**MARITIME FACULTY**

**Maritime Transportation Engineering Department**

**Course Catalogue Form**

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| --- | --- | --- | --- |
| **Issue Date :** | **Revision Date :-** | **Revision Number: -** | **Faculty Board Decision Number:** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Name**: Marine Engineering Systems | | | | | **Degree:** Bachelor | | | | |
| **Code** | **Year/Semester** | **Local Credits** | **ECTS Credits** | | **Course Implementation, Hours/Week** | | | | |
| **Course** | | **Tutorial** | | **Workshop** |
| **MTE 009S** | **2/1 (Spring)** | **2** | **5** | | **1** | | - | | **1** |
| **Department** | | **Maritime Transportation Engineering** | | | | | | | |
| **Instructors** | |  | | | | | | | |
| **Contact Information** | |  | | | | | | | |
| **Office Hours** | |  | | | | | | | |
| **Web page** | | <https://www.marplat.eu> | | | | | | | |
| **Course Type** | | Elective | | | **Course Language** | | English | | |
| **Course Prerequisites** | | At discretion of each partner university | | | | | | | |
| **Course Category by Content, %** | | **Basic Sciences** | | **Engineering Science** | | **Engineering Design** | | **Humanities** | |
| 20 | | 50 | | - | | 30 | |
| **Course Description** | | This course forms part of the proposed Modular Framework for vocational and professional qualification based on a degree program in Maritime Transportation Engineering. The Programme gives trainees in-depth expertise in managing a naval vessel as a Deck Officer and ultimately as the captain of the vessel. The emphasis is upon the the basic engine concepts, definitions, working principles and related regulations of main and auxiliary machinery systems, equipment, and engine control systems. | | | | | | | |
| **Course Objectives** | | Interpret and explain;   1. Marine Auxiliary Machinery  * Evaporators, Incinerators, Alternators, Generators and Control Systems * Deck Machinery * Stern Tube & Shaft Systems, Propulsion Systems & Propellers * Steering Gear Machinery & Accessories * Hydraulic & Electrical Steering Systems   - Emergency Steering Gear Systems  - Pipe Lines and Valves  2. Remote Control of Propulsion System and other Engineering Systems  3. Marine Engineering Terms & Definitions  4. Fuel Consumption  5. Ship power systems | | | | | | | |
| **Course Learning Outcomes** | | Trainees who successfully pass the course will acquire knowledge and skills on   1. Ship power systems 2. Marine auxiliary machinery 3. Control systems   IV. Fuel consumption | | | | | | | |
| **Instructional Methods and Techniques** | | Lecturing and Simulator Practices | | | | | | | |
| **Tutorial Place** | | Classroom and Simulator | | | | | | | |
| **Co-term Condition** | | **---** | | | | | | | |
| **Textbook** | | Marine Auxiliary Machinery H. D. Mc George, March 1999 | | | | | | | |
| **Other References** | | 1. Marine Auxiliary Machinery, Butterwerth-Heinemann, 6th Edition, 1983   2. Control System Engineering, Norman, S.N. Wiley Textbooks, 2000 | | | | | | | |
| **Homework & Projects** | | Each group will prepare simple scenario which will be used during simulator exercise as directed by the lecturer. | | | | | | | |
| **Laboratory Work** | | Simulator Exercise | | | | | | | |
| **Computer Use** | | Engine Room Simulator and CBT | | | | | | | |
| **Other Activities** | | 5 video tutorials shall be recorded in the simulator/lab from the selected practical training activities, Group Discussions, | | | | | | | |

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| **Assessment Criteria** | **Activities** | **Quantity** | **Effects on Grading, %** |
| Attendance |  |  |
| Midterm | **1** | **30** |
| Quiz | **2** | **10** |
| Homework | **2** | **10** |
| Term Paper/Project |  |  |
| Laboratory Work |  |  |
| Practices |  |  |
| Tutorial |  |  |
| Seminar |  |  |
| Presentation |  |  |
| Field Study |  |  |
| Final Exam | **1** | **50** |
| **TOTAL** |  | **100** |
| Effects of Midterm on Grading, % |  | **50** |
| Effects of Final on Grading, % |  | **50** |
| **TOTAL** |  | **100** |

