

Department of Mechanical Engineering

MINUTES of 19th Meeting of Board of Studies held on
01st July, 2023 at 10.30 a.m.

**Venue: Conference Hall,
National Engineering College**

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

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19th Board of Studies Meeting
Department of Mechanical Engineering

Venue: Conference Hall,
National Engineering College

Date & Time: 01.07.2023 & 10.30 a.m.

AGENDA

BoS / MECH19.1	:	Welcome address and Opening Remarks by Chairman, Board of Studies, Department of Mechanical Engineering
BoS / MECH19.2	:	Action taken report of 18 th meeting of Board of Studies
BoS / MECH19.3	:	Business brought forward by the Chairman, Board of studies
	19.3.1	R2023 Curriculum Structure for B.E Mechanical Engineering.
	19.3.2	R2023 - I semester Syllabus for B.E Mechanical Engineering.
	19.3.3	R2023 - I semester Syllabus for other U.G. programmes.
	19.3.4	R2023 - Curriculum Structure for M.E Energy Engineering.
	19.3.5	R2023 - I semester Syllabus for M.E Energy Engineering.
BoS / MECH19.4	:	Suggestions given by the BOS Members
BoS / MECH19.5	:	Any other items

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

F. No. 1-1/NEC/ MECH

01st July, 2023

Dear Sir/Madam,

Sub: Minutes of the 19th Board of Studies meeting for Mechanical Engineering - Reg.

Kindly find attached herewith the Minutes of the 19th Meeting of Board of Studies of Mechanical Engineering of National Engineering College, K.R.Nagar, Kovilpatti – 628503 held on 01st July 2023 at 10.30 a.m.in Conference Hall, National Engineering College.

It is requested that comments on the Minutes, if any, may please be sent by email to hodmech@nec.edu.in, at the earliest. If no comments are received, within ten days, the Minutes shall be taken as confirmed.

Yours Sincerely,


(Dr. S. Iyahraja)

Dr. S. IYAHRAJA M.Tech, (IITM), Ph.D.,
Professor & Head,
Dept. of Mechanical Engineering,
National Engineering College,
K.R. Nagar, Kovilpatti - 628 503.

National Engineering College, K.R.Nagar, Kovilpatti – 628 503

(An Autonomous Institution - Affiliated to Anna University, Chennai)

Department of Mechanical Engineering

MINUTES OF THE MEETING

The 19th Board of Studies meeting of the Mechanical Engineering was held on 01st July 2023 at 10.30 a.m. in the Conference Hall, National Engineering College, K.R.Nagar, Kovilpatti – 628 503

1. The following members were present

1.	Dr.S.Iyahraja, Professor & Head, Department of Mechanical Engg.	Chairman
2.	Dr.K.Srithar, Professor, Department of Mechanical Engineering, Thiagarajar College of Engineering, Madurai – 625015.	University Nominee
3.	Dr. M. Venkata Ramanan, Professor & Director Institute for Energy Studies, CEG, Anna University, Chennai – 600025	Academic Experts
4.	Dr.-Ing. M. Duraiselvam, Professor, Department of Production Engineering, National Institute of Technology, Trichy - 620015	
5.	Dr. K. Murugan, Scientist –E, Centre for Sol-Gel Coatings, ARCI, Hyderabad – 500 005, Telangana.	Meritorious Alumnus Nominated by the Principal
6.	Mr. R. Kanda Subburaj Managing Director, Gulf Asia Engineering and Projects Pvt. Ltd., Chennai - 600058	Industrial Experts
7.	Mr. V. Hari Babu Senior Vice President, Head of Engineering & DOA Delegations Responsible AXISCADES Technologies Ltd. Bengaluru, Karnataka - 560024	
8.	Mr. S. Ravikumar Associate Vice President, Department Head – Cab Chassis (TA/PCX) Daimler India Commercial Vehicles Pvt. Ltd. Kancheepuram District - 602105	

