

# **Department of Mechanical Engineering**

**MINUTES of 21<sup>th</sup> Meeting of Board of Studies held on  
18<sup>th</sup> May, 2024 at 10.30 a.m.**

Venue: Smart Class Room,  
Department of Mechanical Engineering  
National Engineering College

**National Engineering College, K.R.Nagar, Kovilpatti – 628 503**  
*(An Autonomous Institution - Affiliated to Anna University, Chennai)*  
[www.nec.edu.in](http://www.nec.edu.in)

**National Engineering College, K.R.Nagar, Kovilpatti – 628 503**  
(An Autonomous Institution · Affiliated to Anna University, Chennai)

F. No. 1-1/NEC/ MECH

21<sup>st</sup> May, 2024

Dear Sir,

**Sub: Minutes of the 21<sup>st</sup> Board of Studies meeting for Mechanical Engineering - Reg.**

Kindly find attached herewith the Minutes of the Board of Studies meeting for Mechanical Engineering of National Engineering College, K.R.Nagar, Kovilpatti – 628503 held on 18<sup>th</sup> May, 2024 at 10.30 a.m.in Smart Class Room, Department of Mechanical Engineering, National Engineering College.

It is requested that comments on the Minutes of Board of Studies meeting, if any, may please be sent by email to [hodmech@nec.edu.in](mailto:hodmech@nec.edu.in), at the earliest. If no comments are received, within ten days, the Minutes shall be taken as confirmed.

Yours Sincerely,

  
Chairman 21/5/24.  
Board of Studies

**National Engineering College, K.R.Nagar, Kovilpatti– 628503**  
(An Autonomous Institution -Affiliated to Anna University, Chennai)  
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**21<sup>st</sup> Board of Studies Meeting**  
**Department of Mechanical Engineering**

Venue: Smart Class Room,  
Department of Mechanical Engineering  
National Engineering College

Date & Time: 18.05.2024 & 10.30 a.m.

**AGENDA**

BoS / MECH 20.1	:	Welcome address and Opening Remarks by Chairman, Board of Studies, Department of Mechanical Engineering
BoS / MECH 20.2	:	Action taken report on minutes of 20 <sup>th</sup> Board of Studies meeting.
BoS / MECH 20.3	:	Business brought forward by the Chairman, Board of studies
	20.3.1	B.E. Mechanical Engineering Programme – Syllabus for IV semester core courses under R2023.
	20.3.2	B.E. Mechanical Engineering Programme– Syllabus for few elective courses under R2023.
	20.3.3	Curriculum Design document for the courses in semester 1,2,3 under R2023
BoS / MECH 20.4	:	Suggestions given by the BOS Members
BoS / MECH 20.5	:	Any other items

**National Engineering College, K.R.Nagar, Kovilpatti – 628 503**  
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**Department of Mechanical Engineering**

**MINUTES OF THE MEETING**

The 21<sup>st</sup> Board of Studies meeting of the Mechanical Engineering was held on 18<sup>th</sup> May, 2024 at 10.30 a.m.in Smart Class Room, Department of Mechanical Engineering, National Engineering College, K.R.Nagar, Kovilpatti – 628 503

1. The following members were present

1.	<b>Dr.S.Iyahraja,</b> Professor & Head, Department of Mechanical Engg.	Chairman
2.	<b>Dr.K.Srithar,</b> Professor, Department of Mechanical Engineering, Thiagarajar College of Engineering, Madurai – 625015.	University Nominee
3.	<b>Dr. M. Venkata Ramanan,</b> Professor & Director Institute for Energy Studies, CEG, Anna University, Chennai – 600025	Academic Experts
4.	<b>Dr. C.Prathap,</b> Professor / Aerospace Engg, Indian Institute of Space Science & Tech., Thiruvananthapuram.	
5.	<b>Dr. N.Siva Shanmugam,</b> Associate Professor / Mechanical Engg., NIT Trichy.	
6.	<b>Dr. K.Hariharan,</b> Associate Professor / Mechanical Engineering, IIT Madras.	
7.	<b>Dr. D. P. Sudhakar</b> Deputy Director ISRO - Indian Space Research Organization Mahendragiri, Triunelveli District.	R & D Expert
8.	<b>Mr. Monickavasagom Pilai,</b> Senior Principal Scientist, CSIR –National Aerospace Laboratories, Bangalore.	Meritorious Alumnus Nominated by the Principal
9.	<b>Mr. V. Hari Babu</b> Senior Vice President, Head of Engineering (Aero) & DOA Delegations Responsible, AXISCADES Technologies Ltd., Bangalore.	Industrial Experts

