Lectures of the Department of Civil Engineering

Subject Title:- **Theory of Structures**
Class:-Third Class

Lecture Contents	Lecture sequences	First lecture	Instructor Name: Dr.Oday
	The major contents : 1- Introduction		
	The detailed contents: 1- Introduction 2-Stability and determinacy of structures 3-Statically determinate beams 4-Statically determinate trusses 5-Statically determinate rigid frames and composite structures 6-Approximate analysis for statically indeterminate structures		

Lecture Contents	Lecture sequences	Second lecture	Instructor Name: Dr.Oday
	The major contents : 1- Introduction		
	The detailed contents: 1- Introduction 2-Stability and determinacy of structures 3-Statically determinate beams 4-Statically determinate trusses 5-Statically determinate rigid frames and composite structures 6-Approximate analysis for statically indeterminate structures		

<table>
<tr><td rowspan="2">Lecture Contents</td><td>Lecture sequences</td><td>Third lecture</td><td>Instructor Name: Dr.Oday</td></tr>
<tr><td colspan="3">The major contents :
1- Introduction</td></tr>
<tr><td colspan="4">The detailed contents:
1- Stability and determinacy of structures
• Statically determinate beams
• Statically determinate trusses
• Statically determinate rigid frames and composite structures
• Approximate analysis for statically indeterminate structures
• Elastic deformation of structures, conjugate-beam method
• Method of virtual work (unite-load method)
• Castigliano’s first theorem
• Analysis of statically indeterminate beam by the method of consistent deformations</td></tr>
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<table>
<tr><td rowspan="3">Lecture Contents</td><td>Lecture sequences</td><td>Fourth lecture</td><td>Instructor Name: Dr.Oday</td></tr>
<tr><td colspan="3">The major contents :
1- Analysis of statically indeterminate rigid frames and trusses by the method of consistent deformations</td></tr>
<tr><td colspan="3">The detailed contents:
1 Analysis of statically indeterminate beam by the method of least work
• Analysis of statically indeterminate rigid frames and trusses by the method of least work
• Analysis of statically indeterminate composite structures by the method of least work
• Analysis of statically indeterminate beams and rigid frames without joint translation by the slope-deflection method
• Analysis of statically indeterminaterigid frames with one,two and several degree of freedom of joint translation by the slope-deflection method
Fixed-end moment ,stiffness, distribution factor and distribution of external</td></tr>
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<tr><td rowspan="3">Lecture Contents</td><td>Lecture sequences</td><td>fifth lecture</td><td>Instructor Name: Dr.Oday</td></tr>
<tr><td colspan="3">The major contents :
1- Analysis of statically indeterminate rigid frames and trusses by the method of consistent deformations</td></tr>
<tr><td colspan="3">The detailed contents:
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• Analysis of statically indeterminate rigid frames and trusses by the method of least work
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<tr><td rowspan="3">Lecture Contents</td><td>Lecture sequences</td><td>sixth lecture</td><td>Instructor Name: Dr.Oday</td></tr>
<tr><td colspan="3">The major contents :
1- The process of locking and unlocking :one joint</td></tr>
<tr><td colspan="3">The detailed contents:
1- The process of locking and unlocking :two joint
• Analysis of statically indeterminate rigid frames with one degree of freedom of joint translation by moment distribution
• Analysis of statically indeterminate rigid frames with two degree of freedom of joint translation by moment distribution
• Analysis of statically indeterminate rigid frames with several degree of freedom of joint translation by moment distribution
• Influence line for statically determinate structures
• Moving concentrated loads: criteria for maxima</td></tr>
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<table>
<tr><td rowspan="3">Lecture Contents</td><td>Lecture sequences</td><td>seventh lecture</td><td>Instructor Name: Dr.Oday</td></tr>
<tr><td colspan="3">The major contents :
1- Absolute maximum bending moment</td></tr>
<tr><td colspan="3">The detailed contents:
1- Absolute maximum bending moment
• Influence line for statically indeterminate structure, Maxwell’s law, Betti’s law
• Influence lines as deflected structures: the Muller-Breslau principle
• Stiffness method in structure analysis .</td></tr>
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