



## **DEPARTMENT OF MECHANICAL ENGINEERING**

### **BOARD OF STUDIES MEETING**

#### **Minutes of Meeting**

**DATE : 27<sup>th</sup> September 2023**

**VENUE : Industry 4.0 LAB**

**Time : 10:00 am to 4:00 pm**

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## **AGENDA FOR THE MEETING**

- ❖ **Agenda - 1** Approval of Syllabus for 5<sup>th</sup> and 6<sup>th</sup> Semester 2021- 2025 batch – 160 credits
- ❖ **Agenda - 2** Approval of scheme for 5<sup>th</sup> to 8<sup>th</sup> semester - 2021-2025 batch
- ❖ **Agenda - 3** Approval of Syllabus for 3<sup>rd</sup> and 4<sup>th</sup> Semester 2022- 2026 batch – 160 credits
- ❖ **Agenda - 4** Approval of scheme for 3<sup>rd</sup> to 8<sup>th</sup> semester - 2022-2026 batch
- ❖ **Agenda - 5** Workload, teaching hours and credits distribution.

## LIST OF MEMBERS

Sl. No	Category	Nomination of the committee	Name of the person	Designation & Affiliation
1	<b>Head of the Department</b>	<b>Chairperson</b>	Prof. Rakesh C	Professor & HoD - ME
2	<b>Special Invitees (one academician from Institution of National Eminence, IIT,NIT,IIM,IISC)</b>	1	Dr. Manjunatha	Principal, NHCE
		2	Dr. R J Anandhi	Dean Academics, NHCE
		3	Dr. M R Ramesh	Associate Professor, Mechanical Engineering Dept. NITK, Surathkal
3	<b>Faculty member at different level with different specialization</b>	<b>Members</b>		
		1	Dr. Srinath M K	Associate Professor
		2	Dr. Nagendra J	Associate Professor
		3	Dr. Sudarshan T A	Sr. Assistant Professor
		4	Dr. Adhikary P	Professor & Associate Head R&D Cell, NHCE
		5	Dr. Hemanth Raju T	Associate Professor
		6	Dr. Piyush Kumar Soni	Professor & Associate Head-R&D, NHCE
		<b>Members</b>		
4	<b>Subject expert from outside the college nominated by Academic Council</b>	<b>Members</b>		
		1	Dr. Shanmukha Nagaraj	Dean Academics, Professor, Dept., of Mechanical Engineering, RVCE, Bengaluru.

5	<b>Experts from outside the college nominated by VTU</b>	<b>Member</b>		
		1	Dr. Ranga Vittal	Professor, Mechanical Engineering Dept. BMSCE
6	<b>Representative from Industry / Corporate sector / allied area related to placements, nominated by Academic Council</b>	<b>Members</b>		
		1	Mr. N. R Shekar	Sr. Director, Caggemini Engineering, Bangalore
		2	Mr. Avinash R Sarvepalli	Caggemini Engineering, Bangalore
7	<b>Post Graduate meritorious alumni nominated by Principal</b>	<b>Members</b>		
		1	Shivana Gouda S Patil	Alumni, NHCE
		2	Mr. Aswajith	Alumni, NHCE
8	<b>Co-opted members</b>	<b>Members</b>		
		1	Dr. Bopanna K D	Placement Co-ordinator - ME
		2	Mr. Shivaprakash	Sr. Assistant Professor, NHCE
		3	Mr. Hanamant Yaragudri	Alumini Coordinator, NHCE
		4	Dr. Gopal K	Associate Professor, NHCE
		5	Dr. Nagabhushan N	Sr. Assistant Professor, NHCE

