



VIGNAN'S

Foundation for Science, Technology & Research

(Deemed to be UNIVERSITY)

-Estd. u/s 3 of UGC Act 1956

Department of Mechanical Engineering
Minutes of Board of Studies Meeting

03th July 2021

The following members were present for the Board of Studies meeting for B. Tech in Mechanical Engineering held on 03-07-2021 in online mode through ZOOM platform.

1. **Dr. Nirmal Baran Hui**, Professor, Department of Mechanical Engineering, NIT Durgapur
2. **Dr. Veeresh Babu A**, Associate Professor, Mechanical Engineering Department, NIT Warangal
3. **Dr. R V S Subrahmanyam**, Director, CNC Center, NSTL, Vizag
4. **Mr. Suroju Ramakrishna**, Manager, DE-VA (Architecture & Vehicle Planning), Tamil Nadu
5. **Dr. M. Jagannatham**, Research Manager, Wheels India Limited, Padi, Chennai
6. **Dr. L S Raju**, Chairman BoS, Professor, Department of Mechanical Engineering, VFSTR
7. **Dr. K Venkat Rao**, Professor, Department of Mechanical Engineering, VFSTR
8. **Dr. B Nageswara Rao**, Professor, Department of Mechanical Engineering, VFSTR
9. **Dr. G Suresh**, Associate Professor, Department of Mechanical Engineering, VFSTR
10. **Mr. T Ch Anil Kumar**, Assistant Professor, Department of Mechanical Engineering, VFSTR
11. **Mr. N B Prakash T**, Assistant Professor, Department of Mechanical Engineering, VFSTR

The following are the points discussed in the meeting:

1. Revision in Course structure and detailed syllabus of B.Tech. Mechanical Engineering R21 regulations.
2. Choice based credit system is implemented in the Curriculum.
3. Major restructuring has taken place in the Curriculum with emphasis on coding skills and project based curriculum.
4. All the Courses in the Curriculum are designed to fall under either of the domains of employability or entrepreneurship or skill development (Appendix A).
5. Inclusion of new courses and courses with substantial changes in the curriculum is reviewed and is provided as Appendix B.
6. The feedback from various stakeholders is carefully collected, analyzed and their suggestions are implemented in the curriculum.
7. All the members have approved the proposed R21 B. Tech Mechanical Engineering curriculum.

Course Structure - R21 Mechanical Engineering Curriculum

Semester I (First Year)

Sl. No.	Course Name	Credits
1	*Engineering Mathematics-I (F)	4
2	*Engineering Physics (B)	4
3	Basics of Electrical & Electronics Engineering	4
4	Basic Engineering Products	3
5	Engineering Graphics and Design	3
6	Introduction to C Programming	4
7	Constitution of India	1
8	Physical fitness, Sports & Games-I ^P	1
	Total	24

Semester II (First Year)

Sl. No.	Course Name	Credits
1	*Engineering Mathematics-II (F)	4
2	Engineering Chemistry	2
3	Programming for Problem Solving	4
4	Technical English Communication	3
5	Workshop	2
6	Engineering Mechanics	3
7	English Proficiency and communication skills	1
8	Physical fitness, Sports & Games-II	1
	Total	20

Semester III (Second Year)

SI. No.	Course Name	Credits
1	Data Structures	3
2	Manufacturing Technology	3
3	Materials Science and Metallurgy	3
4	Engineering Thermodynamics	4
5	Mechanisms and Machines	4
6	Machine Drawing	2
7	Life skills - I	-
8	Technical Seminar - I	1
9	Intra disciplinary Project - I	1
10	Physical fitness, Sports & Games - III	1
	Total	22

Semester IV (Second Year)

SI. No	Course Name	Credits
1	Machining Technology	3
2	Solid Mechanics	4
3	Mechanics of Fluids and Hydraulic Machines	4
4	Environmental Science	1
5	Life skills - II	1
6	Intra-disciplinary Project-II	1
7	Technical Seminar-II	1
8	Open Elective - I	3
9	Open Elective - II	3
	Total	21

Semester V (Third Year)

