

DEPARTMENT OF MECHANICAL ENGINEERING

CIRCULAR

Date: 20.04.2023

Department of Mechanical Engineering is going to conduct Board of Studies (BoS) meeting for the M.Tech.in **MACHINE DESIGN** Programme on **29.04.2023** from 11.30AM in blended mode. The venue of the meeting is AGF-06, Seminar Hall, Department of Mechanical Engineering, U-Block, VFSTR, Vadlamudi. The online ZOOM platform link for the meeting is <https://us02web.zoom.us/j/3345612384>. All the members are requested to make it convenient to attend the meeting.

The members are

S.No	Name and Designation of the members	Position
1	Dr. L S Raju, Professor and Head of the Department	Chairperson
2	Dr. D Benny Karunakar, Associate Professor, Department of Mechanical and Industrial Engineering, IIT Roorkee	External Member (Academic)
3	Mr. Suroju Ramakrishna, Principal Consultant, Tech Mahindra, Pune	External Member (Industry)
4	Dr. Jayabal K, Associate Professor, Department of Mechanical Engineering, IIITDM, Kancheepuram	External Member (Academic)
5	Mr. Subrata Karmakar, President-Head, Robotics and Discrete Automation Business, ABB India Ltd., Bengaluru, Karnataka	External Member (Industry)
6	Dr. Siva Prasad AVS, Assistant Professor, Department of Mechanical Engineering, IIITDM, Kancheepuram	External Member (Industry)
7	Dr. M Ramakrishna, Professor	Member
8	Dr. K Venkat Rao, Professor and Dean R&D Nominee	Member
9	Dr. D Satyanarayana, Professor	Member
10	Dr. B Nageswara Rao, Professor	Member
11	Dr. G Suresh, Associate Professor	Member
12	Dr. D Vinay Kumar, Associate Professor	Member
13	Mr. T Ch Anil Kumar, Assistant Professor	Member
14	Dr. Sk Farooq, Assistant Professor, School Dean Nominee	Member
15	Mr. N B Prakash T, Assistant Professor, HoD Nominee	Member Secretary

Agenda of the BoS Meeting:

1. To Discuss and finalize the curriculum structure and detailed syllabus of M.Tech., MACHINE DESIGN Programme for the regulation R22 in 2023.
2. To approve the R22 curriculum and syllabus of M.Tech., MACHINE DESIGN Programme and recommend to the Academic council.



Chairperson



DEPARTMENT OF MECHANICAL ENGINEERING

Date: 29.04.2023

Minutes of Board of Studies Meeting

Board of Studies (BoS) meeting of M.Tech., Machine Design programme was conducted on 29.04.2023 in blended mode from 12.00 pm to 01.00 Noon. The venue of the meeting is AGF-06, Seminar Hall, Department of Mechanical Engineering, U-Block, VFSTR, Vadlamudi.

The ZOOM online link for the meeting is <https://us02w.web.zoom.us/j/3345612384>.

Agenda of the BoS Meeting:

1. To Discuss and finalize the curriculum structure and detailed syllabus of M.Tech., MACHINE DESIGN Programme for the regulation R22 in 2023.
2. To approve the R22 curriculum and syllabus of M.Tech., MACHINE DESIGN Programme and recommend to the Academic council.
3. Any other points with the permission of Chairperson.

The following members were present either through offline or online.

S.No	Name and Designation of the members	Position	Signature
1	Dr. L S Raju, Professor and Head of the Department	Chairperson	
2	Mr. Suroju Ramakrishna, Principal Consultant, Tech Mahindra, Pune	External Member (Industry)	Attended in online mode
3	Dr. Siva Prasad AVS, Assistant Professor, Department of Mechanical Engineering, IITDM, Kancheepuram	External Member (Academic)	Attended in online mode
4	Dr. K Venkat Rao, Professor and Dean R&D Nominee	Member	
5	Dr. D Satyanarayana, Professor	Member	
6	Dr. B Nageswara Rao, Professor	Member	Attended in online mode
7	Dr. G Suresh, Associate Professor	Member	Attended in online mode
8	Dr. D Vinay Kumar, Associate Professor	Member	Attended in online mode
9	Mr. T Ch Anil Kumar, Assistant Professor	Member	
10	Dr. Sk Farooq, Assistant Professor, School Dean Nominee	Member	Attended in online mode
11	Mr. N B Prakash T, Assistant Professor, HoD Nominee	Member Secretary	

The following external members have taken leave of absence:

1. Dr. D Benny Karunakar, Associate Professor, Department of Mechanical and Industrial Engineering, IIT Roorkee - External Member (Academic)
2. Mr. Subrata Karmakar, President-Head, Robotics and Discrete Automation Business, ABB India Ltd., Bengaluru, Karnataka - External Member (Industry)
3. Dr. Jayabal K, Associate Professor, Department of Mechanical Engineering, IIITDM, Kancheepuram - External Member (Academic)

Chairperson Dr. L S Raju, Professor and Head, department of Mechanical Engineering, VFSTR opened the meeting by welcoming and introducing the external members, invitees to the internal members. Chairperson presented about the *NEP 2020 Compliant Regulation - R22* which emphasis on creating *learning centric* (continuous learning and continuous assessment model), M.Tech, M.Tech. + Ph.D. providing multiple entry and multiple exits.

