



# BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT

BENGALURU 560 064

## DEPARTMENT OF MECHANICAL ENGINEERING

<b>Open Course Title</b>	: “Industry Best Practices for Mechanical Engineers”
<b>Co-ordinator Name</b>	: Mr. Ananthakrishna. G. L
<b>Target Students from Branches</b>	: Mechanical Engineering
<b>Total duration of the course</b>	: 25 Hours.
<b>No. of Lecture hours</b>	: 10 Hrs
<b>No. of hands on / Practical</b>	: 15 Hrs

### Abstract

The Open course titled “Industry Best Practices for Mechanical Engineers” enable the students to gain an actual insight into the best practices that the industry follows when producing the component parts. The topics to be covered during the open course includes Preliminary design considerations, Detail design considerations, Stress checks for mechanical integrity, Vibration checks for structural integrity and Metal fatigue consideration for mechanical integrity. The course is a blend of theoretical concepts the students should know when they start to manufacture any component and followed by the usage of various software’s to check the stress and how to mitigate the effects of stress.

Also, the course covers a concept of Fatigue and factors involved in design for fatigue in mechanical engineering components. Thumb rules, best practices, fatigue design codes and simulation techniques followed by the industry practioners will also be explained in detail. By using the ANSYS software, the Fatigue life design applications, Fatigue tool life detection of welded joints, Stress and strain based techniques will also be covered.

The team of Design engineers / Industry practioners from Kshipra Simulations Pvt. Ltd, Bengaluru will be assisted in the hands-on practice sessions. This program will help to gain

invaluable knowledge to mechanical engineering students to understand the life cycle of a components and care to be taken during its production process.

### Open Course Details

**CO1:** Able to **Understand** the design considerations required in the industry.

**CO2:** Able to **Understand** the importance of Stress, Vibration and Fatigue in designing the various mechanical structures.

**CO3:** Able to **Analyze** the structural / mechanical integrity issues.

### Schedule

Day 1: 12/02/2019, Tuesday			
Time	Topics	Resource Person Details	CO-PO Mapping
9.30 AM to 1.00 PM	Introduction to Preliminary and Detail design consideration	Ananthakrishna. G. L Assistant Professor BMSIT&M	CO- 1 PO- 1. 2. 3
1.00 PM to 2.00 PM	LUNCH BREAK		
2.00 PM to 4.30 PM	Introduction to Stress concentration, its effects and way of mitigating it – Industrial approach	Mr. Srikanta Design Engineer Kshipra Simulations Pvt. Ltd	CO- 2 PO- 1. 2. 3, 5, 9, 10, 12
Day 2:13/02/2019, Wednesday			
Time	Topics	Resource Person Details	CO-PO Mapping
9.30 AM to 1.00 PM	Introduction to Vibration, adverse effects and Vibration monitoring techniques	Mr. Ananthakrishna G. L Assistant Professor BMSIT&M	CO- 2 PO- 1. 2. 3, 5, 9, 10, 12
1.00 PM to 2.00 PM	LUNCH BREAK		
2.00 PM to 4.30 PM	Vibration checks for structural integrity Hands on session	Mr. Srikanta Design Engineer Kshipra Simulations Pvt. Ltd	CO- 3 PO- 1. 2. 3, 5, 9, 10, 12

<b>Day 3:14/02/2019, Thursday</b>			
<b>Time</b>	<b>Topics</b>	<b>Resource Person Details</b>	<b>CO-PO Mapping</b>
9.30 AM to 1.00 PM	Fatigue: Importance, Fatigue failure analysis	Dr. H. K. Govindaraju Dean (student Affairs) BMSIT&M	CO- 2 PO- 1. 2. 3, 5, 9, 10, 12
1.00 PM to 2.00 PM	LUNCH BREAK		
2.00 PM to 4.30 PM	Fatigue life design applications, Fatigue tool life detection of welded joints using ANSYS	Mr. Jeevan Design Engineer Kshipra Simulations Pvt. Ltd	CO- 3 PO- 1. 2. 3, 5, 9, 10, 12
<b>Day 4:15/02/2019, Friday</b>			
<b>Time</b>	<b>Topics</b>	<b>Resource Person Details</b>	<b>CO-PO Mapping</b>
9.30 AM to 1.00 PM	Fatigue tool life detection of welded joints (Problem solving using Software)	Mr. Jeevan Design Engineer Kshipra Simulations Pvt. Ltd	CO- 3 PO- 1. 2. 3, 5, 9, 10, 12
1.00 PM to 2.00 PM	LUNCH BREAK		
2.00 PM to 4.30 PM	Fatigue design and simulation techniques	Mr. Jeevan Design Engineer Kshipra Simulations Pvt. Ltd	CO- 3 PO- 1. 2. 3, 5, 9, 10, 12
<b>Day 5 :16/02/2019, Saturday</b>			
<b>Time</b>	<b>Topics</b>	<b>Resource Person Details</b>	<b>CO-PO Mapping</b>
9.30 AM to 12.00 PM	Stress and strain based techniques to check structural integrity	Mr. Srikanta Design Engineer Kshipra Simulations Pvt. Ltd	CO- 3 PO- 1. 2. 3, 5, 9, 10, 12
12.00 PM to 12.45 PM	Feedback and Valedictory		