



SETHU INSTITUTE OF TECHNOLOGY, PULLOOR, KARIAPATTI – 626 115

MINUTES OF MEETING FOR THE BOARD OF STUDIES IN THE DEPARTMENT OF MECHANICAL ENGINEERING HELD ON 05.05.2022.

The Meeting of the Board of Studies in the Department of Mechanical Engineering was held at 10.30 AM on **05.05.2022** at Seminar Hall of Mechanical Engineering Department in Sethu Institute of Technology, Pulloor, Kariapatti.

The following members were present.

Sl. No.	Name	Designation	Status
1.	Dr. C. Muthusamy	Professor & Head / Department of Mechanical Engineering Sethu Institute of Technology.	Chairperson
2.	Dr. K Lingadurai	Professor & Dean Anna University Madurai Regional campus, Madurai.	University Nominee
3.	Dr. N. Govindha Rasu	Associate Professor Department of Automotive Engineering, Vellore Institute of Technology, (VIT) Vellore.	Member External
4.	Dr. S. Suresh Kumar	Associate Professor Department of Mechanical Engineering, Kalasalingam Academy of Research and Education, Krishnankovil.	Member External
5.	Dr. U. Arunachalam	Assistant Professor, University College of Engineering, Anna university Constituent College, Konam, Nagercoil.	Member External
6.	Dr. B. Stalin	Assistant Professor & HoD i/c, Department of Mechanical Engineering, Anna University Regional Campus, Keelakuilkudi, Madurai	Member External

Sl. No.	Name	Designation	Status
7.	Mr. G. Rajamurthy	Managing Director, Singai Coirs Pvt. Ltd., Singampunari, Sivaganga District.	Industrial Expert
8.	Dr.Parvathi	HoD-CSE Sethu Institute of technology Kariapatti Ph : 9566956219 Email : hodcse@sethu.ac.in	Invited Member
9.	Dr. T. Rajkumar	Assistant professor Department of Mechanical Engineering K.Ramakrishnan college of Technology Samayapuram, Trichy	Alumni
10.	Dr. A. Senthil Kumar	Professor	Faculty Member
11.	Dr. G.D. Sivakumar	Professor & Dean Mechanical	Faculty Member
12.	Dr. C. Kailasanathan	Professor & PG Head M.E (CAD/CAM)	Faculty Member
13.	Dr. R. MuraliKannan	Professor	Faculty Member
14.	Dr. K. Arun Balasubramanian	Professor	Faculty Member
15.	Dr. I. Vijay Arasu	Associate Professor	Faculty Member
16.	Dr. G. Nagaraj	Associate Professor	Faculty Member
17.	Dr. G. Venkatesan	Associate Professor	Faculty Member
18.	Dr. A. Saravana Kumaar	Associate Professor	Faculty Member
19.	Mr. G.K. Tamil Selvan	Associate Professor	Faculty Member
20.	Mr. S. Paramasamy	Associate Professor	Faculty Member
21.	Dr. P. R. Rajkumar	Assistant Professor	Faculty Member
22.	Dr. B. Muthu Chozha Rajan	Assistant Professor	Faculty Member
23.	Dr. V. Vignesh	Assistant Professor	Faculty Member
24.	Dr. A. Perumal	Assistant Professor	Faculty Member
25.	Mr. T. Gangadharan	Assistant Professor	Faculty Member
26.	Mr. K.M. Ahamed Sheriff	Assistant Professor	Faculty Member

Sl. No.	Name	Designation	Status
27.	Mr. S. Shanmugam	Assistant Professor	Faculty Member
28.	Mr. P. Meenatchi sundaram	Assistant Professor	Faculty Member
29.	Mr. T.P. Balaji	Assistant Professor	Faculty Member
30.	Mr. V. Ramachandran	Assistant Professor	Faculty Member
31.	Mr. C. Tamilarasan	Assistant Professor	Faculty Member
32.	Mr. S. Devanand	Assistant Professor	Faculty Member
33.	Mr. K. Amirtharaj	Assistant Professor	Faculty Member
34.	Mr. R. Jayaprakash	Assistant Professor	Faculty Member
35.	Mr. P. Karuppasamy	Assistant Professor	Faculty Member
36.	Mr. S. Saravanan	Assistant Professor	Faculty Member
37.	Mr. S.A. SethuRaaman	Assistant Professor	Faculty Member
38.	Mr. J. David Gnanaraj	Assistant Professor	Faculty Member
39.	Mr. J. Vairamuthu	Assistant Professor	Faculty Member
40.	Mr. J. Arul JeevaNijanthan	Assistant Professor	Faculty Member
41.	Mr. V. Ananda Natarajan	Assistant Professor	Faculty Member
42.	Mr. R. Seenivasan	Assistant Professor	Faculty Member
43.	Mr. B. Rajesh Kannan	Assistant Professor	Faculty Member
44.	Mr. S. Balaji	Assistant Professor	Faculty Member
45.	Mr. V. Sundara Mahalingam	Assistant Professor	Faculty Member
46.	Mr. M. Vimalkumar	Assistant Professor	Faculty Member

