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Ocean Engineering

N P T E L
National Programme on Technology Enhanced Learning
NPTEL Video Course - Ocean Engineering - Advanced Marine Structures

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Scope
Lecture 2 - Fixed type structures
Lecture 3 - Compliant type structures
Lecture 4 - New generation marine structures
Lecture 5 - Environmental loads - I
Lecture 6 - Environmental loads - II
Lecture 7 - Environmental loads - III
Lecture 8 - Environmental loads - IV
Lecture 9 - Other loads - I
Lecture 10 - Other loads - II
Lecture 11 - Ultimate load design principles - I
Lecture 12 - Ultimate Limit State - I
Lecture 13 - Ultimate Limit State - II
Lecture 14 - Ultimate Limit State - III
Lecture 15 - Partial safety factor
Lecture 16 - Plastic design - I
Lecture 17 - Plastic design - II
Lecture 18 - Plastic design - III
Lecture 19 - Plastic design - IV - Example problems - I
Lecture 20 - Plastic analysis - Example problems - II
Lecture 21 - Plastic analysis - Example problems - III
Lecture 22 - Theories of failure - I
Lecture 23 - Theories of failure - II
Lecture 24 - Theories of failure - III
Lecture 25 - Theories of failure - IV
Lecture 26 - Shear centre - I
Lecture 27 - Shear centre - II - Examples
Lecture 28 - Plastic capacity of sections under combined loads - I
Lecture 29 - Plastic capacity of sections under combined loads - II

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Lecture 30 - Impact analysis- fundamentals - I
Lecture 31 - Impact analysis- fundamentals - II
Lecture 32 - Ultimate capacity of tubular joints
Lecture 33 - Fluid structure interaction - I
Lecture 34 - Fluid structure interaction - II
Lecture 35 - Fluid induced vibration - I
Lecture 36 - Fluid induced vibration - II
Lecture 37 - Flow through perforated members - I
Lecture 38 - Flow through perforated members - numerical studies - II
Lecture 39 - Flow through perforated members - III - Analytical studies
Lecture 40 - Introduction to Reliability - I
Lecture 41 - Introduction to Reliability - II
Lecture 42 - Introduction to Reliability - III
Lecture 43 - Reliability framework in Marine structures
Lecture 44 - Ultimate limit state and Reliability approach - I
Lecture 45 - Ultimate limit state and Reliability approach - II
Lecture 46 - Levels of Reliability
Lecture 47 - FOSM and AFOSM methods of Reliability
Lecture 48 - Fracture and Fatigue
Lecture 49 - Fatigue failure
Lecture 50 - Fatigue loading and fatigue analysis
Lecture 51 - Deterministic fatigue analysis
Lecture 52 - Spectral fatigue analysis
Lecture 53 - Stress concentration and fatigue analysis
NPTEL Video Course - Ocean Engineering - Applied Thermodynamics for Marine Systems

Subject Co-ordinator - Prof. P.K. Das
Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable  |  MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction & Some Definitions
Lecture 2 - First Law of Thermodynamics (Closed System)
Lecture 3 - First Law of Thermodynamics (Open System)
Lecture 4 - Second Law of Thermodynamics
Lecture 5 - Second Law and Carnot Principle
Lecture 6 - Property of Pure Substance, Steam Table
Lecture 7 - Ideal Gas Laws, Different Processes
Lecture 8 - Introduction to Vapour Power Cycle
Lecture 9 - Vapour Power Cycle
Lecture 10 - Steam Power Cycle, Steam Nozzle
Lecture 11 - Basic Concept of Turbine, Velocity Diagram
Lecture 12 - Steam Turbine-Impulse
Lecture 13 - Reaction Turbine Compounding
Lecture 14 - Comparison of Different Staging Arrangement
Lecture 15 - Basics Laws of Fluid Mechanics
Lecture 16 - Pipe Friction, Major Loss, Minor Loss
Lecture 17 - Pipeline & Pipe Network
Lecture 18 - Refrigeration Vapour Compression Cycle
Lecture 19 - Psychometrics
Lecture 20 - Psychometrics (Continued...)
Lecture 21 - Psychometric Processes
Lecture 22 - Psychometric Processes (Continued...), Air Conditioning
Lecture 23 - Summer & Winter Air Conditioning
Lecture 24 - Gas Power Cycles, Cycles for IC Engines
Lecture 25 - Gas Turbine Cycles
Lecture 26 - Modification of Brayton Cycle
Lecture 27 - Introduction to Convective Heat Transfer Forced & Free Convection