## LIST OF MEMBERS PRESENT

Sl. No.	Nomination of the committee	Name of the person	Affiliated To	Signature
1.	Chairperson	Prof. Rakesh C	Head of the Department, NHCE, Bangalore	
2.	Special Invitees	Dr. Manjunatha	Principal, NHCE, Bangalore	
3.	Special Invitees	Dr. R J Anandhi	Dean Academics, NHCE, Bangalore	
4.	Special Invitees	Dr. M R Ramesh	Associate Professor, Mechanical Engineering Dept. NITK, Surathkal	
5.	Subject expert from outside the college	Dr. Shanmukha Nagaraj	Dean Academics, Professor, Dept., of Mechanical Engineering, RVCE, Bengaluru.	
6.	VTU Nominee	Dr. Ranga Vittal	Professor, Mechanical Engineering Dept. BMSCE	
7.	Member	Dr. Srinath M K	NHCE, Bangalore	
8.	Member	Dr. Nagendra J	NHCE, Bangalore	
9.	BOS Coordinator and Member	Dr. Sudarshan T A	NHCE, Bangalore	
10.	Member	Dr. Adhikary P	NHCE, Bangalore	
11.	Member	Dr. Hemanth Raju T	NHCE, Bangalore	
12.	Member	Dr. Piyush Kumar Soni	NHCE, Bangalore	
13.	Representative from Industry	Mr. N. R Shekar	Sr. Director, Capgemini Engineering, Bangalore	
14.	Representative from Industry	Mr. Avinash R Sarvepalli	Capgemini Engineering, Bangalore	
15.	Post Graduate meritorious alumni	Shivana Gouda S Patil	Alumni, NHCE	
16.	Member	Dr. Bopanna K D	Placement Coordinator, NHCE, Bangalore	
17.	Member	Dr. Nagabhushan N	NHCE, Bangalore	
18.	Member	Mr. Raghu Tilak Reddy	NHCE, Bangalore	
19.	Member	Mr. Ravikumar M	NHCE, Bangalore	
20.	Member	Mr. Shiva Prakash	NHCE, Bangalore	
21.	Member	Mr. Hanamant Yaragudri	NHCE, Bangalore	
22.	Member	Dr. Gopal	NHCE, Bangalore	
23.	Member	Dr. Gayathri	NHCE, Bangalore	
24.	Member	Mr. Chethan Kumar	NHCE, Bangalore	
25.	Member	Mr. Gowthan	NHCE, Bangalore	
26.	Member	Mr. Sunil Prasanth	NHCE, Bangalore	
27.	Member	Mr. Sujith	NHCE, Bangalore	

## **WELCOME ADDRESS BY THE CHAIRMAN OF BOS**

### *Minutes*

The Board of Studies meeting for Department of Mechanical engineering was scheduled on 27-09-2023 at 10.00 AM in Industry 4.0 lab of Mechanical Engineering Department, NHCE.

At the outset, Chairperson Prof. Rakesh C – Professor & Head – Department of Mechanical Engineering, welcomed the Members for attending the Board of studies meeting held in Industry 4.0 lab via offline and online ( Blended) mode.

The chairperson expressed special thanks to Dr. Rangavittala H K, Professor, BMSCE, VTU Nominee and Subject expert from outside the college Dr. Shanmukha Nagaraj, Professor, RVCE, Bangalore, nominated by Academic Council for sparing the time from their busy schedule to attend the meeting.

The chairperson also expressed his gratitude to Dr. M R Ramesh, Associate Professor, Mechanical Engineering Dept.NITK, Surathkal who was special Invitee

The meeting was also attended by Dr. R J Anandhi, Dean-Academics, NHCE and BOS members from Mechanical department with different specializations.

### **AGENDA - 1**

**TITLE** **Approval of Syllabus for 5<sup>th</sup> and 6<sup>th</sup> Semester 2021- 2025 batch - 160 credits**

Discussion on Syllabus of 5<sup>th</sup> and 6<sup>th</sup> Semester courses of 160 credits program was deliberated by the respective course coordinators.