The Chairman welcomed the members and presented the Curriculum and Syllabi for VII Semester and VIII Semester of Regulation 2019 for the students admitted from the academic year 2019-20, and Regulation 2021 for the students admitted from the academic year 2021-22 under Autonomous Regulations for B.E. Mechanical Engineering and M.E.CAD/CAM.

The following points were discussed in the meeting

1. Vision, Mission Statements, Program Educational Objectives, Program Outcomes and Program Specific Outcomes
2. Attainment of POs and PSOs and Gap analysis.
3. Curriculum and Syllabi of Regulation 2019
4. Syllabus of core courses in VII and VIII Semester
5. Curriculum and Syllabi of Regulation 2021
6. Mapping of Curriculum with Programme Specific Criteria
7. Employability/ Entrepreneurship/ Skill Development
8. M.E.CAD/CAM

1. Vision, Mission Statements, Program Outcomes and Program Specific Outcomes

- 1.1. The board of studies chairman presented the Department Vision, Mission, PEOs, POs and PSOs of the U.G Programme.
- 1.2. The BoS member approved the existing vision and mission statement as follows

Department Vision statement

- To promote excellence in education and research in mechanical engineering for the benefits of industry and society.

Mission Statement

1. To provide quality technical educational experience to enable the graduates to become leaders in their chosen profession
2. To educate through modern teaching tools and experiential learning to produce proficient engineer
3. To develop skills in recent technological trends and design software and to facilitate various co-curricular activities to enhance employability and entrepreneurship
4. To establish collaboration with industries for transfer of technical knowledge
5. To promote research activities among faculty members and students
6. To offer beneficial services to the society

- 1.3. The BoS member approved the existing PEOs, POs and PSOs as follows

Program Educational Objectifies PEOs

After few years of graduation our Mechanical Engineering graduates are expected to:	
PEO I (Core Competency)	Develop technical competency to become professionals with expertise in core areas of mechanical engineering.
PEO II (Life Long Learning)	Practice Life Long Learning to solve real time problems and for career development.
PEO III (Professional and Ethical Skills)	Develop professional skills to meet the global standards with ethical and social responsibility.

Program Outcomes POs

1.	Apply knowledge of mathematics, science, basic engineering, manufacturing, design, thermal and industrial engineering to the solution of complex engineering problems. [Engineering knowledge]
2.	Identify, formulate, research through relevant literature review, and analyze complex mechanical engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and mechanical engineering. [Problem analysis]
3.	Design solutions for complex mechanical engineering problem and design system components that meet the specified needs with appropriate considerations for public health and safety, cultural, societal, and environmental constraints. [Design/ development of solutions]
4.	Conduct investigations of complex mechanical problems in design and analysis of machine elements, mechanisms, thermal systems and to manufacture components and systems using research based knowledge and methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions. [Conduct investigations of complex problems]
5.	Select and apply the latest CAD/CAM/CAE software and sophisticated equipment for modeling and analyzing to predict and solve mechanical engineering problems. [Modern tool usage]

6.	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, cultural issues and consequent responsibilities relevant to professional engineering practice. [The Engineer and Society]
7.	Understand the impact of solutions for mechanical engineering problems in the context of society and environments, and demonstrate the knowledge of and need for sustainable development. [Environment and Sustainability]
8.	Apply ethical principles, and commit to professional ethics and responsibilities and norms of the engineering practice. [Ethics]
9.	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. [Individual and team work]
10.	Communicate effectively on mechanical engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentation, and give and receive clear instructions. [Communication]
11.	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. [Project management and finance]
12.	Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. [Lifelong learning]

Program Specific Outcomes PSOs

- Design, model and analyse mechanical systems and components using computer aided technologies.
- Formulate, analyze and provide the solution to thermal engineering related problems with regards to environment and society.
- Acquire the profession in industries through the intellectual knowledge of mechanical engineering and team work.