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| **ECTS/**  **WORKLOAD TABLE** | **Activities** | **Count** | **Hours** | **Total**  **Workload** |
| Lecture | **7** | **2** | **14** |
| Midterm | **1** | **10** | **10** |
| Quiz | **2** | **5** | **10** |
| Homework | **2** | **10** | **20** |
| Term Paper/Project |  |  |  |
| Laboratory Work |  |  |  |
| Practices | **7** | **5** | **35** |
| Tutorial | **7** | **2** | **14** |
| Seminar |  |  |  |
| Presentation | **5** | **2** | **10** |
| Field Study |  |  |  |
| Final Exam | **1** | **10** | **10** |
| **Total Workload** |  |  | **123** |
| **Total Workload/25** |  |  | **123/25** |
| **Course ECTS Credits** |  |  | **5** |

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| **Week** | **TOPICS** | **Course Outcomes** |
| **1** | Diesel engines | I |
| **2** | Steam and gas turbine | I |
| **3** | Propulsion Systems, Stern Tube & Shaft Systems & Propellers | I |
| **4** | Fuel consumption | IV |
| **5** | Boilers and pumps | II |
| **6** | Evaporators & Incinerators, working principles. | II |
| **7** | HVAC systems | II |
| **8** | Sewage and bilge water Separators | II |
| **9** | Sewage and bilge water Separators |  |
| **10** | Alternators, Generators and Electrical Control Systems Deck Machinery | II |
| **11** | Steering Gear Machinery & Accessories, Hydraulic and Electrical Steering Systems, Emergency Steering System & Controls. | II |
| **12** | Remote Control of Propulsion System | III |
| **13** | Alarm Systems and Data Loggers, Signal Selection and Processing. Bridge Control For Diesel Engines & Propulsion. | III |
| **14** | Marine Engineering Terms & Definitions | III |

**Relationship between the Course and the Curricula of Maritime Transportation Engineering**

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| --- | --- | --- | --- | --- |
|  | **Program Outcomes** | **Level of Contribution** | | |
| **1** | **2** | **3** |
| **a** | An ability to apply knowledge of mathematics, science, and engineering |  | X |  |
| **b** | An ability to design and conduct experiments, as well as to analyse and interpret data |  | X |  |
| **c** | An ability to design a system, component or process to meet desired needs | X |  |  |
| **d** | Ability to function on multi-disciplinary teams |  | X |  |
| **e** | An ability to identify, formulate, and solve engineering problems |  | X |  |
| **f** | An understanding of professional and ethical responsibility |  |  | X |
| **g** | An ability to communicate effectively |  | X |  |
| **h** | The broad education necessary to understand the impact of engineering solutions in a global and societal context |  | X |  |
| **i** | A recognition of the need for, and an ability to engage in life-long learning |  |  | X |
| **j** | A knowledge of contemporary issues |  | X |  |
| **k** | An ability to use the techniques, skills and modern engineering tools necessary for engineering practice |  | X |  |
| **l** | An ability to apply legal, societal and environmental knowledge in maritime transport and in all respective modes of transport operations. |  | X |  |
| **m** | An ability to interpret and analysis of the data regarding maritime management and operations, recognition and solution of problems for the decision-making process. |  | X |  |

**1: Small, 2: Partial, 3: Full**

**Program Outcomes & Course Outcomes Connectivity Matrix**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Course**  **Outcomes** | **I** | **II** | **III** | **IV** |  |  |  |
| **Program Outcomes** |
| **a** |  |  |  |  |  |  |  |
| **b** |  |  |  |  |  |  |  |
| **c** |  |  |  |  |  |  |  |
| **d** |  |  |  |  |  |  |  |
| **e** |  |  |  |  |  |  |  |
| **f** |  |  | |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | |  |  |  |  |
| **g** |  |  | |  |  |  | | --- | --- | --- | |  |  |  | |  |  |  |  |
| **h** |  |  |  |  |  |  |  |
| **i** |  |  |  |  |  |  |  |
| **j** |  |  | |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | |  |  |  |  |
| **k** |  |  | |  |  | | --- | --- | |  |  | |  |  |  |  |
| **l** |  |  | |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | |  |  |  |  |
| **m** |  |  |  |  |  |  |  |

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| ***Prepared by*** | **Date** | Signature |