

# GANPAT UNIVERSITY

## FACULTY OF ENGINEERING & TECHNOLOGY

### TEACHING AND EXAMINATION SCHEME

| Programme                    | Bachelor of Technology  | Branch/Spec.    | Marine Engineering                  |          |                 |          |           |                  |          |          |                             |          |                |                            |          |          |            |            |             |
|------------------------------|---|-----------------|-------------------------------------|----------|-----------------|----------|-----------|------------------|----------|----------|-----------------------------|----------|----------------|----------------------------|----------|----------|------------|------------|-------------|
| Semester                     | VII   |                 |                                     |          |                 |          |           |                  |          |          |                             |          |                |                            |          |          |            |            |             |
| Effective from Academic Year | 2017-18   |                 | Effective for the batch Admitted in |          |                 |          |           |                  |          |          |                             |          |                | July-2014                  |          |          |            |            |             |
| 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          |                            |          |          |            |            |             |
| 2MR701                       | Workshop / Ship In-Campus / Shipyard Training (for 15weeks training in SIC) | 0               | 0                                   | 0        | 14              | 0        | 14        | 0                | 0        | 0        | 42*14.3<br>Wks =<br>600 Hrs | 0        | 600 Hrs        | 0                          | 0        | 0        | 350        | 350        | 700         |
| 2MR702                       | Engine Room Simulator Training (for 5weeks training at EMS)                 | 0               | 0                                   | 0        | 4               | 0        | 4         | 0                | 0        | 0        | 42*4.7<br>Wks =<br>200 Hrs  | 0        | 200 Hrs        | 0                          | 0        | 0        | 100        | 100        | 200         |
| 2MR703                       | Seminar & Viva  | 0               | 0                                   | 0        | 2               | 0        | 2         | 0                | 0        | 0        | 0                           | 0        | 0              | 0                          | 0        | 0        | 50         | 50         | 100         |
| <b>Total</b>                 |   | <b>0</b>        | <b>0</b>                            | <b>0</b> | <b>20</b>       | <b>0</b> | <b>20</b> | <b>0</b>         | <b>0</b> | <b>0</b> | <b>800 Hrs</b>              | <b>0</b> | <b>800 Hrs</b> | <b>0</b>                   | <b>0</b> | <b>0</b> | <b>500</b> | <b>500</b> | <b>1000</b> |

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|                              |                        |                                     |   |    |       |           |     |     |       |
|------------------------------|------------------------|-------------------------------------|---|----|-------|-----------|-----|-----|-------|
| Programme                    | Bachelor of Technology | Branch/Spec.                        | Marine Engineering                            |    |       |           |     |     |       |
| Semester                     | VII                    | Version                             | 2.0.0.0                                       |    |       |           |     |     |       |
| Effective from Academic Year | 2017-18                | Effective for the batch Admitted in | July 2014                                     |    |       |           |     |     |       |
| Subject code                 | 2MR701                 | Subject Name                        | Workshop / Ship In-Campus / Shipyard Training |    |       |           |     |     |       |
| Teaching scheme              |                        |                                     | Examination scheme (Marks)                    |    |       |           |     |     |       |
| (Per week)                   | Lecture(DT)            |                                     | Practical(Lab.)                               |    | Total |           | CE  | SEE | Total |
|                              | L                      | TU                                  | P   | TW |       |           |     |     |       |
| Credit                       | 0                      | 0                                   | 14  | 0  | 14    | Theory    | 0   | 0   | 0     |
| Hours                        | 0                      | 0                                   | 42*   | 0  | 42*   | Practical | 350 | 350 | 700   |

**Pre-requisites:** \* - Total of 600hours for Ship in campus training of 14.3 weeks in 42Hrs/week

### Learning Outcome:

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

- Comply with the TAR Book Competency number 1.1 to 1.4, 3.1, 4.1.4 to 4.1.8, 4.1.10, 4.3, 4.3.1, 4.3.4, 5.2.1, 5.2.2, 5.4, 7.1, 7.4, 8.6, 9.1, 9.2, 9.6, 9.8, 10.1.2, 11.2.1,

Semester-VII - 2MR701 will be Marine Workshop / Afloat training / Ship-in Campus training. This will be of total of 600 hours in this semester. TAR Book will be filled accordingly. Cadets will be completing following assignments.