2. Attainment of POs and PSOs and Gap analysis

2.1. The board of studies chairman presented the methodology of POs and PSOs attainment

2.2. The BoS member approved the following courses to enhance the PO3 and PO4

attainment as follows

POs	Course Name
PO 3	• Computational Analysis Laboratory (ANSYS & CFD) • Machine learning
PO 4	• Statistical quality control • Machine learning • Kinematics of machinery • Dynamics of machinery

3. Curriculum and Syllabi of Regulation 2019

3.1. New Course Introduced :

The Board of study member approved the newly introduced courses

- 19UME708 - Computational Analysis Laboratory (ANSYS & CFD)
- 19UGM731 - Professional Ethics & Human values (Mandatory)
- 19UME707 - Summer Internship
- 19UME933 - Machine Learning
- 19UME929 - Statistical Quality Control (SQC) as elective

3.2. Stakeholders Feedback

The Board analyzed the stake holder's feedback regarding curriculum and syllabi under 2019 regulation

S.No	STAKE HOLDER	NAME&DESIGNATION	FEEDBACK
1.	Industry Member	Mr.G.Dhanasekar, AGM, JBM Auto Limited Chennai	Industrial Robotics In unit 3,types of sensors may be removed, In unit 5 the title may be change as Industrial applications and robot economics.

S.No	STAKE HOLDER	NAME&DESIGNATION	FEEDBACK
2.	Industry Member	Mr.G.Dhanasekar, AGM, JBM Auto Limited Chennai	Smart Manufacturing In the first unit, IOT Vs IIOT and Applications of IIOT may be included in unit-1
3.	Industry Member	Mr.Duraibabu AGM-Operations Rajsriya Automotive Industries(P)Ltd Chennai	Fundamentals of Manufacturing process The topics powder forging and powder extrusion may be included and composite moulding may be removed.

3.3. The BoS member approved to modify the course content based on stakeholder's feedback.

4. Syllabus updation in core courses of VII and VIII Semester

Regulation 2019

Semester – VII:

19UME708 Computational Analysis lab

- Dr.Arunachalam suggested that in the subject 19UME708 Computational Analysis lab, the credits may be increased to 2 instead of 1.5 and total periods may increase to 3 to 4 periods. Also the experiment 3 and 6 can be removed from the syllabus.
- Stress analysis of fixed ends beam.
- Mode frequency analysis of cantilever beams

19UME933 Machine Learning

- Dr.Govindaraju suggested that in the subject 15UME933 - Machine Learning, the content basics of python programming can be removed and add practical classes for python programming included in each unit.

Total Credit

- Dr.Arunachalam suggested that total credits of R2019 should be rounded off to either 178 or 179 instead of 178.5.

Regulation 2021

- Dr.Lingadurai suggested that domain wise electives may be given to students instead of listing semester wise electives in R2021. Also suggested to include content beyond syllabus in each theory and practical subjects.
- Dr.Arunachalam and Dr.Lingadurai suggested that the subject KOM can be shifted to 3rd semester, DOM to 4th semester
- Dr.Arunachalam and Dr.Lingadurai suggested that the subject Design of machine elements to be kept in 5th semester and Measurements and instrumentation in 4th semester

21UME204 Engineering materials and metallurgy

- Dr.Lingadurai suggested that in 21UME204 Engineering materials and metallurgy subject, the content introduction to material physics can be included in first unit.

5. Percentage of Revision in Syllabus

Academic Year 2020-21			Details of Change in Syllabus		
S.No	Course Code	Course Name	Changes		Percentage of change
			Removed (if Any unitwise)	Added (if Any unitwise)	
1.	19UME925	Industrial Robotics	5%	-	5%
2.	19UME602	Smart Manufacturing	-	5%	5%
3.	19UME302	Fundamentals of Manufacturing process	5%	-	5%
Total Percentage of change					Sum of % of Change = 15%
Percentage of revision in syllabus = Total Percentage of change /Total No of courses in which the syllabus revision is made					= 3 / 56 = 5.35%

6. Mapping of Curriculum with Programme Specific Criteria

- The Chairperson presented the Mapping of curriculum and syllabi of Regulation 2019 and R2021 with programme specific criteria to all the members of BOS and the board approved the same.