10.	<b>Mr. S. Ravikumar</b> Associate Vice President, Department Head – Cab Chassis (TA/PCX) Daimler India Commercial Vehicles Pvt. Ltd Kancheepuram District – 602105, Tamil Nadu	
11.	<b>Mr. Arcot Thanjan Paary,</b> Deputy General Manager (DGM), Mechanical – Static Dept., Larsen & Toubro (L&T) Limited, Chennai	
12.	<b>Mr. S.Balaji,</b> Assistant General Manager, Hyundai Motor India Limited, Chennai.	
13.	Dr. D. Venkat Kumar, Professor / Mechanical Engineering	Internal Members
14.	Dr. M. Kathiresan, Professor / Mechanical Engineering	
15.	Dr. R. Harichandran, Professor / Mechanical Engineering	
16.	Dr. P. Ramanan, Associate Professor / Mechanical Engineering	
17.	Dr. I. Sankar, Associate Professor / Mechanical Engineering	
18.	Dr. D. Vignesh Kumar, Associate Professor / Mechanical Engineering	
19.	Dr. F. Michael Thomas Rex, Associate Professor / Mechanical Engineering	
20.	Dr.R.Vignesh Kumar Assistant Professor (S.G) / Mechanical Engineering	
21.	Mr. A. Andrews Assistant Professor (S.G) / Mechanical Engineering	
22.	Mr. K. Thoufiq Mohammed, Assistant Professor (S.G) / Mechanical Engineering	
23.	Mr. K. Sudalaiyandi, Asst. Professor Assistant Professor / Mechanical Engineering	
24.	Mr. R. Jaya Venkatesh Assistant Professor / Mechanical Engineering	
25.	Mr. C. Veera Ajay, Assistant Professor / Mechanical Engineering	
26.	Dr. T. Sakthi, Asst. Professor (SG) Assistant Professor (S.G) / Humanities	
27.	V.Dhanush, III Year / Mechanical Engineering	Student Members
28.	G. Sathya seelan, II Year / Mechanical Engineering	
29.	D. Benial Raven, II Year / Mechanical Engineering	

2. The following members could not attend the meeting due to unavoidable reasons and they were granted leave of absence.

1. **Mr. K. Subramanian,**  
Team Lead,  
ELGI Equipments Limited,  
Coimbatore.
2. **Mr. S.Manikandan,**  
Senior Engineer,  
Rolls-Royce Power Systems,  
Pune

Industrial  
Expert

BoS / MECH21.1	: WELCOME ADDRESS AND OPENING REMARKS BY CHAIRMAN, BOARD OF STUDIES, DEPARTMENT OF MECHANICAL ENGINEERING
	: The Chairman, BOS of the Mechanical Engineering welcomed and introduced the members of 21 <sup>st</sup> Board of Studies and thanked each one of them for sparing their valuable time to attend the meeting.
BoS / MECH 21.2	: TO APPROVE THE ACTION TAKEN REPORT OF THE MINUTES OF TWENTIETH BOS MEETING HELD ON 02 <sup>nd</sup> December, 2023.
	: The minutes of the Twentieth Board of Studies meeting held on 02 <sup>nd</sup> December, 2023 were communicated to the members.  The comments given by the members have been incorporated and placed for confirmation. The same was approved by the 20 <sup>th</sup> Academic council.  The action taken report of the Twentieth Board of Studies meeting held on 02 <sup>nd</sup> December, 2023 has been presented and the same has been approved in the 21 <sup>st</sup> Board of Studies meeting.

		(Enclosed in Annexure – I)
BoS / MECH 21.3.1	:	TO CONFIRM AND APPROVE Syllabus of IV semester core courses for B.E. - Mechanical Engineering under R 2023.  (Enclosed in Annexure – II)
BoS / MECH 21.3.2	:	TO CONFIRM AND APPROVE Syllabus of few elective courses for B.E. – Mechanical Engineering under R 2023.  (Enclosed in Annexure – III)
BoS / MECH 21.3.3	:	TO CONFIRM AND APPROVE Curriculum design documents for the courses of semester I, II, and III for UG Degree Programmes under R 2023.  (Enclosed in Annexure – IV)
BoS / MECH 21.4	:	Suggestions Given by the Members
21.4.1		<p><u>Curriculum Structure</u></p> <ul style="list-style-type: none"> <li>• The course “Industrial Engineering and Project Management and finance” presently kept at semester IV. The expert members suggested to move the same course to higher semester.</li> <li>• Also it is suggested that to have the course “Kinematics of Machinery” after the course “Strength of Materials” for the better understanding.</li> <li>• The course name for “23ME81C – Capstone Project/ Industry Practice” may be changed as “23ME81C – Capstone Project / Industry / Institution Practice”.</li> <li>• The expert members suggested that practical component COs may be included along with theory component COs. However, the internal members explained that practical component COs are included only for the evaluation purpose.</li> </ul>