### Theory syllabus

| Unit | Content | Hrs |
|------|---------|-----|
|      |         |     |

### Practical content

#### **Training Manual Assignments:**

##### **Assignment No: 12**

Engine data - Measurements and clearance

##### **Assignment No: 20**

Engine system

##### **Assignment No: 21**

Spare parts And Gear

##### **Assignment No: 27**

Two Stroke Diesel Engine

##### **Assignment No: 32**

Connecting Rod And Cross Head

##### **Assignment No: 33**

Thrust Block

##### **Assignment No: 34**

Chain Drive

##### **Assignment No: 38**

Running Gear

##### **Assignment No: 39**

Scavenge Port and Scavenge Manifold Inspection

##### **Assignment No: 40**

Air Compressor

##### **Assignment No: 41**

Air compressor - suction And Delivery Valve

**Assignment No: 42**

Air compressor - Maintenance system

**Assignment No: 43**

Air compressor - Air Cooler

**Assignment No: 44**

Air Compressor - Air pressure safety Valve & Air Jacket Safety Valve

**Assignment No: 49**

Dry docking

**Assignment No: 53**

F.W Generator - Function & components

**Assignment No: 54**

F.W Generator - Flow Diagram

**Assignment No: 55**

Oil Bilge Separator - Function

**Assignment No: 56**

Oil Bilge Separator - System Installation On Ship

**Assignment No: 57**

Sewage Treatment Plant - General Arrangements

**Assignment No: 58**

Turbocharger - Function Parts

**Assignment No: 59**

Turbocharger - Air cooler

**Assignment No: 63**

Deck Machinery And Anchor

**Assignment No: 64**

Deck Machinery - windlass

**Assignment No: 65**

Deck Machinery - mooring winches

**Assignment No: 66**

Deck Machinery - cargo winches /Deck Cranes

**Assignment No: 67**

Marine Incinerator

**Assignment No: 70**

Exhaust Boiler

**Assignment No: 73**

Generators

**Assignment No: 74**

Distribution

On completion of the training, Cadets are to submit their Training report based on daily diary. They are also to present Seminar and will undergo Viva voice in that session.

Text Books

|    |  |
|----|--|
| 01 | DGS Training Manual for Engineering Cadets |
|----|--|

Reference Books

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| Programme                    | Bachelor of Technology | Branch/Spec.                        | Marine Engineering             |    |       |           |     |     |       |
| Semester                     | VII                    | Version                             | 2.0.0.0                        |    |       |           |     |     |       |
| Effective from Academic Year | 2017-18                | Effective for the batch Admitted in | July 2014                      |    |       |           |     |     |       |
| Subject code                 | 2MR702                 | Subject Name                        | Engine Room Simulator Training |    |       |           |     |     |       |
| Teaching scheme              |                        |                                     | Examination scheme (Marks)     |    |       |           |     |     |       |
| (Per week)                   | Lecture(DT)            |                                     | Practical(Lab.)                |    | Total |           | CE  | SEE | Total |
|                              | L                      | TU                                  | P                              | TW |       |           |     |     |       |
| Credit                       | 0                      | 0                                   | 4                              | 0  | 4     | Theory    | 0   | 0   | 0     |
| Hours                        | 0                      | 0                                   | 42*                            | 0  | 42*   | Practical | 100 | 100 | 200   |

**Pre-requisites:** \* - Total of 200hours for Engine Room Simulator Training of 4.7 weeks in 42Hrs/week

### Learning Outcome:

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

- Comply with the TAR Book Competency number 1.1

Semester-VII – 2MR702 will be Engine Room Simulator Training. This will be of total of 200 hours in this semester. TAR Book will be filled accordingly. Cadets will be completing following competencies.

### Theory syllabus

| Unit | Content | Hrs |
|------|---------|-----|
|      |         |     |

### Practical content

| COMPETENCY AND COURSE SUBJECTS   |   | Lectures (Hours) |
|--|---|------------------|
| <b>FUNCTION : Marine Engineering at the operational and management level</b> |   |                  |
| <b>Competency No.1 : Maintain a safe Engineering watch (Table A-III/ 1)</b>  |   |                  |
| 1.1  | Thorough knowledge of Principles to be observed in keeping an Engineering watch, including:   | 61               |
| 1.1.1  | duties associated with taking over and accepting a watch  |                  |
| 1.1.2  | routine duties undertaken during a watch  |                  |
| 1.1.3  | maintenance of the machinery space logs and the significance of the readings taken  |                  |
| 1.1.4  | duties associated with handing over a watch   |                  |
| 1.2  | Safety and emergency procedures; change-over of remote/automatic to local control of all systems  | 5                |
| 1.3  | Safety precautions to be observed during a watch and immediate actions to be taken in the event of fire or accident, with particular reference to oil systems |                  |
| 1.4  | Engine-room resource management   |                  |
| 1.4.1  | Knowledge of engine-room resource management principles, including:   |                  |
| 1.4.1.1  | allocation, assignment, and prioritization of resources   |                  |
| 1.4.1.2  | effective communication   |                  |
| 1.4.1.3  | assertiveness and leadership  |                  |
| 1.4.1.4  | obtaining and maintaining situational awareness   |                  |