This agenda was unanimously approved by the members with few suggestions/ recommendations

### **AGENDA - 2**

**TITLE** **Approval of scheme for 5<sup>th</sup> to 8<sup>th</sup> semester - 2021-2025 batch**

Discussion on scheme of 5<sup>th</sup> to 8<sup>th</sup> semester of 160 credit program was presented by Prof. Rakesh C.

This agenda was unanimously approved by the members with few suggestions/ recommendations.

### **AGENDA – 3**

**TITLE** **Approval of Syllabus for 3<sup>rd</sup> and 4<sup>th</sup> Semester 2022- 2026 batch – 160 credits**

Discussion on Syllabus of 3<sup>rd</sup> and 4<sup>th</sup> Semester courses of 160 credits program(2022-26 batch) was deliberated by the respective course coordinators.

This agenda was unanimously approved by the members with few suggestions/ recommendations

### **AGENDA – 4**

**TITLE** **Approval of scheme for 3<sup>rd</sup> to 8<sup>th</sup> semester - 2022-2026 batch**

Discussion on scheme of 3<sup>rd</sup> to 8<sup>th</sup> semester of 160 credit program(2022-26 batch) was presented by Prof. Rakesh C. This agenda was unanimously approved by the members with few suggestions/ recommendations

### **AGENDA – 5**

**TITLE** **Workload, Teaching hours and credits distribution.**

Prof. Rakesh C, Professor and HOD of Department of Mechanical Engineering discussed the Workload, Teaching hours and credits distribution with all the Internal / External members. They gave some suggestions/recommendations.

### **VOTE OF THANKS BY THE CHAIRMAN OF BOS**

The Chairman – BoS, Prof. Rakesh C thanked the external members, industry representative, Alumni representative for their fruitful participation on behalf of the Principal and the Management. He also thanked all the other members of the BOS and course coordinators for their active participation. The meeting was concluded at 4:00 pm.



## **RECOMMENDATIONS / SUGGESTIONS OF BOS MEMBERS**

- ❖ In 2021-2025 batch scheme mini project of 1 credit, if outcome is expected then the number of credits given is less
- ❖ Fundamentals of mathematics can be included in few subjects
- ❖ Control engineering and mechanical vibrations courses can be taught as mandatory course
- ❖ In MTMD lab in one of the CO they suggested to change the word synthesis
- ❖ Suggested to include codes and standards as a introductory part in DME subject
- ❖ Suggested to include sustainability studies in industrial waste management course.
- ❖ Electric vehicles and battery management subject can be offered as multidisciplinary course.
- ❖ In air pollution control course, they suggested to look in to the experiments that are of demonstration.
- ❖ In innovation and design thinking course importance on product design to be given
- ❖ Suggested to include just in time concept related to time in ORM subject
- ❖ Suggested to include vector matrix in FEM course
- ❖ In mechanics of materials course, they suggested to think about thermal stresses numerical
- ❖ In advanced python programming course in CO list CO3 and CO4 are same, need to be changed
- ❖ In computer aided machine drawing using CATIA course, CATIA word can be removed, time allocation to be rechecked
- ❖ In Tools for energy system design course demonstration should be as part C and evaluation of these demonstration is required also they suggested to reframe the COs.

## **IMPLEMENTATION OF RECOMMENDATION OF BOS MEMBERS**

The chairperson constituted the following faculty to review and implement the recommendations of the BOS members in the scheme and syllabus of the curriculum based on industry needs.

The faculties have reviewed the curriculum and affected the changes regarding issues raised by external BOS members