SI. No	Course Name	Credits
1	Design and Modelling of Machine Elements	4
2	Applied Thermodynamics and Heat Transfer	4
3	Statistical Methods for Engineers	2
4	Soft skills Lab	1
5	Employability skills-I	1
6	Inter-departmental Project-I	2
7	Modular course	1
8	Department Elective - I	3
9	Open Elective - III	3
10	Open Elective - IV	3
	Total	23

Semester VI (Third Year)

SI. No	Course Name	Credits
1	Machine Learning for Mechanical Engineers	2
2	Metrology & Instrumentation	3
3	Computer Aided Engineering	4
4	Professional communications Lab	1
5	Human Values, Professional Ethics & Gender Equity	2
6	Employability skills-II	1
7	Inter-departmental Project-II	2
8	Department Elective-II	3
9	Open Elective-V	2
10	Open Elective-VI	1
11	Open Elective (NPTEL/SWAYAM)	3
	Total	24

Semester VII (Fourth Year)

Sl. No	Course Name	Credits
1	Robotics and Automation	4
2	Industry 4.0	3
3	Operations Research	3
4	Industrial Engineering and Production Management	3
5	Product Performance Analysis using Software Packages	2
6	Societal-Centric / Industry Oriented Projects	3
7	Department Elective-III	3
8	Department Elective-IV	3
	Total	24

Semester VIII (Fourth Year)

Sl. No	Course Name	Credits
1	Internship/Project work (Industry oriented projects)	12
	Total	12

Courses under choice based credit system are highlighted in the structure

Professional Electives

Sl. No	Title of the Course	Credits
1	Internal Combustion Engines	3
2	3D Printing and Design	3
3	Ceramics and Polymers	3
4	Industrial Engineering & Estimating and Costing	3
5	Artificial Intelligence for Mechanical Engineering	3
6	Tribology in Design	3
7	Jet and Rocket Propulsions	3
8	Micro-Electro Mechanical Systems	3
9	Refrigeration and Air-Conditioning	3
10	Computational Fluid Dynamics	3
11	Cryogenics	3
12	Composite Materials & Technology	3
13	Nano Technology	3
14	Lean Manufacturing	3
15	Maintenance Engineering	3
16	Heat and Mass Transfer	3
17	Advanced Materials and Characterization	3


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List of courses where theory integrated with laboratory component

Sl. No	Year & Semester	Course Name
1	I&I	*Engineering Physics(B)
2	I&I	Basics of Electrical & Electronics Engineering
3	I&I	Basic Engineering Products
4	I&I	Engineering Graphics and Design
5	I&I	Introduction to C Programming
6	I&II	Programming for Problem Solving
7	I&II	Technical English Communication
8	I&II	Workshop
9	II&I	Data Structures
10	II&I	Manufacturing Technology
11	II&I	Materials Science and Metallurgy
12	II&I	Mechanisms and Machines
13	II&II	Machining Technology
14	II&II	Solid Mechanics
15	II&II	Mechanics of Fluids and Hydraulic Machines
16	III&I	Design and Modelling of Machine Elements
17	III&I	Applied Thermodynamics and Heat Transfer
18	III&II	Metrology & Instrumentation
19	III&II	Computer Aided Engineering
22	IV&I	Robotics and Automation


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APPENDIX A

List of courses that enable employability or entrepreneurship or skill development in the R21 – B. Tech
Mechanical Engineering Curriculum