Programme Specific Criteria	Course Name
To apply principles of engineering, basic science, and mathematics. (including multivariate calculus and differential equations)	Engineering Graphics
	Engineering Physics
	Engineering Chemistry
	Engineering Mathematics I
	Calculus, Fourier Series and Numerical Methods for Mechanical Engineering
	Material Physics
	Environmental Science
	Probability, Statistics and Partial Differential Equations for Mechanical Engineering
	Fundamentals of Manufacturing Processes
	Materials Engineering
	Engineering Mechanics
	Introduction to Mechanical Engineering
	Manufacturing Technology
	Measurements and Instrumentation
To model, analyze, design, and realize physical systems, components or processes	Fluid Mechanics and Machinery
	Theory of Machines
	Mechanics of Materials
	Design of Machine Elements
	Design of Transmission Systems
	Finite Element Analysis
To prepare students to work professionally in either thermal or mechanical systems while requiring topics in each area.	Engineering Thermodynamics
	Applied Thermal Engineering
	Automobile Engineering
	Applied Hydraulics and Pneumatics
	Heat and Mass Transfer
	Operations Research
	Design and Product Development Project
	Project Management and Finance
	Mechatronics
	Project Work
	Gas Dynamics and Jet Propulsion
	Unconventional Machining Processes
	Process Planning and Cost Estimation
	Maintenance Engineering

7. Employability/ Entrepreneurship/ Skill Development

- The BoS members reviewed and approved the courses with focus on Employability, Entrepreneurship/ Skill Development in R2019 & R2021 Curriculum and syllabus as follows

7.1 Courses with focus on Employability

Sl. No.	Course Name
1.	Problem Solving and Python Programming Laboratory
2.	Computer Aided Drafting and Modeling Laboratory.
3.	Fundamentals of Manufacturing Processes
4.	Fluid Mechanics and Machinery
5.	Engineering Mechanics
6.	Materials Engineering
7.	Theory of Machines
8.	Applied Thermal Engineering
9.	Manufacturing Technology
10.	Mechanics of Materials
11.	Creative Thinking & Innovations
12.	Design Laboratory
13.	Thermal Engineering Laboratory - I
14.	Heat and Mass Transfer
15.	Design of Machine Elements
16.	Measurements and Instrumentation
17.	Thermal Engineering Laboratory - II
18.	Design of Transmission Systems
19.	Smart Manufacturing
20.	Operations Research
21.	Mechatronics
22.	Product Development Project
23.	CAD Laboratory
24.	Smart Manufacturing & Mechatronics Laboratory
25.	Finite Element Analysis
26.	Computational Analysis Laboratory (ANSYS & CFD)
27.	Soft Skill and Communications Laboratory
28.	Project Management and Finance
29.	Project Work
30.	Applied Hydraulics and pneumatics
31.	Computational Fluid Dynamics
32.	Machine Learning
33.	Refrigeration and Air conditioning
34.	Maintenance Engineering
35.	Production Planning and Control
36.	Industrial Robotics

7.2 Courses with focus on Entrepreneurship

Sl. No.	Course Name
1.	Engineering Practice Laboratory
2.	Basic Electrical and Electronics Engineering
3.	Computer Aided Drafting and Modeling Laboratory.
4.	Fundamentals of Manufacturing Processes
5.	Manufacturing Technology
6.	Automobile Engineering
7.	Design Laboratory
8.	Product Development Project
9.	CAD Laboratory
10.	Smart Manufacturing & Mechatronics Laboratory
11.	Computational Analysis Laboratory (ANSYS & CFD)
12.	Project Work

7.3 Courses with focus on Skill Development

Sl. No.	Course Name
1.	Engineering Graphics
2.	Engineering Practice Laboratory
3.	Communication Skills for Professionals
4.	Basic Electrical and Electronics Engineering
5.	Computer Aided Drafting and Modeling Laboratory.
6.	Fundamentals of Manufacturing Processes
7.	Seminar
8.	Thermal Engineering Laboratory - I
9.	Design Laboratory
10.	Interpersonal Skill Laboratory
11.	Product Development Project
12.	CAD Laboratory
13.	Smart Manufacturing & Mechatronics Laboratory
14.	Soft Skill and Communications Laboratory
15.	Summer Internship
16.	Computational Analysis Laboratory (ANSYS & CFD)
17.	Project Work

8. M.E.CAD/CAM

- The Members of BoS thoroughly discussed about the curriculum and Syllabi for M.E. CAD/CAM. The Members discussed the new curriculum and Syllabi for M.E. CAD/CAM followed based on choice based credit system from 2021-2022 batches under autonomous regulation and offered useful suggestion.