**2022-2026 batch****3<sup>rd</sup> semester**

Sl No	Faculty	Subject	Subject code
1	Prof. Hanamant	Mechanics of Materials(Theory and Lab)	22MEE32/22MEL32
2	Dr. Sudarshan	Fluid Mechanics and Machinery(Theory and Lab)	22MEE33/22MEL33
3	Dr. Srinath	Bio Inspired Design	22BIK36
4	Dr. Gayathri	Social Connect and Responsibility	22SCK38
<b>Engineering Science Course / Emerging Technology Course/ Programming Language Course</b>			
1	Dr. Bopanna	Object oriented programming using Java	22MEE341
2	Dr. Nagendra	Advanced python Programming	22MEE342
3	Dr. Gayathri	Introduction to AI	22MEE343
4	Dr. Nagendra	EDA(Exploratory Data Analysis) using Modern Tools	22MEE344
<b>Ability Enhancement Course</b>			
1	Dr. Nagabhushan	Computer Aided Machine Drawing using CATIA(0-0-1-0)	22MEE351
2	Prof. Rajesh	Excel in MS Excel[0-0-1-0]	22MEE352
3	Prof. Shivaprakash	Tool Engineering(1-0-0-0)	22MEE353
4	Dr. Nagabhushan	Industrial Waste Management(1-0-0-0)	22MEE354

**4<sup>th</sup> semester**

Sl No	Faculty	Subject	Subject code
1	Dr. Sudarshan	Engineering Thermodynamics(Theory and Lab)	22MEE42/22MEL42
2	Prof. RTR	Manufacturing Technology(Theory and Lab)	22MEE43/22MEL43
3	Prof. Rajesh	Mechanical Measurements and Metrology(Theory and Lab)	22MEE44/22MEL44
4		Universal Human Values Course	22UHK48
<b>Engineering Science Course / Emerging Technology Course / Programming Language Course</b>			
1	Dr. Gayathri	Programming for IoT	22MEE451
2	HoD sir	Essential of cyber security	22MEE452
3	Dr. Gayathri	Introduction to Machine learning	22MEE453
4	Prof. RTR	Robotic Programming	22MEE454
<b>Ability Enhancement Course</b>			
1	Prof. Ravi Kumar	Mat Lab for Mechanical Engineers (0-0-1-0)	22MEE461
2	Prof. Gowtham	Disaster Management(0-0-1-0)	22MEE463
3	Dr. Gopal	Energy management and auditing(0-0-1-0)	22MEE462
4	Prof Sunil	Air Pollution Control(1-0-0-0)	22MEE464

2021-2025 batch.

5th sem

- |   | Subject code    | credits |
|---|-----------------|---------|
| 1. MTMD (Theory & Lab) - Dr. HRT                  | 21MEK51/21MEL51 | 3cr/1cr |
| 2. CIM (Theory & Lab) - Prof. Sujith              | 21MEE52/21MEL52 | 3cr/1cr |
| 3. Machine Design - Dr. Nagendra                  | 21MEK53         | 3cr     |
| 4. Research Methodology and IPR - Prof. Chethan   | 21MEK57         | 1cr     |
| 5. Innovation and Design Thinking - Mrs. Chethana | 21MEK58         | 1cr     |

Professional Elective-1 (3cr)

1. Mechatronics System Design → 21MEK541 → Prof. Sunil
2. Statistics for Engineers → 21MEE544 → Dr. Bopanna
3. Non Destructive Testing → 21MEE542 → Prof. Shivaprakash
4. Electric Vehicles and Battery Management System → 21MEE545  
Dr. Piyush Soni
5. Industrial waste Management → 21MEE543 → Dr. Nagabhushan

Ability Enhancement Courses (1cr)

1. Energy Engineering → 21MEL551 → Prof. Ravikumar Gopal
2. Sustainable energy systems Design → 21MEL552 → Dr. Nagabhushan
3. Air pollution control → 21MEL553 → Prof. Sunil
4. Tools for Energy systems design and drafting → 21MEL554 → Dr. Nagabhushan
5. Advanced semiconductor Materials and its Applications → 21MEL555  
↓

6th sem

1. Operation Research & Management → 21MEK61 → 3cr → Prof. Gowtham
2. Fundamentals of Heat Transfer (Theory & Lab) → 21MEE62/21MEL62 → 3cr/1cr  
Dr. Sridharan
3. FEM (Theory & Lab) → 21MEE63/21MEL63 → 3cr/1cr → Dr. HRT
4. Social connect & Responsibility → 21MEK65 → 1cr → Dr. Gayathri

Professional Elective Courses (3cr)

1. Emerging Automotive Technology → 21MEE641 → Prof. Shivaprakash
2. Smart materials and Intelligent System Design → 21MEE644 → Dr. Veeresh
3. Machine Learning for Mechanical Engineers → 21MEE642 → Dr. Gayathri
4. Introduction to cyber security → 21MEE645 → HOD Sir.
5. Control Engineering → 21MEE643 → Dr. Bopanna.

