|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Course Title | **Ship Stability and Strength** | | | | | | |
| Course Code | MANS-321 | | | | | | |
| Course Type | Required | | | | | | |
| Level | 1st Cycle | | | | | | |
| Year / Semester | 3rd Year, Spring Semester | | | | | | |
| Teacher’s Name |  | | | | | | |
| ECTS | 7 | Theory | | Laboratory | Simulation | | Tutorial |
| 4 | | 2 | --- | | ---- |
| Course Purpose and Objectives | The main objectives of the course are to:   * introduce the theories and factors that influence the ship’s trim and stability * display the measures required to maintain the trim and stability * exhibit the stability tables and diagrams used on board * demonstrate the equipment and software to calculate the ship’s trim and stability * explain the actions to be taken in the event of partial loss of ship’s integrity * analyze the ship’s structural strength at sea and in port | | | | | | |
| Learning Outcomes | After completion of the course students are expected to be able to:   * comprehend the theories and factors that influence the ship’s trim and stability * take all the necessary measures to maintain ship’s trim and stability * employ the stability tables and diagrams existing on board to perform trim and stability calculations * utilize the equipment and software available on board to obtain results on trim and stability questions * implement the proper corrective measures in the event of partial loss of the ship’s integrity * calculate the vessel’s stresses | | | | | | |
| Prerequisites | None | | Required | | | None | |
| Course Content | * Determination of various centers (gravity, buoyancy, etc.) * Displacement, density, specific gravity * Trim and stability tables and diagrams * Transverse stability * Free surface inertia moments effect * Large angles stability * Dynamic stability * Longitudinal stability * Various stability issues * Vessel’s stresses * Bending - torsional moments * Shearing forces * Use of relevant software * Damage stability * Relevant check lists and forms | | | | | | |
| Teaching Methodology | Lectures, in-class assignments, sound and video equipment, computer, projector, relevant software, cargo handling simulator | | | | | | |
| Bibliography | 1. **Required Textbooks/Reading:**  |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Authors** | **Title** | **Publisher** | **Year** | **ISBN** | | Barrass, B., Derrett, D.R. | Ship stability for masters and mates | Elsevier | 2006 | 987-0-7506-6784-5 |  1. **Recommended Textbooks/Reading:**  |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Authors** | **Title** | **Publisher** | **Year** | **ISBN** | | IMO | International code on intact stability | IMO | 2009 | 978-92-801-15062 | | Clark, I. C. | The management of merchant ship stability, trim and strength | The nautical institute | 2002 | 1-87-0077-59-8 | | | | | | | |
| Assessment | Homework, in-class assignments, projects, exams, final exam. | | | | | | |
| Language | English | | | | | | |