Sl. No	Year	Semester	Course name	Course Nature
1	I	I	*Engineering Mathematics-I (F)	Skill Development
2	I	I	*Engineering Physics (B)	Skill Development
3	I	I	Basics of Electrical & Electronics Engineering	Skill Development
4	I	I	Basic Engineering Products	Skill Development
5	I	I	Engineering Graphics and Design	Skill Development
6	I	I	Introduction to C Programming	Employability
7	I	I	Constitution of India	Skill Development
8	I	I	Physical fitness, Sports & Games-I	Skill Development
9	I	II	*Engineering Mathematics-II (F)	Skill Development
10	I	II	Engineering Chemistry	Skill Development
11	I	II	Programming for Problem Solving	Employability
12	I	II	Technical English Communication	Employability
13	I	II	Workshop	Skill Development
14	I	II	Engineering Mechanics	Skill Development
15	I	II	English Proficiency and communication skills	Employability
16	I	II	Physical fitness, Sports & Games-II	Skill Development
17	II	I	Data Structures	Employability
18	II	I	Manufacturing Technology	Skill Development
19	II	I	Materials Science and Metallurgy	Skill Development
20	II	I	Engineering Thermodynamics	Skill Development
21	II	I	Mechanisms and Machines	Skill Development
22	II	I	Machine Drawing	Employability
23	II	I	Life skills – I	Skill Development
24	II	I	Technical Seminar - I	Skill Development
25	II	I	Intra disciplinary Project - I	Skill Development
26	II	I	Physical fitness, Sports & Games - III	Skill Development
27	II	II	Machining Technology	Skill Development

28	II	II	Solid Mechanics	Skill Development
29	II	II	Mechanics of Fluids and Hydraulic Machines	Skill Development
30	II	II	Metrology	Skill Development
31	II	II	Environmental Science	Skill Development
32	II	II	Life skills - II	Skill Development
33	II	II	Intra-disciplinary Project-II	Skill Development
34	II	II	Technical Seminar-II	Skill Development
35	III	I	Design and Modelling of Machine Elements	Employability
36	III	I	Applied Thermodynamics and Heat Transfer	Skill Development
37	III	I	Statistical Methods for Engineers	Skill Development
38	III	I	Soft skills Lab	Employability
39	III	I	Employability skills-I	Employability
40	III	I	Inter-departmental Project-I	Skill Development
41	III	I	Modular course	Employability
42	III	II	Machine Learning for Mechanical Engineers	Employability
43	III	II	Metrology & Instrumentation	Employability
44	III	II	Computer Aided Engineering	Employability
45	III	II	Professional communications Lab	Employability
46	III	II	Human Values, Professional Ethics & Gender Equity	Skill Development
47	III	II	Employability skills-II	Employability
48	III	II	Inter-departmental Project-II	Skill Development
49	IV	I	Robotics and Automation	Employability
50	IV	I	Industry 4.0	Entrepreneurship
51	IV	I	Operations Research	Employability
52	IV	I	Industrial Engineering & Production Management	Employability
53	IV	I	Product Performance Analysis using Software Packages	Employability
54	IV	I	Societal-Centric / Industry Oriented Project	Employability
55	IV	I	Internship/Project work (Industry oriented projects)	Employability
56	III	I	Internal Combustion Engines	Skill Development
57	III	I	3D Printing and Design	Employability
58	III	I	Ceramics and Polymers	Skill Development
59	III	II	Industrial Engineering & Estimating and Costing	Skill Development

60	III	II	Artificial Intelligence for Mechanical Engineering	Employability
61	III	II	Tribology in Design	Skill Development
62	III	II	Jet and Rocket Propulsions	Skill Development
63	IV	I	Micro-Electro Mechanical Systems	Skill Development
64	IV	I	Refrigeration and Air-Conditioning	Skill Development
65	IV	I	Computational Fluid Dynamics	Skill Development
66	IV	I	Cryogenics	Skill Development
67	IV	I	Composite Materials & Technology	Skill Development
68	IV	I	Nano Technology	Skill Development
69	IV	I	Lean Manufacturing	Employability
70	IV	I	Maintenance Engineering	Employability
71	IV	I	Heat and Mass Transfer	Skill Development
72	IV	I	Advanced Materials and Characterization	Skill Development


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APPENDIX – B

List of new courses and courses with substantial changes in B. Tech Mechanical Engineering Curriculum

SI. No	Year	Semester	Course Name
1	II	I	Data Structures
2	II	I	Materials Science and Metallurgy
3	II	II	Metrology
4	III	I	Applied Thermodynamics and Heat Transfer
5	III	I	Statistical Methods for Engineers
6	III	II	Machine Learning for Mechanical Engineers
7	IV	I	Robotics and Automation
8	IV	I	Industry 4.0


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