

TCET/FRM/IP-02/09

Revision: A

**Semester Plan**  
**(Beyond curriculum Bridge Course)**

Semester: V

Course: MECH

**Subject: Introduction to FEA & Optimization technique**

**Class: TE (B)**

Sr. No	Module No.	Lesson No.	Topics Planned (Technology to be used)	Teaching Aids Required	Planned /Completion Date	Resource Book Reference /Online Courses	Remarks
1	M1	1.1	Introduction to FEA	Online Book, online Video	19-07-2018	1.1,2.1	
2	M1	1.2	Requirement FEA as a tool	Online Book, online Video	19-07-2018	1.1,2.1	
3	M1	1.3	FEA as a Numerical Method	Online Book, online Video	26-07-2018	2.1	
4	M1	1.4	Understanding the need of FEA in Industries	Online Book, online Video	27-07-2018	2.1	
5	M2	2.1	What do you mean by FEA & its Industrial Applications	Online Book, online Video	02-08-2018	2.2	
6	M2	2.2	Techniques in FEA, Basic elements & its Types	Online Book, online Video	03-08-2018	2.2	
7	M2	2.3	Why do FEA needs different types of elements	Online Book, online Video	09-08-2018	2.2	
8	M2	2.4	FEA: 2D Elements	Online Book, online Video	10-08-2018	2.2	
9	M3	3.1	Quality Checks for 2 D elements	Online Book, online Video	16-08-2018	2.3	

10	<b>M3</b>	3.2	FEA: 3D Elements	Online Book, online Video	23-08-2018	1.1,2,3	
11	<b>M3</b>	3.3	Element quality & check	Online Book, online Video	24-08-2018	2.3	
12	<b>M3</b>	3.4	DOF for solid Elements	Online Book, online Video	30-08-2018	1.1,2,3	
13	<b>M4</b>	4.1	What is Mesh	Online Book, online Video	31-08-2018	1.1,2.1,2.3	
14	<b>M4</b>	4.2	How to create Mesh	Online Book, online Video	06-09-2018	1.2,2.3	
15	<b>M4</b>	4.3	What is optimization	Online Book, online Video	07-09-2018	1.2, 2.3	
16	<b>M4</b>	4.4	Optimization Technique	Online Book, online Video	20-09-2018	2.3	
17	<b>M5</b>	5.1	What is structural optimization	Online Book, online Video	27-09-2018	2.3	
18	<b>M5</b>	5.2	Shape Optimization	Online Book, online Video	28-09-2018	2.3	
19	<b>M5</b>	5.3	Topology Optimization technique	Online Book, online Video	4-10-2018	2.2,2.3	
20	<b>M5</b>	5.4	Topography Optimization technique	Online Book, online Video	4-10-2018	2.2,2.3	
21	<b>M6</b>	6.1	Size optimization	Online Book, online	5-10-2018	2.3	

				Video			
22	<b>M6</b>	6.2	Shape optimization	Online Book, online Video	5-10-2018	2.4	
23	<b>M6</b>	6.3	Optimized analysis efficiency for optimum design	Online Book, online Video	11-10-2018	2.4	
24	<b>M6</b>	6.4	Case study on Optimization	Online Book, online Video	12-10-2018	2.4	
Remark:: Course:		Syllabus Coverage:		Practice Session:		Beyond Syllabus:	
No. of (lectures planned)/(lecture taken): 24							

**Reference Books:**

- 1.1 Seshu. P. “Textbook of Finite Element Analysis” Prentice Hall of India, 2003.
- 1.2 J.N. Reddy, “Finite Element Method” Tata McGraw Hill, 2003

**Digital Reference:**

- 2.1 <https://www.youtube.com/watch?v=O1yFhJOA8mQ>
- 2.2 <https://www.youtube.com/watch?v=8euY10iD-9g>
- 2.3 <http://www.midasnfx.com/Experience/tutorials.asp>
- 2.4 <http://www.midasnfx.com/Experience/fea-analysis-guide.asp>
- 2.5 [www.nptel.ac.in](http://www.nptel.ac.in)

Sd/-  
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 /Dean (Academics)