Based on the suggestions given by the Members, the following resolutions are made:

- 8.1 The BOS resolved to approve the Curriculum of M.E.CAD/CAM Full Time.
- 8.2 The BOS resolved to approve the curriculum components distribution as Programme Core (37.14%), Programme Elective (25.7%), Open Elective (4.29%), Project work (28.57%), and Mandatory credit Course (4.29%)
- 8.3 The vision and mission and PEOs and POs of PG programme is informed in front of BOS and discussed about mapping of PEOs and POs.
- 8.4 The BOS resolved the number of theory papers in I semester as 5 and for II semester as 7 and III semester to 4 subjects.
- 8.5 The BoS resolved to offer 6 Programme Core courses (2 in I SEM, 4 in IInd SEM) (21PCD101-Computer applications in Design, 21PCD102-Advanced Finite Element Analysis in I semester, 21PCD201- Design for Sustainability, 21PCD202-Applied Materials Engineering, 21PCD203-Industry 4.0, 21PCD204- Product Lifecycle Management in IInd semester)
- 8.6 The BoS resolved to offer 18 (1 in I SEM, 2 in IInd SEM and 3 in IIIrd SEM) Programme Elective courses (21PCD501-Metrology and Non Destructive Testing Systems, 21PCD502-Integrated manufacturing system, 21PCD503- Design of Hydraulic and Pneumatic, 21PCD504-Design of Material Handling Equipments, 21PCD505-Industrial Robotics and Expert Systems, 21PCD506-Lean Manufacturing, 21PCD507-Industrial Safety Management, 21PCD508-Design for Cellular Manufacturing Systems, 21PCD509-Additive Manufacturing, 21PCD510-Mechanical Behavior of Materials, 21PCD511-Composite Materials and Mechanics, 21PCD512- Material testing and characterization, 21PCD513-Electronics Manufacturing, 21PCD514- Quality Concepts in Design,

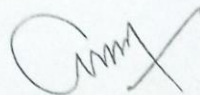
21PCD515- Design of Hybrid and Electric Vehicles, 21PCD516-Fracture Mechanics, 21PCD517-Artificial Intelligence and its industrial Applications, 21PCD518- Design of Internet of Things)

8.7 The BoS resolved to offer 6 new courses as elective courses (21PCD513-Electronics Manufacturing, 21PCD514- Quality Concepts in Design, 21PCD515- Design of Hybrid and Electric Vehicles, 21PCD516-Fracture Mechanics, 21PCD517-Artificial Intelligence and its industrial Applications, 21PCD518- Design of Internet of Things)

8.8 The BoS resolved to remove the following Programme Elective courses from the 2019 Regulation (19PCD501- Mechatronics in Manufacturing Systems, 19PCD502-Tribology in Design, 19PCD504-Data Communication in CAD/CAM, 19PCD506- Optimization Techniques in Design, 19PCD509-Vibration Analysis and Control, 19PCD511-Advanced Mechanics of Materials, 19PCD513-Advanced Tool Design, 19PCD514-Mechanisms Design and Simulation, 19PCD515-Computational Fluid Dynamics in Manufacturing, 19PCD516-Reliability Engineering Models, 19PCD517-Maintenance Engineering and Management, 19PCD521-Integrated Product Design and Processes Development, 19PCD522-Competitive Manufacturing Systems, 19PCD524- Integrated Mechanical Design,)

8.9 The BOS resolved to introduce six courses as Ph.D Electives which shall also be chosen as electives by the post graduate students (21PCD525-Synthesis and Characterization of Nano materials, 21PCD526-Design and Analysis of Experiments, 21PCD511-Mechanical Behavior of Materials, 21PCD528- Material Testing and Characterization, 21PCD529- Performance Modeling and Analysis of Manufacturing System, 21PCD530-Advanced Optimization Techniques)

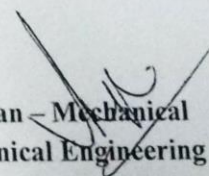
8.10 The BoS resolved to approve the syllabus of Regulation 2021



Chairman

Board of Studies

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Dean - Mechanical
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