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Lecture 30 - Breakwaters - IV
Lecture 31 - Forces on coastal structures - I
Lecture 32 - Forces on coastal structures - II
Lecture 33 - Scour under marine structures
Lecture 34 - Physical modelling of coastal structures - I
Lecture 35 - Physical modelling of coastal structures - II
Lecture 36 - Tsunami - I
Lecture 37 - Tsunami - II
NPTEL Video Course - Ocean Engineering - Design of Offshore Structures

Subject Co-ordinator - Dr. S. Nallayarasu
Co-ordinating Institute - IIT - Madras
Sub-Titles - Available / Unavailable  |  MP3 Audio Lectures - Available / Unavailable

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture 1</td>
<td>Loads On Offshore Structures - 1</td>
</tr>
<tr>
<td>Lecture 2</td>
<td>Loads On Offshore Structures - 2</td>
</tr>
<tr>
<td>Lecture 3</td>
<td>Loads On Offshore Structures - 3</td>
</tr>
<tr>
<td>Lecture 4</td>
<td>Loads On Offshore Structures - 4</td>
</tr>
<tr>
<td>Lecture 5</td>
<td>Loads On Offshore Structures - 5</td>
</tr>
<tr>
<td>Lecture 6</td>
<td>Loads On Offshore Structures - 6</td>
</tr>
<tr>
<td>Lecture 7</td>
<td>Loads On Offshore Structures - 7</td>
</tr>
<tr>
<td>Lecture 8</td>
<td>Concepts of Fixed Offshore Platform Deck and Jacket - 1</td>
</tr>
<tr>
<td>Lecture 9</td>
<td>Concepts of Fixed Offshore Platform Deck and Jacket - 2</td>
</tr>
<tr>
<td>Lecture 10</td>
<td>Concepts of Fixed Offshore Platform Deck and Jacket - 3</td>
</tr>
<tr>
<td>Lecture 11</td>
<td>Concepts of Fixed Offshore Platform Deck and Jacket - 4</td>
</tr>
<tr>
<td>Lecture 12</td>
<td>Concepts of Fixed Offshore Platform Deck and Jacket - 5</td>
</tr>
<tr>
<td>Lecture 13</td>
<td>Steel Tubular Member Design - 1</td>
</tr>
<tr>
<td>Lecture 14</td>
<td>Steel Tubular Member Design - 2</td>
</tr>
<tr>
<td>Lecture 15</td>
<td>Steel Tubular Member Design - 3</td>
</tr>
<tr>
<td>Lecture 16</td>
<td>Steel Tubular Member Design - 4</td>
</tr>
<tr>
<td>Lecture 17</td>
<td>Steel Tubular Member Design - 5</td>
</tr>
<tr>
<td>Lecture 18</td>
<td>Tubular Joint Design for Static and Cyclic Loads - 1</td>
</tr>
<tr>
<td>Lecture 19</td>
<td>Tubular Joint Design for Static and Cyclic Loads - 2</td>
</tr>
<tr>
<td>Lecture 20</td>
<td>Tubular Joint Design for Static and Cyclic Loads - 3</td>
</tr>
<tr>
<td>Lecture 21</td>
<td>Tubular Joint Design for Static and Cyclic Loads - 4</td>
</tr>
<tr>
<td>Lecture 22</td>
<td>Tubular Joint Design for Static and Cyclic Loads - 5</td>
</tr>
<tr>
<td>Lecture 23</td>
<td>Tubular Joint Design for Static and Cyclic Loads - 6</td>
</tr>
<tr>
<td>Lecture 24</td>
<td>Tubular Joint Design for Static and Cyclic Loads - 7</td>
</tr>
<tr>
<td>Lecture 25</td>
<td>Tubular Joint Design for Static and Cyclic Loads - 8</td>
</tr>
<tr>
<td>Lecture 26</td>
<td>Tubular Joint Design for Static and Cyclic Loads - 9</td>
</tr>
<tr>
<td>Lecture 27</td>
<td>Tubular Joint Design for Static and Cyclic Loads - 10</td>
</tr>
<tr>
<td>Lecture 28</td>
<td>Tubular Joint Design for Static and Cyclic Loads - 11</td>
</tr>
<tr>
<td>Lecture 29</td>
<td>Tubular Joint Design for Static and Cyclic Loads - 12</td>
</tr>
</tbody>
</table>

