SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(An Autonomous Institution)
Puducherry

4th - Board of Studies Meeting in the Department of
Mechanical Engineering

for the Programme
B.Tech, M.Tech & Ph.D.

Venue
R&D Lab, Department of Mechanical Engineering
Sri Manakula Vinayagar Engineering College
Madagadipet, Puducherry – 605 107

Date & Time
11-03-2022 & 2 PM

Department of Mechanical Engineering

Minutes of Board of Studies Meeting (UG, PG & PhD)

The Fourth Board of Studies meeting of Department of Mechanical Engineering was held on 11th March 2022 at 02:30 P.M in the R&D Lab, Department of Mechanical Engineering, Sri Manakula Vinayagar Engineering College with the Head of the Department in the Chair.

The following members were present for the BoS meeting:

Sl. No	Name of the Member with Designation and official Address	Responsibility in the BoS
1	Dr. K.Velmurugan Professor and Head Department of MECH, SMVEC	Chairman
External Members		
2	Dr. N. Alagumurthi, Ph.D, Professor & Head Department of Mechanical Engineering, Pondicherry Engineering College, Puducherry-605014. Email id: alagumurthi@pec.edu Mobile No.: 9486143090	University Nominee
3	Dr. M. Leenus Jesu Martin, Ph.D, Director for campus SRM Institute of Science and Technology, Tamil Nadu – 603203 Email id: hod.auto@ktr.srmuniv.ac.in Mobile No.: 9940036021	Member
4	Dr. A.T. Ravichandran, Ph.D, Dean School of Mechanical and Construction Engineering Vel Tech Rangarajan Dr.Sagunthala R & D Institute of Science and Technology, Avadi, Chennai – 600062 Email id: hodmech@veltech.edu.in Mobile No.: 9942940600	Member
Internal Members		
5	Dr.G.G.Sozhamannan, Professor, **Specialization:** ***Manufacturing Engineering***	Member
6	Dr.T.Coumaressin, Associate Professor, **Specialization:** ***Thermal Engineering***	Member

7	Dr.K.Hemalatha, Associate Professor, **Specialization:** ***Engineering Design***	Member
8	Dr.A.Thiagarajan, Associate Professor, **Specialization:** ***Product Design & Manufacturing***	Member
9	Prof.N.Vijayan, Assistant Professor, **Specialization:** ***Mathematics***	Member
10	Prof.K.Oudayakumar Associate Professor, **Specialization:** ***Physics***	Member
11	Dr.K.Karthikeyan Associate Professor, **Specialization:** ***Chemistry***	Member
12	Dr.D.Jaichithra, Professor, **Specialization:** ***English***	Member
Co-opted Members		
13	Dr. Anand Gurupatham Deputy General Manager, CAE-Department Head at Renault Nissan, Technology & Business Center, Chennai, Tamil Nadu, India	Industrial Member
Alumni		
14	Mr.P.Madavan, Research Scholar MIT, Anna university, Chennai.	Alumni Member

AGENDA OF THE MEETING

Item No. : BOS / 2022/MECH/UG /4.1	
	Consideration of confirmation of minutes of the previous meeting held on 11TH August 2022
Item No. : BOS / 2022/MECH/UG /4.2	
	Consideration of the note on action taken on the decisions of the previous meeting
Item No. : BOS / 2022/MECH/UG /4.3	
	Consideration of revision of curriculum and syllabus of VII and VIII semester of B.Tech. MECHANICAL to be offered under Regulations 2020 to the students admitted in the academic year 2020-21 a) Revision of detail syllabus b) Revision of list of electives to be offered in both the semesters
Item No. : BOS / 2022/MECH/UG /4.4	
	Consideration of revision of list of panel of question paper setters and Examiners for the examinations of UG and PG Programmes for the academic year 2021-22
Item No. : BOS / 2022/MECH/UG /4.5	
	Consideration of assessment of quality of question papers of U.G. Programme drawn in previous examinations
Item No. : BOS / 2022/MECH/UG /4.6	
	Consideration of review of feedback received from faculties and students
Item No. : BOS / 2022/MECH/UG /4.7	
	Consideration of offering of Professional and Open electives in VII and VIII semester students admitted in the Academic Year 2020-21.
Item No. : BOS / 2022/MECH/UG /4.8	
	To consider and approve the department committee to monitor the Academic Activities
Item No. : BOS / 2022/MECH/UG /4.9	
	Consideration and approve the students admitted in the Academic Year 2021-22
Item No. : BOS / 2022/MECH/UG /4.10	

