | Naval Architecture for Marine Engineer - W. Muckle |
| 8 | Ship Construction - Capt Corhel Valantine D'Mello |

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Semester		V			Version		2.1.1.1		
Effective from Academic Year				2017-18		Effective for the batch Admitted in			July 2015
Subject code		2MR504		Subject Name		Dynamics Of Vibration			
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	0	1	0	4	Theory	40	60	100
Hours	3	0	2	0	5	Practical	25	25	50
Pre-requisites:									
Learning Outcome:									
After successful completion of the course, student will understand about									
<ul style="list-style-type: none"> • Comply with the TAR (Training Assessment Record – Appendix I) Book Competency number 9.8 & 9.9 									
Theory syllabus									
Unit	Content								Hrs
1	Free vibrations: <ul style="list-style-type: none"> • Free Harmonic Vibrations, Linear motion of an elastic system, Angular motion of an elastic system. • Differential equation of motion. Free Vibration of springs in series and parallel. Simple and Compound pendulums, Single and two degrees of freedom. 								7
2	Damped vibrations: <ul style="list-style-type: none"> • Idea of Viscous and Coulomb damping, Linear and angular vibrations with viscous damping, Forced damped liner and angular Vibrations, Periodic movement of support. 								6
3	Forced vibrations: <ul style="list-style-type: none"> • Forced Linear and angular vibrations, periodic force transmitted to support, periodic movement of the support. • Periodic Motion: simple Harmonic motion; Application of S, H, M. to masses and springs. Simple Pendulum and Compound Pendulum. Centrifugal Force and its application to conical pendulum. Unloaded Governor, Curved tracks and machine parts, stress in thin rim due to centrifugal action. 								6
4	Forced Damped Vibration: <ul style="list-style-type: none"> • To write differential equation of motion and find amplitude, frequency 								4
5	Torsional vibrations: <ul style="list-style-type: none"> • Single rotor system, rotor at end and rotor in the middle. Effect of inertia of Shaft, Two rotor system, rotors at both ends and rotors at one end. Three rotor and multirotor systems. Torsionally equivalent shafts, Geared system. 								7
6	Transverse vibrations of beams: <ul style="list-style-type: none"> • Single Concentrated load, effect of the mass of the beam, Energy method several concentrated Loads uniformly distributed load, Dunkerley's empirical method for several concentrated loads. • Whirling of shafts Whirling of shafts, critical speed, effect of slope of the disc, effect of end thrusts.-7 								10
7	Balancing: <ul style="list-style-type: none"> • Balancing of masses rotating in different planes, dynamic forces at bearings, Primary and secondary balance of multi cylinder inline Engines and Configurations. 								9

8	Gyroscope : <ul style="list-style-type: none"> • Gyroscopic couple, Vector representation of torque and angular momentum, steady rectangular precession, vector treatment; Steady conical precession; • Motion involving steady precession; Application to Ship's stabilization. 	5
	TOTAL	54
Practical content		
<ul style="list-style-type: none"> • To study the undamped free vibrations of equivalent spring mass system; • To determine the radius of gyration of a given bar by using bifilar suspension; • To study gyroscopic effect and to find out gyroscopic couple both in magnitude and direction; • To study free vibrations of two rotor system and to determine the natural frequency of vibrations theoretically and experimentally; • Static and dynamic balancing of shaft; • To study the damped torsion oscillation and determine the damped coefficient; • To determine the characteristic curves of sleeve position against controlling force and speed for the governor; 		
Text Books		
1	Dynamics of machinery - Farazdak Haidri	
Reference Books		
1	Advanced Mechanics of Machines - J. Hannah & R. C. Stephens	
2	Theory of Machines - P. L. Ballaney	

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Programme	Bachelor of Technology	Branch/Spec.	Marine Engineering
Semester	V	Version	2.0.0.0
Effective from Academic Year	2016-17	Effective for the batch Admitted in	July 2014
Subject code	2MR505	Subject Name	Marine Electro Technology
Teaching scheme		Examination scheme (Marks)	
(Per week)	Lecture(DT)		Total
	L	TU	
Credit	Practical(Lab.)		Total
	P	TW	
Hours	2	0	4
	2	0	2
	0	2	0
	3	0	3
	4	0	4

Pre-requisites:

Learning Outcome:

After successful completion of the course, student will be able to

- Comply with the TAR Book Competency number 3.1, 6.1.1d, 7.1, 2, 3, 7.5.1, 2 & 9.9