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NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Dynamics of Ocean Structures

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran
Co-ordinating Institute - IIT - Madras
Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to different types of ocean structures - I
Lecture 2 - Introduction to different types of ocean structures - II
Lecture 3 - Introduction to different types of ocean structures - III
Lecture 4 - Types of Compliant towers
Lecture 5 - New Generation offshore and Coastal structures
Lecture 6 - Environmental forces
Lecture 7 - Wave forces, Current
Lecture 8 - Introduction to Structural dynamics
Lecture 9 - Characteristics of single degree - of - freedom model
Lecture 10 - Methods of writing equation of motion
Lecture 11 - Free and forced vibration of single degree - of - freedom systems
Lecture 12 - Undamped and damped systems - I
Lecture 13 - Undamped and damped systems - II
Lecture 14 - Undamped and damped systems - III
Lecture 15 - Comparison of methods
Lecture 16 - Examples
Lecture 17 - Numerical problems in single degree - of - freedom systems
Lecture 18 - Two degrees - of - freedom systems
Lecture 19 - Eigenvalues and Eigenvectors
Lecture 20 - Orthogonality of modes
Lecture 21 - Study of Multi degrees - of - freedom systems
Lecture 22 - Equations of motion
Lecture 23 - Natural frequencies and mode shapes
Lecture 24 - Stodla, Rayleigh - Ritz and influence coefficient methods, Dunkerley
Lecture 25 - Continuous system
Lecture 26 - Structural action of offshore structures
Lecture 27 - Fluid - Structure interaction - I
Lecture 28 - Fluid - Structure interaction - II Dynamic analysis of offshore jacket platforms
Lecture 29 - Steps of analysis using software

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Lecture 30 - Steps of analysis using software (Continued...)
Lecture 31 - Dynamic analysis of articulated towers
Lecture 32 - Iterative frequency domain - I
Lecture 33 - Iterative frequency domain - II
Lecture 34 - Multi-legged articulated towers
Lecture 35 - Response control of multi-legged articulated towers using tuned mass dampers Experimental and analytical studies on MLAT
Lecture 36 - Development of Tension Leg Platforms and geometric optimization
Lecture 37 - Dynamic analyses of TLPs
Lecture 38 - Development of Mass, stiffness and damping matrices of TLP from first principles
Lecture 39 - Estimate of classical damping
Lecture 40 - TLPs under seismic excitation
Lecture 41 - Direct Integration method
Lecture 42 - Development of new generation offshore structures
Lecture 43 - Introduction to stochastic dynamics of ocean structures
Lecture 44 - Response spectrum
Lecture 45 - Narrow band process
Lecture 46 - Return period, Fatigue prediction
Lecture 47 - Modal response method, Modal mass contribution
Lecture 48 - Missing mass correction, Example problems
Lecture 49 - Duhamel's integral
Lecture 30 - Static Analysis of Mooring Cable (Continued...)
Lecture 31 - Mooring Systems (Continued...2)
Lecture 32 - Mooring Systems (Continued...3)
Lecture 33 - Mooring Systems (Continued...4)
Lecture 34 - Mooring Systems (Continued...5)
Lecture 35 - Mooring Systems (Continued...6)
Lecture 36 - Fixed Offshore Structures
Lecture 37 - Fixed Offshore Structures (Continued...)
Lecture 38 - Structural Analysis of Jacket Platforms
Lecture 39 - Structural Analysis of Jacket Platforms (Continued...1)
Lecture 40 - Structural Analysis of Jacket Platforms (Continued...2)
Lecture 41 - Jacket Pile Selection
Lecture 42 - Jacket Pile Selection (Continued...1)
Lecture 43 - Jacket Pile Selection (Continued...2)
Lecture 44 - Floating Platform Design
Lecture 45 - Semi-Submersibles
Lecture 46 - Semi-Submersibles & TLPs
Lecture 47 - Tension Leg Platform
Lecture 48 - Tension Leg Platform (Continued...)
Lecture 49 - SPAR Platform
Lecture 30 - Special Foundations - II
Lecture 31 - Special Foundations - III
Lecture 32 - Pile Group Effects
Lecture 33 - Two Pile Group Effect For Axial Load
NPTEL Video Course - Ocean Engineering - Health, Safety and Environmental Management in Petroleum and Offshore Engineering