## **APPROVAL OF SCHEME & SYLLABUS OF SECOND YEAR COURSES(2022-26 Batch)**

The Board of Studies members reviewed the modified draft of the scheme & syllabus with their recommendations/suggestions being incorporated appropriately.

Finally, the members approved the draft of the same with the modifications for final implementation.

<b>SUBJECT CODE</b>	<b>SUBJECT</b>	<b>% Additions / Deletions in Modules</b>	<b>Proposed Experiential Learning in the Modules</b>	<b>Industrial inputs in the Modules</b>	<b>Percentage change in the syllabus</b>
22MEE351	Computer Aided Machine Drawing using CATIA	20%	Case Study	Surface modelling	20%
22MEE33	Fluid Mechanics and Machinery	20%	Case Study	Hands on Experience with real time examples	20%
22MEL33	Fluid Mechanics and Machinery Lab	20%	Experiments related to Pumps and Turbines	Power generation Methods	20%
22MEE32	Mechanics of Materials	10%	Case study	MAT Lab introduction in assignments	10%
22MEL32	Mechanics of Materials Lab	30%	Case study	Study of NDT and DT tests	30%
22MEE44	Mechanical Measurements and Metrology	15%	Industrial Visit	Plant Visit	15%
22MEL44	Mechanical Measurements and Metrology Lab	10%	Case study	Study of surface roughness	10%
22MEE42	Engineering Thermodynamics	10%	Case Study	Plant Visit	10%
22MEL42	Engineering Thermodynamics Lab	10%	Cut-open section study of 4-stroke and 2-stroke Engine Parts	Software Tool for performance analysis	10%
22MEE43	Manufacturing Technology	20%	Case Study	Industrial Visits	20%
22MEL43	Manufacturing Technology Lab	20%	Case Study	Industrial Visit	20%

## APPROVAL OF SCHEME & SYLLABUS OF SECOND YEAR COURSES(2021-25 Batch)

The Board of Studies members reviewed the modified draft of the scheme & syllabus with their recommendations/suggestions being incorporated appropriately.

Finally, the members approved the draft of the same with the modifications for final implementation

SUBJECT CODE	SUBJECT	% Additions / Deletions in Modules	Proposed Experiential Learning in the Modules	Industrial inputs in the Modules	Percentage change in the syllabus
21MEE51	Machine Theory & Mechanism Design	20%	Case study	simulation	20%
21MEL51	Machine Theory & Mechanism Design Lab	20%	Case study	simulation	20%
21MEE52	Computer Integrated Manufacturing	15%	Case study	simulation	15%
21MEL52	Computer Integrated Manufacturing Lab	10%	Case study	simulation	10%
21MEE53	Machine Design	20%	Case study	Design with material selection	20%
21MEE61	Operation Research and Management	20%	Case study	Numerical validation	20%
21MEE62	Fundamentals of Heat Transfer	10%	Case Study	Thermal Plant Visit	10%
21MEL62	Fundamentals of Heat Transfer Lab	10%	Heat exchangers	Software Tool for analysis	10%
21MEE63	Finite Element Methods	15%	Case study	simulation	15%
21MEL63	Finite Element Methods Lab	10%	Case study	simulation	10%
21MEE643	Control Engineering	15%	Case study	simulation	15%

## GLIMPSES OF OFFLINE/ONLINE BOS MEETING