Theory syllabus

Unit	Content	Hrs
1	Introduction: <ul style="list-style-type: none"> • Overview of marine electrical systems the basic components / systems and the conditions under which they have to function Electrical and Electronic • Symbols and Interpretation of flow Diagram and circuits. • Mandatory requirements for electrical installations 	2
2	Power Generation Equipment & Automatic Voltage Regulation: <ul style="list-style-type: none"> • Electrical control system of Prime Mover. Construction of brushless high speed alternators • Automatic Voltage Regulators, rapid voltage response of alternators. Paralleling of alternators. 	3
3	Alternative Source of Power: <ul style="list-style-type: none"> • Emergency Generator & Different starting method including auto -start, emergency batteries and its different types & duties, Location of emergency power • Different Emergency loads, Rules & Regulation of emergency power, Maintenance of emergency power source on board. Shore Supply - Specifications as per Voltage /frequency, precautions while taking shore supply. 	4
4	Distribution: <ul style="list-style-type: none"> • Different electrical diagrams and their uses, electrical signals. Type of Distribution, Distribution network on board. • Main & emergency switch board, construction, different switch gear & protective devices, Grounded and Insulated neutral systems. 	3
5	Motor & Control Equipments: <ul style="list-style-type: none"> • Types of marine motor, types of enclosures, protective devices on motors. 	3
6	Miscellaneous marine electrical equipment Alarm System: <ul style="list-style-type: none"> • Engine Room Telegraph, Rudder Angle Indicator, R.P.M. & Revolution Counter, Centralized Salinity Indicator, Watertight door operation, Alarm system (types, supply) on board, oxygen analyser, High & low level arms, Navigational lights, Emergency Radio Operation, Electrical Deck auxiliaries. 	4
7	Maintenance of Electrical Systems, Fault finding & Repair: <ul style="list-style-type: none"> • Procedures to be followed before taking up maintenance work on any electrical or electronic equipment. • Maintenance on Generator, motor & distribution systems, 	5

	<ul style="list-style-type: none"> • Uses of different Test equipments & meters (multi-meter / meggar, insulation tester, continuity tester, tong tester, clamp meter), measurement of power in AC & DC Circuits and polyphase systems. Salvaging a motor, Protective devices • Necessary Precautions & care while fault finding and Repair, preventative maintenance, periodic surveys, spares requirement. 	
8	Special Electrical Practice: <ul style="list-style-type: none"> • Rules and Regulations & operation of electro-hydraulic & Electric Steering gear, Diesel-electric and Turbo electric propulsion system, pod / Azi pod drive unit, Turbo alternator, special safe electrical practice for oil, gas and chemical Tankers (Tanker classification, Dangerous spaces, Hazardous zones, Temperature class), Flame proof Ex 'd' and intrinsic safety Ex 'i', Ex 'e', and Ex 'equipments and their applications in zones. • Maintenance of Ex-protected apparatus. Electrical Survey requirements. 	6
9	Safe Electrical Practice: <ul style="list-style-type: none"> • Obtaining permissions. Displaying necessary notices. Informing concerned persons. Isolation of circuits. Use of proper safety equipment and tools. • Safe watch-keeping, points to check on electrical machineries, Switch gears & equipments, microprocessor control and maintenance electrical fire fighting system, precautions against electric shock and related hazards 	4
10	High Voltage Systems: <ul style="list-style-type: none"> • Hazards & Precaution required for operation of power system of above 1,000 V High Voltage transformers. High Voltage equipment testing, Design features of high voltage installations, Cables & Temperature classification 	2
	TOTAL	36
Practical content		
<ul style="list-style-type: none"> • Study electrical circuit diagrams of important systems in totality. • Performance test for pressure & temperature switch. • Calibrate & adjust pressure & temperature transmitters and controllers • Study of Sequential logic to start motor in process plant using timer & AA panel • Study of earth leakage fault & tripping threshold. <p>Training Manual Assignments:</p> <p><u>Assignment No: 76</u> Main switch board/engine controls</p> <p><u>Assignment No: 77</u> Electrical Calibrator</p>		
Text Books		
1	Marine Electrical Technology - Elstan A. Fernandez	
Reference Books		
1	Practical Marine Electrical Knowledge - Dennis T. Hall	
2	Marine Electro technology & Electronics- Vikram Gokhale & N. Nanda	