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable  |  MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and Terminologies
Lecture 2 - Introduction to HSE
Lecture 3 - Safety assurance and assessment
Lecture 4 - Safety assurance and assessment (Continued...)
Lecture 5 - Safety in design and operations
Lecture 6 - Organizing for safety
Lecture 7 - Hazard classification and assessment, Hazard evaluation and hazard control
Lecture 8 - HaZOP
Lecture 9 - HaZOP (Continued...)
Lecture 10 - Hazard evaluation and hazard control
Lecture 11 - Hazard Identification and Management in Oil & Gas Industry using HAZOP
Lecture 12 - FMEA
Lecture 13 - FMEA (Continued...)
Lecture 14 - Environmental Issues and Management
Lecture 15 - Impact of Oil and Gas Industry on Marine Environment
Lecture 16 - Oil Hydrocarbon in Marine Environment
Lecture 17 - Chemicals and Wastes from Offshore and Oil Industry
Lecture 18 - Dispersion Models â□□ Atmospheric Pollution
Lecture 19 - Atmospheric Pollution (Continued...)
Lecture 20 - Hazard Assessment and Accident Scenario
Lecture 21 - Dose Assessment, Safety Regulation
Lecture 22 - Toxic Release and Dispersion Modeling
Lecture 23 - Chemical Exposure Index (CEI)
Lecture 24 - Chemical Exposure Index (Continued.)
Lecture 25 - Quantitative Risk Assessment
Lecture 26 - Quantitative Risk Assessment (Liquid Release Models Case Study - Continued...)
Lecture 27 - Fire and Explosion Modeling
Lecture 28 - Fire and Explosion Modeling Flammability Diagrams

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Lecture 29 - Explosion Modeling
Lecture 30 - Fire and Explosion Preventive Measures
Lecture 31 - Probabilistic Risk Analysis
Lecture 32 - Safety Measures in Design and Process Operations
Lecture 33 - Case Studies
Lecture 34 - Case Studies (Continued...)
Lecture 35 - Software Used in HSE â□□ an Over View
NPTEL Video Course - Ocean Engineering - Hydrostatics and Stability

Subject Co-ordinator - Dr. Hari V. Warrior

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction
Lecture 2 - Archimedes Principle
Lecture 3 - Archimedes Principle (Continued...)
Lecture 4 - Numerical Integration
Lecture 5 - Problems in Stability - I
Lecture 6 - Problems in Stability - II
Lecture 7 - Problems in Stability - III
Lecture 8 - Problems in Integration
Lecture 9 - Free Surface Effect
Lecture 10 - Inclining Experiment
Lecture 11 - Hydrostatic Curves - I
Lecture 12 - Hydrostatic Curves - II
Lecture 13 - Stability Curve
Lecture 14 - Dynamical Stability - I
Lecture 15 - Dynamical Stability - II
Lecture 16 - Healing Moment - I
Lecture 17 - Healing Moment - II
Lecture 18 - Healing Moment - III
Lecture 19 - Dynamical Stability - III
Lecture 20 - Discussion
Lecture 21 - Righting Stability - I
Lecture 22 - Righting Stability - II
Lecture 23 - Trim Calculations - I
Lecture 24 - Trim Calculations - II
Lecture 25 - Trim Stability - I
Lecture 26 - Trim Stability - II
Lecture 27 - Dry Docking - I
Lecture 28 - Dry Docking - II
Lecture 29 - Bilging - I
Lecture 30 - Bilging - II
Lecture 31 - Bilging - III
Lecture 32 - Bilging - IV
Lecture 33 - Safety Regulations
Lecture 34 - Safety Regulations (Continued...)
Lecture 35 - Safety Regulations (Continued...)
Lecture 36 - Ship Stability on Waves
Lecture 37 - Ship Stability on Waves (Continued...)
Lecture 38 - Ship Stability on Waves (Continued...)
Lecture 39 - Wave Theory
Lecture 40 - Conclusion
NPTEL Video Course - Ocean Engineering - Marine Construction and Welding