|   |  |            |
|---|--|------------|
| 1.4.1.5   | consideration of team experience   |            |
|   | <b>Competency as per Table A-III/ 2:<br/>Manage the operation of propulsion plant machinery.<br/>Plan and schedule operations.<br/>Operation, surveillance, performance assessment and maintaining safety of propulsion plant and auxiliary machinery.</b>   |            |
| 4.6   | <b>Practical knowledge:</b><br>Start up and shut down main propulsion and auxiliary machinery, including associated systems, Operating limits of propulsion plant & The efficient operation, surveillance, performance assessment and maintaining safety of propulsion plant and auxiliary machinery | 25         |
| <b>FUNCTION : Electrical, electronic &amp; Control Engineering at the operational and management level</b>                    |  |            |
| <b>Competency No. 6 : Operate electrical, electronic and control systems (Table A-III/ 1)</b>                                 |  |            |
| 6.1   | Basic configuration and operation principles of the following electrical, electronic and control equipment:  | 18         |
| 6.1.1   | electrical equipment:  |            |
| 6.1.1.a   | generator and distribution systems   |            |
| 6.1.1.b   | preparing, starting, paralleling and changing over generators  |            |
| <b>Competency No. 9 : Maintenance and repair of shipboard machinery and equipment (Table A-III/ 1)</b>                        |  |            |
| 9.7   | The interpretation of piping, hydraulic and pneumatic diagrams   | 62         |
|   | <b>Competency as per Table A-III/ 2:<br/>Manage safe and effective maintenance and repair procedures.<br/>Detect and identify the cause of machinery malfunctions and correct faults.<br/>Ensure safe working practices.</b>   |            |
| 9.10  | <b>Practical knowledge:</b><br>Safe working practices  | 5          |
| <b>FUNCTION : Controlling the operation of the ship and care for persons on board at the operational and management level</b> |  |            |
| <b>Competency No. 10: Ensure compliance with pollution prevention requirements (Table A-III/ 1)</b>                           |  |            |
| 10.1  | Prevention of pollution of the marine environment  | 24         |
| 10.1.1  | Knowledge of the precautions to be taken to prevent pollution of the marine environment  |            |
| 10.1.2  | Anti-pollution procedures and all associated equipment   |            |
| 10.1.3  | Importance of proactive measures to protect the marine environment (+ Marine Environmental awareness)  |            |
|   | <b>TOTAL:</b>  | <b>200</b> |
| <b>Text Books</b>   |  |            |
| 01  | DGS Training Manual for Engineering Cadets   |            |
| <b>Reference Books</b>  |  |            |
|   |  |            |

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| Programme                    | Bachelor of Technology |         |                 | Branch/Spec.                        | Marine Engineering         |           |           |     |       |
| Semester                     | VII                    |         |                 | Version                             | 2.0.0.0                    |           |           |     |       |
| Effective from Academic Year |                        | 2017-18 |                 | Effective for the batch Admitted in |                            |           | July 2014 |     |       |
| Subject code                 | 2MR703                 |         | Subject Name    |                                     | Seminar & Viva             |           |           |     |       |
| Teaching scheme              |                        |         |                 |                                     | Examination scheme (Marks) |           |           |     |       |
| (Per week)                   | Lecture(DT)            |         | Practical(Lab.) |                                     | Total                      |           | CE        | SEE | Total |
|                              | L                      | TU      | P               | TW                                  |                            |           |           |     |       |
| Credit                       | 0                      | 0       | 2               | 0                                   | 2                          | Theory    | 0         | 0   | 0     |
| Hours                        | 0                      | 0       | 0               | 0                                   | 0                          | Practical | 50        | 50  | 100   |

### Learning Outcome:

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

- Comply Seminar & Viva with the Training Manual Assignments & Ship In-Campus Training

### Theory syllabus

| Unit | Content |  |  |  |  |  |  |  | Hrs |
|------|---------|--|--|--|--|--|--|--|-----|
|      |         |  |  |  |  |  |  |  |     |

### Practical content

On completion of the training, Cadets are to submit their Training report based on daily diary. They are also to present Seminar and will undergo Viva voice.

### Text Books

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### Reference Books

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\*\*\*\*\* END of Semester VII \*\*\*\*\*