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Semester		V			Version	2.0.0.0			
Effective from Academic Year				2016-17		Effective for the batch Admitted in			July 2014
Subject code		2MR506		Subject Name		Electronics			
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	0	1	0	3	Theory	40	60	100
Hours	2	0	2	0	4	Practical	25	25	50
Pre-requisites:									
Learning Outcome:									
After successful completion of the course, student will be able to									
<ul style="list-style-type: none"> • Comply with the TAR Book Competency number 6.1.2.a,b,c & 6.1.3 a,b 									
Theory syllabus									
Unit	Content								Hrs
1.	Wave Shaping and Switching: Rectifier Circuit, Clipper Circuits, and Clamper Circuits.								4
2.	Transistor: BJT construction. Input and Output Characteristics of BJT. Transistor as an Amplifier and Switch.FET construction. Characteristics and applications of Field Effect Transistor (FET).								3
3.	Voltage Regulators: Series & Shunt Voltage Regulator, Voltage Regulator ICs like 78XX, 79XX, 723.								2
4.	Oscillators: Requirements for Oscillations, phase shift Oscillators, Wein Bridge Oscillator, Crystal Oscillators, IC 555 Internal Block Diagram, Multi vibrators.								4
5.	Operation Amplifier Theory: Block diagram of Op-amp, Characteristics of an Ideal Op Amp, Differential amplifier, Op-Amp as a Comparator, Inverting and non-inverting configuration.								4
6.	Converters: Digital To Analog Converters (Binary weighted, R2R) with applications. Analog to Digital Converters with applications.								3
7.	Digital Circuit & Boolean Algebra: Logic systems, Logic Gates, Codes. Boolean algebra and simplification of logical equations. Types of flip flops, Shift Registers, Counters, Multiplexers and De-multiplexers.								4
8.	Electronics Instruments: Cathode Ray Oscilloscope, Digital Voltmeters and frequency meters, MultiMate's, Function Generators.								4
9.	Communication System: Need of Modulation & Demodulation. Introduction of AM & FM. Introduction of Pulse Communication. Introduction to RADAR.								4
10.	Introduction to Microprocessors: 8085 Microprocessors architecture, Introduction to Microcontrollers.								2
11.	Electronic Components: Thyristor, Use of thyristor in speed control, 7 Segment display, Integrated Circuits.								2
	Total								36

Practical content

- To study half wave rectifier circuit.
- To study full wave rectifier circuits.
- To study clipper circuits and clamper circuits.
- To study V-I characteristics of BJT.
- To study Voltage Regulator.
- To study frequency response of CE configuration of BJT.
- To study Op-Amp as a Comparator.
- To study Inverting configuration of an Op-Amp.
- To study non- Inverting configuration of an Op-Amp.
- To study 555 IC as an Astable Multivibrator.
- To study basic logic gates.
- To study R-S flip-flop.
- To study Amplitude modulation and Frequency modulation

Training Manual Assignments:

Assignment No: 78

Electronic Instruments

Assignment No: 79

Measuring Instruments - Oscilloscope

Assignment No: 80

Semiconductors, Diodes, transistors, amplifiers, thyristors

Assignment No: 81

Anlog Meter, Digital Meter, Signal Generator, Frequency Counter, Gyro Compass

Assignment No: 82

Instruments - Speed Log, Echo Sounder

Text Books

- | | |
|---|-----------------------------------------------------|
| 1 | Digital Principles and Applications - Malvino Leach |
|---|-----------------------------------------------------|

Reference Books

- | | |
|---|-------------------------------------------------------------------------------|
| 1 | Electronics Devices and Circuit Theory - Robert L. Boylestad, Louis Noshelsky |
| 2 | Principles of Electronics -V. K. Mehta, Rohit Mehta |
| 3 | Op-Amps and Linear Integrated Circuits - Ramakant A Gayakwad |
| 4 | Electronics Communication Systems - Kennedy and Davis |
| 5 | Microprocessors and Microcomputers - Ramesh Gaonkar |
| 6 | Fundamentals of Microprocessors and Microcomputers - B.Ram |
| 7 | Electronics Instrumentation -H S Kalsi |

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Programme	Bachelor of Technology	Branch/Spec.	Marine Engineering						
Semester	V	Version	2.0.0.0						
Effective from Academic Year	2017-18	Effective for the batch Admitted in	July 2016						
Subject code	2MR507	Subject Name	Marine Workshop - I						
Teaching scheme									
(Per week)	Lecture(DT)		Practical(Lab.)		Total	Examination scheme (Marks)			
	L	TU	P	TW		CE	SEE	Total	
Credit	0	0	2	0	2	Theory	0	0	0
Hours	0	0	4	0	4	Practical	50	50	100

Pre-requisites:

Learning Outcome:

On successful completion of the course the students will be able to:

- Complete the DGS Training Manual Assignments nos.4,7,8,9,14,15,17,18,28,30,31,37,45,46,47,48,50, 51,52,60 & 72

Theory syllabus

Unit	Content	Hrs

Practical content

Training Manual Assignments:

Assignment No: 04

Identifying and familiarity with diesel engine parts

Assignment No: 07

piston & piston ring

Assignment No: 08

piston & connecting rod, bearings (top end & bottom end or big end)

Assignment No: 09

Fuel valve

Assignment No: 10

Valve Gear

Assignment No: 13

Cam Shaft

Assignment No: 14

Lubricating oil pump

Assignment No: 15

Fuel oil primary pump

Assignment No: 17

Starting valve

Assignment No: 18

Cylinders unit

Assignment No: 28

Piston and piston rod(2 stroke diesel engine)

Assignment No: 30

Cylinder liner and cooling jacket(2 stroke)

Assignment No: 31

Cylinder head(2 stroke)

Assignment No: 37

Indicator cards(2 stroke)

Assignment No: 45

Oil separator

Assignment No: 46

Oil separator : main parts and components

Assignment No: 47

oil separator, purifier & clarifier

Assignment No: 48

Oil separator installation

Assignment No: 50

Centrifugal Pump - Components Parts

Assignment No: 51

Centrifugal Pump - types

Assignment No: 52

Screw Pump

Assignment No: 60

Valves

Assignment No: 72

Heat exchanger – function and types

Text Books

1	DGS Training Manual Book
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Reference Books

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Semester	V				Version	2.0.0.0			
Effective from Academic Year			2017-18		Effective for the batch Admitted in			July 2016	
Subject code	2MR508		Subject Name		General Performance				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	0	0	0	1	1	Theory	0	0	0
Hours	0	0	0	0	0	Practical	50	50	100
Pre-requisites:									
Learning Outcome:									
Theory syllabus									
Unit	Content								Hrs
Practical content									
Text Books									
Reference Books									

GANPAT UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

Programme	Bachelor of Technology	Branch/Spec.	Marine Engineering						
Semester	V	Version	2.0.0.0						
Effective from Academic Year		2016-17	Effective for the batch Admitted in	July 2014					
Subject code	2HS501	Subject Name	Aptitude Skill Building - I						
Teaching scheme			Examination scheme (Marks)						
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	0	0	1	0	1	Theory	0	0	0
Hours	0	0	2	0	2	Practical	25	25	50

Pre-requisites:

Basic engineering mathematics and English

Learning Outcome:

After learning this course each student would be able to:

- Understand and develop basic skill requires to solve fundamental practical problems related to maths
- Acquire satisfactory competency in use of two basic skills (Quantitative Ability and Logical Reasoning).
- Solve campus placements and various competitive aptitude papers covering Quantitative Ability and Logical reasoning

Theory syllabus

Unit	Content	Hrs
1	Quantitative ability I : Height and Distance and time problems like trains, boats etc., Algebra, Inequalities and absolute values, Functions-formulas, Sequences, Fractions and Decimals	06
2	Quantitative ability II : Percent, Divisibility and primes, Exponents and roots, Word problems, two variables problems, Rates and work, Ratios, Averages, Allegations and Mixtures, pipes and cistern	06
3	Verbal Reasoning: Vocabulary, Text Completions and Verbal Reasoning, Reading Comprehension, Logical Sequence of Words, Blood Relation Test, Venn Diagrams	06
4	Logical Reasoning: Number Series, Letter and Symbol Series, Artificial Language, Matching Definitions, Logical Problems, Logical Games& Puzzles	06
5	Presentation skill: Preparing a Presentation, Organising the Presentation Material, Writing Your Presentation, Working with Visual Aids, Presenting Data, Managing the Event, Dealing with Questions	04
Total		28

Practical content

Text Books

1.	Aggrawal R.S., "Quantitative Aptitude for Competitive Examinations", S Chand, 20th edition (2013)
2.	Sharma Arun, "How to Prepare for Verbal Ability and Reading Comprehension for CAT", McGraw Hill Education (India) Private Limited; 2014 edition (2014)

Reference Books

1.	GuhaAbhijit, "Quantitative Aptitude for Competitive Examination", McGraw Hill Education India Private Limited, 5th edition (2014)
2.	Aggrawal R.S., "A Modern Approach to Logical Reasoning", S Chand, 1st edition (2007)

3.	Kumar Ajay, Kumar Anand, "General Aptitude Theory and Practice", Pathfinder Publication, 2016 edition (2016)
4.	GKP, "GATE Engineering & Mathematics General Aptitude 2016", G.K. PUB, 12th edition (2015)
5.	Lewis Norman, "Word Power Made Easy", Goyal, Reprint edition (2011)
6.	Anderson Marilyn, "Critical Thinking, Academic Writing and Presentation Skills: Mg University Edition", Pearson Education; 1st edition (2010)

***** END of Semester V *****