The following points were discussed in the BoS meeting:

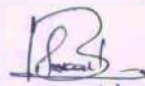
1. Regulation R22.
2. Curriculum structure with credits, credits distribution.
3. 2 Modules instead of 5 units.
4. Assessment methods (Formative & Summative).
5. Grading Schemes.
6. Department pool of Electives.
7. Introduction of Cyber Security and Teaching Activity 2 credits each.
8. 3 Add on Certification Courses.
9. Dr. Siva Prasad appreciated the new regulations as per NEP 2020 and the new courses introduced as per the latest industrial requirements.
10. Dr. Siva Prasad suggested to cross check the hours allotted to modules as per proposed LTP.

The following resolutions made after the discussion:

1. BoS Members approved the revised regulations, curriculum structure, syllabus of M.Tech., Machine Design programme and it follows based on the NEP 2020. Curriculum structure is provided in Appendix-I.
2. Major restructuring has taken place in the curriculum which is oriented towards continuous learning and assessment based on Module structure.
3. The curriculum is encompassing the courses that enable employability or entrepreneurship or skill development, provided in Appendix- II.
4. The significant changes are made in the content of all courses and hence the courses are considered as new courses provided in Appendix- III.
5. Total average percentage of syllabus revised was **64.07%** compared to previous curriculum

Based on the suggestions given by the members, the Chairperson of BoS told that, those fruitful suggestions would be incorporated appropriately in the curriculum and syllabi of the regulation R22 and this will be recommended to the Academic Council of VFSTR for the approval.

There being no further points for discussion, the Chairperson thanks all the external, internal, invited members and announced that the meeting was adjourned.



Member Secretary



Chairperson



DEPARTMENT OF MECHANICAL ENGINEERING

APPENDIX I

M. Tech in MACHINE DESIGN Programme: Curriculum Structure

I YEAR I SEMESTER					
S.No	Course Title	L	T	P	C
1	Mechanisms for Automation	2	2	2	4
2	Multibody Dynamics	2	2	2	4
3	Vibration Analysis & Condition Monitoring	2	2	2	4
4	Department Elective – 1	2	0	2	3
5	Department Elective – 2	2	0	2	3
6	Cyber Security	1	2	0	2
7	Employment Orientation Program	0	2	2	2
Grand Total		11	10	12	22
		33 Hrs			
I YEAR II SEMESTER					
S.No	Course Title	L	T	P	C
1	Electric Vehicle Design	3	0	2	4
2	Design for Reliability and Maintainability	3	0	2	4
3	Department Elective – 3	2	0	2	3
4	Department Elective – 4	2	0	2	3
5	Research Methodologies & IPR	0	2	2	2
6	Interdepartmental Project	0	1	3	2
7	Teaching activity – 1	0	0	4	2
Total		10	3	17	20
8	Add-on Certification Course – 1	3	0	2	4
Grand Total		13	3	19	24
		35 Hrs			
II YEAR I SEMESTER					
S.No	Course Title	L	T	P	C
1	Project / Internship	0	2	24	13
2	Add-on Certification Course – 2 (MOOCs Course)	4	0	0	4
Grand Total		4	2	24	17
II YEAR II SEMESTER					
S.No	Course Title	L	T	P	C
1	Project / Internship	0	2	24	13
2	Add-on Certification Course – 3 (MOOCs Course)	4	0	0	4
Grand Total		4	2	24	17

List of Department Elective Courses

S.No	Course Title	L	T	P	C
1	Optimization Techniques	2	0	2	3
2	Design of Shape Memory Actuators	2	0	2	3
3	Applied Tribology	2	0	2	3
4	Design Synthesis	2	0	2	3
5	Industrial Hydraulics and Pneumatics	2	0	2	3
6	Computational Fluid Dynamics	2	0	2	3
7	Humanoid Robots	2	0	2	3
8	Soft Computing Techniques	2	0	2	3
9	Mechanics of Composite Materials	2	0	2	3
10	Aerodynamics	2	0	2	3
11	Product Development and Value Engineering	2	0	2	3
12	Design for Additive Manufacturing	2	0	2	3

Add-on Certification Courses

S.No	Course Title	L	T	P	C
1	Modelling and Simulation of Autonomous Robots	3	0	2	4
2	Digitalization of Manufacturing Systems	3	0	2	4
3	Drone Technology	3	0	2	4
4	Bio Mechanics	3	0	2	4



Chairperson



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APPENDIX II

List of Courses that Enables Employability or Entrepreneurship or Skill Development