Subject Co-ordinator - Prof. N.R. Mandal
Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to ships & offshore structures
Lecture 2 - Characteristics of shipbuilding industry
Lecture 3 - Structural Requirement
Lecture 4 - Basic Structural Components
Lecture 5 - Structural Subassemblies
Lecture 6 - Bulkheads
Lecture 7 - Decks & Shells
Lecture 8 - Structural Assemblies Double Bottom Construction
Lecture 9 - Wing Tanks & Duct Keels
Lecture 10 - Fore & Altend Construction
Lecture 11 - General Cargo Carrier
Lecture 12 - Bulk Carrier
Lecture 13 - Structural Details
Lecture 14 - Container Ship
Lecture 15 - RO-RO Ship
Lecture 16 - Oil Tanker
Lecture 17 - Structural Alignment & Continuity
Lecture 18 - Steel Material Preparation
Lecture 19 - Shot Blasting
Lecture 20 - Acid Pickling
Lecture 21 - Plate Cutting
Lecture 22 - Plate & Section Forming - I
Lecture 23 - Plate & Section Forming - II
Lecture 24 - Line Heating
Lecture 25 - Fusion Welding & Power Source
Lecture 26 - Welding Parameters & their Effects
Lecture 27 - Welding Methods
Lecture 28 - Shielded Metal Arc Welding
Lecture 29 - Gas Metal Arc Welding - I
Lecture 30 - Gas Metal Arc Welding - II
Lecture 31 - Gas Tungsten Arc Welding
Lecture 32 - Submerged Arc Welding
Lecture 33 - Electroslag Welding
Lecture 34 - Electrogas Welding
Lecture 35 - Friction Stir Welding
Lecture 36 - FSW Metallurgy
Lecture 37 - Welding Defects & NDT
Lecture 38 - Welding Distortions
Lecture 39 - Distortion Mechanism & Types of Distortion
Lecture 40 - Distortion Control & Mitigation
Lecture 41 - Welding Sequence
NPTEL Video Course - Ocean Engineering - Marine Hydrodynamics

Subject Co-ordinator - Dr. T. Sahoo
Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Marine Hydrodynamics
Lecture 2 - Law of Conservation of Mass - Continuity of Equation
Lecture 3 - Streamlines and Flow Direction
Lecture 4 - Worked Examples on Various Types of Flow
Lecture 5 - Equation of Motion (Law of Conservation of Momentum)
Lecture 6 - Applications of Equations of Motion
Lecture 7 - Applications of Equations of Motion (Continued...)
Lecture 8 - Two Dimensional Flows
Lecture 9 - Two Dimensional Flows (Continued...)
Lecture 10 - Source, Sink and Doublet
Lecture 11 - Worked Examples on Two Dimensional Flows
Lecture 12 - Conformal Mapping and Joukowsky Transformation
Lecture 13 - Uniform Flow Past an Elliptic Cylinder
Lecture 14 - Aerofoil theory
Lecture 15 - Aerofoil theory (Continued...)
Lecture 16 - Aerofoil theory (Continued...)
Lecture 17 - Schwarz - Christoffel Transformation
Lecture 18 - Motion of a cylinder
Lecture 19 - Vertex Motion
Lecture 20 - Irrotational Flow - A Bird's eyeview
Lecture 21 - Introduction to Water Waves
Lecture 22 - Basic Equation and Conditions of Water Waves
Lecture 23 - Water particle kinematics in wave motion
Lecture 24 - Capillary Gravity Waves
Lecture 25 - Linearised Long Wave Equation
Lecture 26 - Linearised Long Wave Equation (Continued...)
Lecture 27 - Wave motion in two layer fluids
Lecture 28 - Worked Examples on Wave Motion
Lecture 29 - Worked Examples on Wave Motion (Continued...)
Lecture 30 - Gravity wave transformation and energy rotation
Lecture 31 - Gravity wave transformation and energy rotation (Continued...)
Lecture 32 - Gravity wave transformation and energy rotation (Continued...)
Lecture 33 - Navier-Stokes equation of motion
Lecture 34 - Analysis of Basic Flow Problems
Lecture 35 - Analysis of Basic Flow Problems (Continued...)
Lecture 36 - Unsteady unidirectional flows
Lecture 37 - Unsteady unidirectional flows (Continued...)
Lecture 38 - An introduction to Boundary Layer Theory
Lecture 39 - Solution methods for Boundary Layer Equations
Lecture 40 - Solutions Methods for Boundary Layer Equations (Continued...)
NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Ocean Structures and Materials