		<ul style="list-style-type: none"> <li>• In reference book include NPTEL course video link for all the courses.</li> </ul>
21.4.2	:	<u>Project Management and Finance</u> <ul style="list-style-type: none"> <li>• In CO2 specific evaluation techniques can be added.</li> <li>• The topics “PERT and CPM’ need to be delivered in specific to the programme (application oriented).</li> </ul>
21.4.3	:	<u>Industrial Engineering</u> <ul style="list-style-type: none"> <li>• For all COs rephrase the content to make it crisp and clear.</li> </ul>
21.4.4	:	<u>Machining Processes</u> <ul style="list-style-type: none"> <li>• Reduce the detailed theory content like Types of Machining, Types of milling Introduction etc.</li> </ul>
21.4.5		<u>Thermal Engineering</u> <ul style="list-style-type: none"> <li>• Remove the content “Boiler Mountings and Accessories” from CO2 considering the contact hours.</li> <li>• Similarly remove the topic “Adiabatic Mixing” from CO4.</li> </ul>
21.4.6	:	<u>Strength of Materials</u> <ul style="list-style-type: none"> <li>• Include the book “Strength of Materials” authored by ‘R.S.Khurmi’.</li> </ul>
21.4.7	:	<u>Machine Drawing</u> <ul style="list-style-type: none"> <li>• Include the following contents <ol style="list-style-type: none"> <li>1. How to convert 2D to 3D</li> <li>2. Auto CAD 3D (Simple Components)</li> </ol> </li> <li>• Include the book “Engineering Drawing Practice for schools &amp; Colleges - SP46:2003” published by BUREAU OF INDIAN STANDARDS.</li> <li>• Maintain uniform format for Text book and reference book.</li> </ul>



21.4.8	:	<p><b><u>System Modelling</u></b></p> <ul style="list-style-type: none"> <li>• An introduction to Simulink (MATLAB-based graphical programming environment for modelling) may be given during the course.</li> <li>• Instead of going for spring – damper model focus may be given to simple mathematical models.</li> <li>• Simple heat transfer equation can be added for mathematical models.</li> <li>• Similarly, simple Fluid Mechanics problems can be included.</li> </ul>
21.4.9	:	<p><b><u>Product Design &amp; Development</u></b></p> <ul style="list-style-type: none"> <li>• Course name can be changed to “Product Design &amp; Development strategies” from “Product Design &amp; Development”.</li> <li>• In CO4 add the topic “Shape, Size optimization”.</li> <li>• Include the topic “concurrent Engineering”.</li> </ul>
21.4.10	:	<p><b><u>Hydraulics and Pneumatics</u></b></p> <ul style="list-style-type: none"> <li>• Include the topic “performance of centrifugal pump”.</li> <li>• In experiential learning hands on experience on Valves can be added.</li> </ul>
21.4.11	:	<p><b><u>Introduction to Robotics</u></b></p> <ul style="list-style-type: none"> <li>• Course name can be changed to “Industrial Robotics”.</li> <li>• In CO3 include the topic “Transducers” and reduce the content for the topic “sensors”.</li> <li>• Include the topic “Payload Calculation”</li> </ul>
21.4.12	:	<p><b><u>Power Plant Engineering</u></b></p> <ul style="list-style-type: none"> <li>• In CO2 remove the topic “Micro hydel power plant” as it can be integrated with hydel power plant.</li> </ul>

	<ul style="list-style-type: none"> <li>• Revise the content for CO3 completely.</li> <li>• For CO4 all basic power plants can be included after revising the CO which may address Renewable energy based Power Plants.</li> </ul>
21.4.13	<p><u>Unconventional Machining Process</u></p> <ul style="list-style-type: none"> <li>• Course name can be changed to “Advanced Machining Processes”.</li> <li>• In CO3 include the topic “Micro Wire cut EDM”.</li> </ul>
21.4.14	<p><u>Curriculum design document</u></p> <ul style="list-style-type: none"> <li>• Course description should be given in the beginning of the course itself i.e., before the course outcomes</li> </ul>