9.	Mr. Sivaram Sundaram, Senior Director, Comcast India Engineering Centre, Thoraipakkam, Chennai – 600 097	
10.	Dr. D.Venkat Kumar, Professor / Mechanical Engineering	Internal Members
11.	Dr. R.Harichandran, Professor / Mechanical Engineering	
12.	Dr. P.Ramanan, Associate Professor / Mechanical Engineering	
13.	Dr. I.Sankar, Associate Professor / Mechanical Engineering	
14.	Dr. D.Vignesh Kumar, Associate Professor / Mechanical Engineering	
15.	Dr.F.Michael Thomas Rex, Associate Professor / Mechanical Engineering	
16.	Mr.A.Andrews Assistant Professor (S.G) / Mechanical Engineering	
17.	Mr. K. Thoufiq Mohammed, Assistant Professor (S.G) / Mechanical Engineering	
18.	Mr.R.Jaya Venkatesh Assistant Professor / Mechanical Engineering	
19.	Mr. C. Veera Ajay, Assistant Professor / Mechanical Engineering	
20.	Dr. W. Beno Wincy, Assistant Professor / Mechanical Engineering	
21.	R. Ezhil Azhagan, IV Year / Mechanical Engineering	Student Members
22.	S.Madhusudhanan, IV Year / Mechanical Engineering	
23.	M. Sourav Sanjeev, III Year / Mechanical Engineering	

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

1.	Dr.A.Arockiarajan Professor / Applied Mechanics, Indian Institute of Technology Madras, Chennai 600036	Academic Expert
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BoS / MECH 19.1	:	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 19 th Board of Studies and thanked each one of them for sparing their valuable time to attend the meeting.
BoS / MECH 19.2	:	TO CONFIRM THE MINUTES OF EIGHTEENTH BOS MEETING HELD ON 23 rd December, 2022.
	:	The minutes of the Eighteenth Board of Studies meeting held on 23 rd December, 2022 were communicated to the members. The comments given by the members have been incorporated and placed for confirmation. The same was approved by the 19 th Academic council. (Enclosed in Annexure – I)
BoS / MECH 19.3.1	:	TO CONFIRM AND APPROVE Curriculum structure for B.E. Mechanical Engineering under R 2023. (Enclosed in Annexure – II)
BoS / MECH 19.3.2	:	TO CONFIRM AND APPROVE 1 st semester Syllabus for B.E. Mechanical Engineering under R-2023. (Enclosed in Annexure – III)
BoS / MECH 19.3.3	:	TO CONFIRM AND APPROVE Syllabus for U.G. other programmes syllabus under R 2023. (Enclosed in Annexure – IV)
BoS / MECH 19.3.4	:	TO CONFIRM AND APPROVE Curriculum structure for M.E. Energy Engineering under R 2023. (Enclosed in Annexure – V)
BoS / MECH 19.3.5	:	TO CONFIRM AND APPROVE 1 st semester Syllabus for M.E. Energy Engineering under R 2023. (Enclosed in Annexure – VI)

BoS / MECH 19.4	: Suggestions Given by the Members
19.4.1	: Semester 1 <ul style="list-style-type: none"> • Specific name may be given to Tamil Language subject instead of “Tamil I & Tamil II”. • The examination and evaluation process for the language course (“Tamil I & Tamil II”) need to be changed considering other state students. • Other language course can be added as open elective courses (Japanese, German, etc.).
19.4.2	: Semester 2 <ul style="list-style-type: none"> • Intervention of ChatGPT, “C programming” becomes not important. Hence the credit may be reduced. • “Innovation through Design thinking” in II semester seems too early. But it was defended by the chairman that in AICTE’s curriculum the same subject is offered in I semester • Ensure both statics and dynamics are included in “Engineering Mechanics”. • The subject name “Calculus” may be changed to “Engineering Calculus”
19.4.3	: Semester 3 <ul style="list-style-type: none"> • “Project management” at III semester is found to be too early. Consider to interchange “Aptitude II” in semester IV and “Project management” in semester III.
19.4.4	: Semester 4 <ul style="list-style-type: none"> • Preplan what to be done in “Design Thinking”, “Patent review”, “Modelling project”, “Mini project” and “Main project” in order to get desired output. • Anyone software tool from “CATIA, Unigraphics, ProE/Creo” can be included for modelling and remove the AutoCAD. 2D can be taught in CATIA rather than AutoCAD. • “Machine drawing” syllabus to be framed by considering the above software tools. • Production and operation management is a part of industrial engineering. Hence, “Industrial Engineering” can be finalised.