Subject Co-ordinator - Dr. Srinivasan Chandrasekaran

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction and objectives
Lecture 2 - Fixed type offshore structures
Lecture 3 - Compliant type offshore structures - I
Lecture 4 - Compliant type offshore structures - II
Lecture 5 - Drill ships and basics of drilling
Lecture 6 - Subsea production systems
Lecture 7 - Environmental loads - I
Lecture 8 - Environmental loads - II
Lecture 9 - Types of coastal structures - I
Lecture 10 - Types of coastal structures - II
Lecture 11 - Summary of coastal structures
Lecture 12 - Tutorials on Module - I
Lecture 13 - Outline of planning of ocean structures
Lecture 14 - Introduction to design
Lecture 15 - Construction techniques
Lecture 16 - Dredging - I
Lecture 17 - Dredging - II
Lecture 18 - Uncertainties in analysis and design
Lecture 19 - Design adequacy - Example I
Lecture 20 - Design adequacy - Example II
Lecture 21 - Dredging equipments' specifications
Lecture 22 - Ocean Pollution
Lecture 23 - Foundation and sea bed anchors
Lecture 24 - Introduction to materials - I
Lecture 25 - Introduction to materials - II
Lecture 26 - Concrete in marine environment
Lecture 27 - Concrete
Lecture 28 - Repair materials for marine structures
Lecture 29 - Corrosion in concrete - I

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Lecture 30 - Corrosion in concrete - II
Lecture 31 - Material sin repair and rehabilitation
Lecture 32 - Materials for special repair
Lecture 33 - New materials for coastal embankments - I
Lecture 34 - New materials for coastal embankments - II
Lecture 35 - Non-destructive testing
Lecture 36 - Structural health monitoring
Lecture 37 - Wireless sensor networking
Lecture 38 - Repair and rehabilitation-Fenders
Lecture 30 - Ship Motion in irregular Waves - III
Lecture 31 - Motion in Short Crested Sea, Coupled Motions
Lecture 32 - Derived Responses
Lecture 33 - Ship Controllability
Lecture 34 - Equation of Motion in Horizontal Plane
Lecture 35 - Hydrodynamic Derivatives and Stability
Lecture 36 - Hydrodynamic Derivatives and Stability
Lecture 37 - Ship Trials and Maneuvers - I
Lecture 38 - Ship Trials and Maneuvers - II
Lecture 39 - Heel During Turn, IMO Requirements
Lecture 40 - Rudder Hydrodynamics
NPTEL Video Course - Ocean Engineering - Port and Harbour Structures

Subject Co-ordinator - Prof. R. Sundaravadivelu
Co-ordinating Institute - IIT - Madras

Lecture 1 - Layout of ports
Lecture 2 - Continuation of layout of ports
Lecture 3 - Visakhapatnam port
Lecture 4 - Ships and size of ships
Lecture 5 - Port planning
Lecture 6 - Harbour layout
Lecture 7 - Site characteristics & navigation channel
Lecture 8 - Bathymetric survey
Lecture 9 - Tide, surge, tsunami and wave
Lecture 10 - Wave rose diagram
Lecture 11 - Breakwater
Lecture 12 - Design of breakwater - Part-1
Lecture 13 - Design of breakwater - Part-2
Lecture 14 - Berm breakwater
Lecture 15 - Dredging & methods of disposal
Lecture 16 - Berthing structures modelling
Lecture 17 - Berthing structures - analyses
Lecture 18 - Loads
Lecture 19 - Types of berthing structures
Lecture 20 - Design of berthing, structures-1
Lecture 21 - Design of offshore berthing, structures-1
Lecture 22 - Estimation of mooring, berthing and seismic forces
Lecture 23 - Estimation seismic forces
Lecture 24 - Active and passive earth pressure and differential water pressure
Lecture 25 - Load combinations and design
Lecture 26 - Fenders
Lecture 27 - Mechanical handling system
Lecture 28 - Single buoy mooring and open sea jetty - Part 1
Lecture 29 - Single buoy mooring and open sea jetty - Part 2