S. No.	Year and Semester	Course Title	Employability / Entrepreneurship / Skill development
1.	I Year I Semester	Mechanisms for Automation	Skill development/Employability
2.	I Year I Semester	Multibody Dynamics	Skill development/Employability
3.	I Year I Semester	Vibration Analysis & Condition Monitoring	Employability
4.	I Year I Semester	Cyber Security	Skill development
5.	I Year I Semester	Employment Orientation Program	Employability
6.	I Year II Semester	Electric Vehicle Design	Employability
7.	I Year II Semester	Design for Reliability and Maintainability	Employability
8.	I Year II Semester	Research Methodologies & IPR	Skill development
9.	I Year II Semester	Interdepartmental Project	Skill development
10.	I Year II Semester	Teaching activity- 1	Employability
11.	II Year I & II Semester	Project / Internship	Employability
12.		Optimization Techniques	Employability
13.		Design of Shape Memory Actuators	Skill development
14.		Applied Tribology	Employability
15.		Design Synthesis	Skill development
16.		Industrial Hydraulics and Pneumatics	Skill development
17.		Computational Fluid Dynamics	Skill development
18.		Humanoid Robots	Entrepreneurship
19.		Soft Computing Techniques	Employability
20.		Mechanics of Composite Materials	Skill development
21.		Aerodynamics	Employability
22.		Product Development and Value Engineering	Entrepreneurship
23.		Design for Additive Manufacturing	Employability
24.		Modelling and Simulation of Autonomous Robots	Skill development
25.		Digitalization of Manufacturing Systems	Skill development
26.		Drone Technology	Employability/ Entrepreneurship
27.		Bio Mechanics	Skill development

Chairperson



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APPENDIX III
List of New Courses in the R22 Curriculum

S. No.	Year and Semester	Course Title	Employability / Entrepreneurship / Skill development
1.	I Year I Semester	Mechanisms for Automation	Skill development/Employability
2.	I Year I Semester	Multibody Dynamics	Skill development/Employability
3.	I Year I Semester	Vibration Analysis & Condition Monitoring	Employability
4.	I Year I Semester	Cyber Security	Skill development
5.	I Year I Semester	Employment Orientation Program	Employability
6.	I Year II Semester	Electric Vehicle Design	Employability
7.	I Year II Semester	Design for Reliability and Maintainability	Employability
8.	I Year II Semester	Research Methodologies & IPR	Skill development
9.	I Year II Semester	Interdepartmental Project	Skill development
10.	I Year II Semester	Teaching activity – I	Employability
11.	II Year I & II Semester	Project / Internship	Employability
12.		Optimization Techniques	Employability
13.		Design of Shape Memory Actuators	Skill development
14.		Applied Tribology	Employability
15.		Design Synthesis	Skill development
16.		Industrial Hydraulics and Pneumatics	Skill development
17.		Computational Fluid Dynamics	Skill development
18.		Humanoid Robots	Entrepreneurship
19.		Soft Computing Techniques	Employability
20.		Mechanics of Composite Materials	Skill development
21.		Aerodynamics	Employability
22.		Product Development and Value Engineering	Entrepreneurship
23.		Design for Additive Manufacturing	Employability
24.		Modelling and Simulation of Autonomous Robots	Skill development
25.		Digitalization of Manufacturing Systems	Skill development
26.		Drone Technology	Employability/ Entrepreneurship
27.		Bio Mechanics	Skill development


Chairperson



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APPENDIX IV

Comparison of Course Contents between R20 and R22 Curriculums

S. No.	Year and Semester	Course Title	% of Changes
1.	I Year I Semester	Mechanisms for Automation	20
2.	I Year I Semester	Multibody Dynamics	100
3.	I Year I Semester	Vibration Analysis & Condition Monitoring	50
4.	I Year I Semester	Cyber Security	100
5.	I Year I Semester	Employment Orientation Program	20
6.	I Year II Semester	Electric Vehicle Design	100
7.	I Year II Semester	Design for Reliability and Maintainability	50
8.	I Year II Semester	Research Methodologies & IPR	20
9.	I Year II Semester	Interdepartmental Project	100
10.	I Year II Semester	Teaching activity – I	100
11.	II Year I & II Semester	Project/ Internship	30
12.		Optimization Techniques	20
13.		Design of Shape Memory Actuators	20
14.		Applied Tribology	20
15.		Design Synthesis	20
16.		Industrial Hydraulics and Pneumatics	20
17.		Computational Fluid Dynamics	20
18.		Humanoid Robots	100
19.		Soft Computing Techniques	100
20.		Mechanics of Composite Materials	20
21.		Aerodynamics	100
22.		Product Development and Value Engineering	100
23.		Design for Additive Manufacturing	100
24.		Modelling and Simulation of Autonomous Robots	100
25.		Digitalization of Manufacturing Systems	100
26.		Drone Technology	100
27.		Bio Mechanics	100

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