		<ul style="list-style-type: none"> • Credits for the subject “Machine Drawing” can be revised if possible.
19.4.5	:	<p><u>Semester 6</u></p> <ul style="list-style-type: none"> • The course name under the category ITLP, “Computer Aided Analysis” name is accepted.
19.4.6	:	<p><u>Syllabus for 1st semester B.E. Mechanical Engineering</u></p> <ul style="list-style-type: none"> • In “Engineering Graphics” Course the book authored by K. V. Natarajan can be included as Text book. • Update the version for all the books. • Include inverter in the “Basic Electrical Engineering” syllabus in Unit IV.
19.4.7	:	<p><u>Basic Civil and Mechanical Engineering</u></p> <ul style="list-style-type: none"> • Plan to teach elaborately about all the topics or specific topics can be mentioned in the syllabus itself. • Remove the cycles of two and four stroke engine. • Since domestic refrigerator is mainly focused, vapour compression refrigeration system is enough and Vapour absorption can be removed.
19.4.8	:	<p><u>Curriculum for M.E. - Energy Engineering</u></p> <ul style="list-style-type: none"> • Change “Renewable energy sources and conversion technology” name to “Renewable Energy Sources”. • Include Computational Fluid Dynamics, Energy storage, Fuel cell, Hydrogen Energy, Electric Vehicles, Fuels & Combustion as core course. • Change the subject name “Energy efficient building” to “Green Building”. • Include “Energy Auditing” as elective Course in the PG programme curriculum. • Change the name “Mini Project with seminar” to “Literature Review & Seminar”. • Increase the core course and reduce the elective course in the first semester.

19.4.9	<p>: <u>1st semester syllabus for M.E. - Energy Engineering</u></p> <p><i>Advanced Thermal Engineering</i></p> <ul style="list-style-type: none"> • CO4 in 'Advanced Thermal Engineering' is found to be too basic and hence the concept of reviewing can be removed. • Include J.P. Holman as Text book in 'Advanced Thermal Engineering' course. • Include bio-diesel topic in the 'Renewable energy sources and conversion technology' in UNIT III. <p><i>Research Methodology and IPR</i></p> <ul style="list-style-type: none"> • Case study/examples may be included wherever it is possible and required. • Change the name 'Mechanics of writing a research report' to 'Art of writing research report'. • Include data mining topic in UNIT II. <p><i>PG Energy laboratory course</i></p> <ul style="list-style-type: none"> • Remove the apparatus name used in Fuel testing experimentation. • Include calorific value experiment, proximate analysis PG Energy laboratory course. <p><i>Advanced power plant engineering</i></p> <ul style="list-style-type: none"> • Make 'Advanced power plant engineering' as the core course. • Include combined power cycle, co-generation cycle, binary cycle in UNIT I. • Include pumped energy storage systems and small hydro power plant (SHP) topics in UNIT III. <p><i>Alternate Fuels</i></p> <ul style="list-style-type: none"> • Change the unit name 'Hydrogen as alternate fuel' to 'Hydrogen Fuel' • Change the unit name Biogas as fuel to Biogas in "Alternate Fuels". <p><i>Cogeneration and waste heat recovery system</i></p> <ul style="list-style-type: none"> • Include Heat to power ratio in UNIT I • Include case studies in UNIT III • Thermo-Electric Generation system in UNIT III
BoS / MECH 19.5	: Any other items
19.5.1	: The members appreciated the B.E. Mechanical Engineering curriculum structure, however they suggested that the teaching

	<p>learning and evaluation process needs to be designed for the integrated courses in such a way that the learner should get the full benefit of that.</p> <p>Chairman requested the members to give their suggestion for industry oriented subjects and employability enhancement courses so the students can be ready to get higher level placement at the end of programme. The suggestions given by the BoS members are as follows</p> <ul style="list-style-type: none"> • In aerospace industry side, student must be strong in SOM, Stress analysis – AXISCADES <p>Students must able to</p> <ul style="list-style-type: none"> • Estimate the quantity and cost from drawing. • Familiar with ERP management. • Familiar with data collection, analysis, statistics, etc. • Familiar with data engineering • Advanced knowledge in aerospace manufacturing, biomedical, like specific stream. • Industrial safety engineering, industrial Engineering, Logistics Management. • Hypermesh software may be included to the UG Programme.
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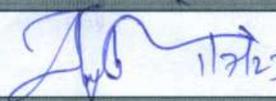
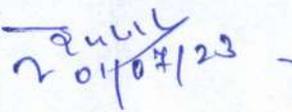
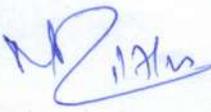
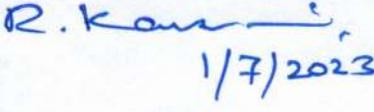
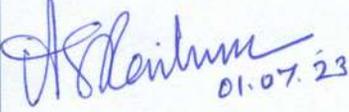
The members had a brainstorming discussion and interaction among themselves. After discussion, fruitful suggestions were incorporated appropriately in the curriculum and syllabus of R2023.