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Lecture 30 - Slipway, drydock, floating dock, shiplift
Lecture 31 - Soil structure interaction
Lecture 32 - Calculation of fixity depth
Lecture 33 - Pile load test
Lecture 34 - Ground improvement techniques
Lecture 35 - Analysis of pile with spring support
Lecture 36 - UPV, Half cell potential, Low high Integrity Test
Lecture 37 - Mooring Dolphin at KPT
Lecture 38 - Coastal structures and environmental management
Lecture 39 - BOQ and Cost Estimate
Lecture 40 - Proposed Mega Terminal Chennai
Lecture 41 - Preliminary Project Report on Shipyard
Lecture 42 - Procedures & clearances before implementation of a project
Lecture 43 - Detailed project report
Lecture 44 - Environmental studies of a project
Lecture 45 - Design of pile
Lecture 46 - Design and construction of diaphragm wall
Lecture 47 - Empirical relationship between spt and several soil properties
Lecture 48 - Model studies for a deep water port_case study
NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Ocean Engineering - Seakeeping and Manoeuvring

Subject Co-ordinator - Prof. Debabrata Sen
Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Regular Water Waves - I
Lecture 2 - Regular Water Waves - II
Lecture 3 - Definition of Ship Motions & Encounter Frequency
Lecture 4 - Single Degree of Freedom Motions in Regular Waves
Lecture 5 - Uncoupled Heave, Pitch and Roll - I
Lecture 6 - Uncoupled Heave, Pitch and Roll - II
Lecture 7 - Uncoupled Heave, Pitch and Roll - III
Lecture 8 - Uncoupled Heave, Pitch and Roll - IV
Lecture 9 - Uncoupled Heave, Pitch and Roll - V
Lecture 10 - Coupled Motions
Lecture 11 - Irregular Waves
Lecture 12 - Description of Irregular Waves by Spectrum
Lecture 13 - Theoretical Wave Spectrum
Lecture 14 - Ship Motion in Irregular Waves - I
Lecture 15 - Ship Motion in Irregular Waves - II
Lecture 16 - Ship Motion in Irregular Waves - III
Lecture 17 - Description of Short-Crested Sea
Lecture 18 - Motions in Short-Crested Sea
Lecture 19 - Derived Responses & Dynamic Effects - I
Lecture 20 - Derived Responses & Dynamic Effects - II
Lecture 21 - Derived Responses & Dynamic Effects - III
Lecture 22 - Seakeeping Considerations in Design
Lecture 23 - Manoeuvring
Lecture 24 - Dynamic Equations of Motion - I
Lecture 25 - Dynamic Equations of Motion - II
Lecture 26 - Hydrodynamic Derivatives
Lecture 27 - Controls-Fixed Stability
Lecture 28 - Stability & Cotrollability
Lecture 29 - Definitive Manoeuvres - I

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Lecture 30 - Definitive Manoeuvres - II
Lecture 31 - Definitive Manoeuvres - III
Lecture 32 - Non-linear Equations of Motion
Lecture 33 - Non-linear Equations & Model Tests
Lecture 34 - Captive Model Tests and Experimental Determination of Hydrodynamic Derivatives
Lecture 35 - PMM Tests - I
Lecture 36 - PMM Tests - II
Lecture 37 - Rudder & Control Surfaces - I
Lecture 38 - Rudder & Control Surfaces - II
Lecture 39 - Theoretical Determination of Hydrodynamic Derivatives - I
Lecture 40 - Theoretical Determination of Hydrodynamic Derivatives - II
NPTEL Video Course - Ocean Engineering - Ship Resistance and Propulsion