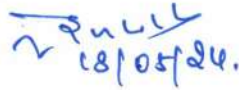


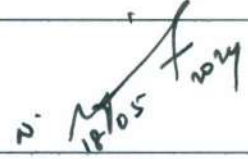




The members had a brainstorming discussion and interaction among themselves. After discussion, fruitful suggestions were incorporated appropriately in the IV semester core course syllabus and Elective course syllabus of B.E. Mechanical Engineering Programme under R 2023.




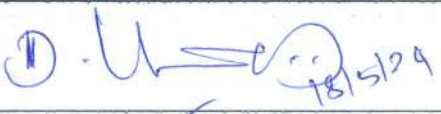
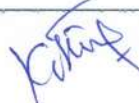

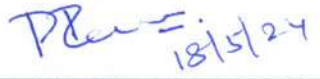





After discussion, BoS resolved to recommend the syllabus for the IV semester core courses prescribed for Mechanical Engineering (Annexure II) under Regulation 2023, Syllabus for presented elective courses prescribed for other U.G. Programmes (Annexure III) under Regulation 2023, Curriculum design document of courses in Semester I, II and III (Annexure IV) under R2023 after carry out the modifications suggested by the members.

Based on the suggestions given by the members, BoS resolved to recommend the Syllabus for the core courses for IV semester, few elective courses in verticals and Curriculum design document of courses in Semester I, II and III under Regulation 2023 to the Academic Council for further approval.

Dr.D.Venkat Kumar, Professor / Mechanical Engineering proposed vote of thanks for their kind cooperation and the meeting came to an end.

## Members Present

CHAIRMAN	
Dr. S. Iyahraja, Professor & Head, Mechanical Engg.	
UNIVERSITY NOMINEE	
Dr. K. Srithar, Professor, Department of Mechanical Engineering, Thiagarajar College of Engineering, Madurai – 625015.	
ACADEMIC EXPERT	
Dr. M. Venkata Ramanan, Professor & Director Institute for Energy Studies, CEG, Anna University, Chennai – 600025	
Dr. C. Prathap, Professor / Aerospace Engg, Indian Institute of Space Science & Tech., Thiruvananthapuram.	
Dr. N. Siva Shanmugam, <del>Associate</del> Professor / Mechanical Engg., NIT Trichy.	
Dr. K. Hariharan, Associate Professor / Mechanical Engineering, IIT Madras.	
RESEARCH & DEVELOPMENT EXPERT	
Dr. D. P. Sudhakar Deputy Director ISRO - Indian Space Research Organization Mahendragiri, Triunelveli District.	
MERITORIOUS ALUMNUS NOMINATED BY THE PRINCIPAL	
Mr. Monickavasagom Pilai, <del>Senior</del> <sup>Chief</sup> Principal Scientist, CSIR –National Aerospace Laboratories, Bangalore.	
INDUSTRIAL EXPERTS	
Mr. V. Hari Babu Senior Vice President, Head of Engineering & DOA Delegations Responsible AXISCADES Technologies Ltd Bengaluru, Karnataka - 560024	

Mr. S. Ravikumar Associate Vice President, Department Head – Cab Chassis (TA/PCX) Daimler India Commercial Vehicles Pvt. Ltd Kancheepuram District – 602105, Tamil Nadu	
Mr. Arcot Thanjan Paary, Deputy General Manager (DGM), Mechanical – Static Dept., Larsen & Toubro (L&T) Limited, Chennai	 A.T. PAARY 18/05/24.
Mr. S. Balaji, Assistant General Manager, Hyundai Motor India Limited, Chennai.	 S. BALAJI 18/05/2024.
<b>INTERNAL MEMBERS</b>	
Dr. D. Venkat Kumar, Professor / Mechanical Engineering	 18/5/24
Dr. M. Kathiresan, Professor / Mechanical Engineering	
Dr. R. Harichandran, Professor / Mechanical Engineering	
Dr. P. Ramanan, Associate Professor / Mechanical Engineering	 18/5/24
Dr. I. Sankar, Associate Professor / Mechanical Engineering	
Dr. D. Vignesh Kumar, Associate Professor / Mechanical Engineering	
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Mr. A. Andrews Assistant Professor (S.G) / Mechanical Engineering	
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