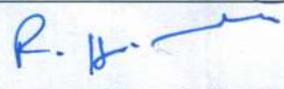
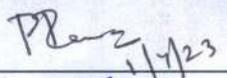
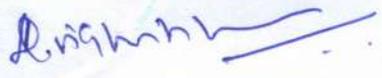
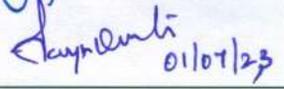
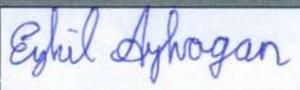
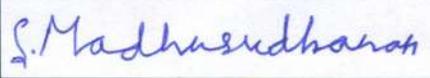
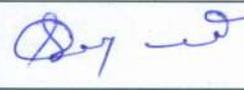
After discussion, BoS resolved to recommend the Curriculum Structure and syllabus for the 1st semester courses prescribed for Mechanical Engineering (Annexure II & III) and syllabus for the 1st semester courses prescribed for other U.G. Programmes (Annexure IV) after carry out the modifications suggested by the members.

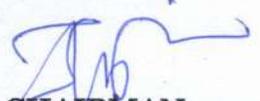
Based on the suggestions given by the members, BoS resolved to recommend the Curriculum Structure and syllabus for the 1st semester courses & Professional elective course courses – M.E. Energy Engineering Programme (Annexure V & VI) under Regulation 2023 to the Academic Council for further approval.

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.	 1/7/23
UNIVERSITY NOMINEE	
Dr. K. Srithar, Professor, Department of Mechanical Engineering, Thiagarajar College of Engineering, Madurai – 625015.	 01/07/23
ACADEMIC EXPERT	
Dr. M. Venkata Ramanan, Professor & Director Institute for Energy Studies, CEG, Anna University, Chennai – 600025	 1/7/23
Dr.-Ing. M. Duraiselvam, Professor, Department of Production Engineering, National Institute of Technology, Trichy - 620015	 1/7/23
MERITORIOUS ALUMNUS NOMINATED BY THE PRINCIPAL	
Dr. K. Murugan, Scientist –E, Centre for Sol-Gel Coatings, ARCI, Hyderabad – 500 005, Telangana.	 01/07/2023
INDUSTRIAL EXPERTS	
Mr. R. Kanda Subburaj Managing Director, Gulf Asia Engineering and Projects Pvt. Ltd, Chennai.	 1/7/2023
Mr. V. Hari Babu Senior Vice President, Head of Engineering & DOA Delegations Responsible AXISCADES Technologies Ltd Bengaluru, Karnataka - 560024	 01/07/2023
Mr. S. Ravikumar Associate Vice President, Department Head – Cab Chassis (TA/PCX) Daimler India Commercial Vehicles Pvt. Ltd	 01.07.23

Kancheepuram District - 602105	
Mr. Sivaram Sundaram, Senior Director, Comcast India Engineering Centre, Thoraipakkam, Chennai - 600 097	 01/07/2023
INTERNAL MEMBERS	
Dr. D.Venkat Kumar, Professor / Mechanical Engineering	
Dr. R.Harichandran, Professor / Mechanical Engineering	
Dr. P.Ramanan, Associate Professor / Mechanical Engineering	
Dr. I.Sankar, Associate Professor / Mechanical Engineering	
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Mr.R.Jaya Venkatesh Assistant Professor / Mechanical Engineering	
Mr.C.Veera Ajay, Asstistant Professor / Mechanical Engineering	
STUDENT MEMBERS	
R. Ezhil Azhagan, IV Year / Mechanical Engg.	
S. Madhusudhanan, IV Year / Mechanical Engg.	
M. Sourav Sanjeev, III Year / Mechanical Engg.	


CHAIRMAN
BOARD OF STUDIES
Dr. S. IYAHRAJA M.Tech, (IITM), Ph.D.,
Professor & Head,
Dept. of Mechanical Engineering,
National Engineering College,
K.R. Nagar, Kovilpatti - 628-503.