Subject Co-ordinator - Dr. P. Krishnankutty, Prof. V. Anantha Subramanian

Co-ordinating Institute - IIT - Madras

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Lecture 1 - Syllabus and Introduction
Lecture 2 - Seaway Effects on Resistance
Lecture 3 - Ship Types and Powering Aspects
Lecture 4 - Frictional Resistance and Turbulence Stimulation
Lecture 5 - Wave Making Resistance
Lecture 6 - Bulbous Bow on Ship Resistance
Lecture 7 - Air and Wind Resistance Dimensional Analysis - I
Lecture 8 - Dimensional Analysis - II, Model Tests and Ship Resistance Prediction Methods - I
Lecture 9 - Model Tests and Ship Resistance Prediction Methods - II
Lecture 10 - Model Tests and Ship Resistance Prediction Methods - III
Lecture 11 - Resistance in Shallow Water
Lecture 12 - Canal Effects on Resistance Holtrap-Mennen Method for Ship Resistance Prediction
Lecture 13 - Ship Resistance Prediction Methods - I
Lecture 14 - Ship Resistance Prediction Methods - II
Lecture 15 - Resistance of Advanced Marine Vehicles - I
Lecture 16 - Resistance of Advanced Marine Vehicles - II
Lecture 17 - Resistance of Advanced Marine Vehicles - III

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NPTEL Video Course - Ocean Engineering - Strength and Vibration of Marine Structures

Subject Co-ordinator - Prof. S.K. Satsangi, Prof. A.H. Sheikh

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Ship Structures - I
Lecture 2 - Introduction to Ship Structures - II
Lecture 3 - Deflection of Structure Beam - I
Lecture 4 - Deflection of Structure Beam - II
Lecture 5 - Deflection of Structure Beam - III
Lecture 6 - Deflection of Structure Beam - IV
Lecture 7 - Statically Indeterminate Structures - I
Lecture 8 - Statically Indeterminate Structures - II
Lecture 9 - Statically Indeterminate Structures - III
Lecture 10 - Statically Indeterminate Structures - IV
Lecture 11 - Statically Indeterminate Structures - V
Lecture 12 - Statically Indeterminate Structures - VI
Lecture 13 - Longitudinal Bending of Hull Girder - I
Lecture 14 - Longitudinal Bending of Hull Girder - II
Lecture 15 - Longitudinal Bending of Hull Girder - III
Lecture 16 - Theory of Column - I
Lecture 17 - Theory of Column - II
Lecture 18 - Theory of Column - III
Lecture 19 - Theory of Column - IV
Lecture 20 - Calculation of Momentum of Inertia of Main Section
Lecture 21 - Bending in Inclined Condition
Lecture 22 - Calculation of Deflection/Shear Stress
Lecture 23 - Ship Vibration - I
Lecture 24 - Ship Vibration - II
Lecture 25 - Ship Vibration - III
Lecture 26 - Ship Vibration - IV
Lecture 27 - Ship Vibration - V
Lecture 28 - Propeller Induced Vibration & Hull Frequency Estimation
Lecture 29 - Hull Frequency Estimation from Basic Group (Continued...)

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Lecture 30 - Analysis of Bulkhead - I
Lecture 31 - Analysis of Bulkhead - II
Lecture 32 - Stress Concentration/Structural Discontinuities
Lecture 33 - Composite Construction
Lecture 34 - Method of Plastic Analysis
Lecture 35 - Calculation of Natural Frequency of Hull Girder
Lecture 36 - Hull Resonance Diagram
NPTEL Video Course - Ocean Engineering - Wave Hydrodynamics

Subject Co-ordinator - Prof. V. Sundar

Co-ordinating Institute - IIT - Madras

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Lecture 1 - Basic Fluid Dynamics - I
Lecture 2 - Basic Fluid Dynamics - II
Lecture 3 - Introduction
Lecture 4 - Wave Motion - I
Lecture 5 - Wave Motion - II
Lecture 6 - Wave Motion - III
Lecture 7 - Wave Motion Problems
Lecture 8 - Standing Wave Theory
Lecture 9 - Wave Deformation - I
Lecture 10 - Wave Deformation - II
Lecture 11 - Wave Deformation and Problems
Lecture 12 - Random Waves
Lecture 13 - Random Waves and Problems - I
Lecture 14 - Random Waves and Problems - II
Lecture 15 - Random Waves and Problems - III
Lecture 16 - Simulation of Random Waves
Lecture 17 - Directional waves
Lecture 18 - Wave Loads on Structures - I
Lecture 19 - Wave Loads on Structures - II
Lecture 20 - Wave Loads on Structures and Problems - I
Lecture 21 - Wave Loads on Structures and Problems - II
Lecture 22 - Wave loads on Large Boides
Lecture 23 - Finite Amplitude Wave Theories
Lecture 24 - Hydrodynamic Testing Facility
Lecture 25 - Hydrodynamic Testing Facility at IITM

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