Any other item with the permission of chair

The meeting was concluded at 04:00PM with vote of thanks by Dr.K.Velmurugan, Head of Department, Mechanical Engineering

Sl. No	Name of the Member with Designation and official Address	Responsibility in the BoS	Signature
1	Dr. K.Velmurugan Professor and Head Department of MECH, SMVEC	Chairman	
External Members			
2	Dr. N. Alagumurthi, Ph.D, Professor & Head Department of Mechanical Engineering, Pondicherry Engineering College, Puducherry-605014. Email id: alagumurthi@pec.edu Mobile No.: 9486143090	University Nominee	
3	Dr. M. Leenus Jesu Martin, Ph.D, Director for campus SRM Institute of Science and Technology, Tamil Nadu – 603203 Email id: hod.auto@ktr.srmuniv.ac.in Mobile No.: 9940036021	Member	
4	Dr. A.T. Ravichandran, Ph.D, Dean School of Mechanical and Construction Engineering Vel Tech Rangarajan Dr.Sagunthala R & D Institute of Science and Technology, Avadi, Chennai – 600062 Email id: hodmech@veltech.edu.in Mobile No.: 9942940600	Member	In his absence
Internal Members			
5	Dr.G.G.Sozhamannan, Professor, **Specialization:** ***Manufacturing Engineering***	Member	
6	Dr.T.Coumaressin, Associate Professor, **Specialization:** ***Thermal Engineering***	Member	
7	Dr.K.Hemalatha, Associate Professor, **Specialization:** ***Engineering Design***	Member	
8	Dr.A.Thiagarajan, Associate Professor, **Specialization:** ***Product Design & Manufacturing***	Member	

9	Prof.N.Vijayan, Assistant Professor, **Specialization: *Mathematics***	Member	
10	Prof.K.Oudayakumar Associate Professor, **Specialization: *Physics***	Member	
11	Dr.K.Karthikeyan Associate Professor, **Specialization: *Chemistry***	Member	
12	Dr.D.Jaichithra, Professor, **Specialization: *English***	Member	
Co-opted Members			
13	Dr. Anand Gurupatham Deputy General Manager, CAE-Department Head at Renault Nissan, Technology & Business Center, Chennai, Tamil Nadu, India	Industrial Member	On-line
Alumni			
14	Mr.P.Madavan, Research Scholar MIT, Anna university, Chennai.	Alumni Member	On-line

Minutes of the Meeting

Dr. K. Velmurugan, Chairman, BoS opened the meeting by welcoming and introducing the external members, to the internal and co-opted members and thanked them for accepting the invitation to attend the Board of Studies meeting and the meeting thereafter deliberated on agenda items that has been approved.

BOS / 2022/MECH/UG /4.1 & 4.2	**Consideration of confirmation of minutes of the previous meeting held on 11th August 2021 Chairman, BoS, appraised the minutes of 3rd BoS, its implementation and then it is confirmed with the approval**
BOS / 2022/MECH/UG /4.3	**Consideration of revision of curriculum and syllabus of VII and VIII semester of B.Tech. MECHANICAL to be offered under Regulations 2020 to the students admitted in the academic year 2020-21** • Recommended to approve the B.Tech. Degree Regulations 2020 (R-20), Curriculum for VII and VIII semester B.Tech – Mechanical Engineering for the students admitted in the Academic Year 2020-21 with few suggestion: 1. In Numerical methods lab, branch specific problems can also be included 2. In Metrology and Measurements lab Coordinate measuring machine to be included, as the familiarization in CMM in most important to pursue their careers in industries 3. Turbo machinery course content is heavy can be modified for next batch of students 4. Hours distribution should be uniform for all the semesters in the curriculum 5. Norms for internship should be made uniform for the entire college and to be made mandatory. Internship may be provided between 6th and 7th semester. The type of industries and a list can also be provided to students to take up their internships and the Internship along with that Internship Evaluation procedure need to be finalized. 6. Domain wise Elective distribution can be followed for the students, so that students get expertise in specific area, and they can pursue their higher studies in their area of specialization 7. The automation and Robotics lab syllabus to be modified in align with the subject **(Annexure 1)**

S. NO.	Regulation	Semester	Subject name with code	Unit	Particulars
1	2020	VII	Automation and Robotics/ U20MEP712	-	Experiments are modified in align with the theory course

8. Project phase 1 and phase 2 CO should be mapped in align with eachother **(Annexure 2)**

S. No.	Regulation	Semester	Subject name with code	Unit	Particulars
1	2020	VII &VIII	Project Phase 1 (U20MEW701) & Project Phase 2 (U20MEW803)	-	Course outcomes modified as per the suggestions given by experts

9. Common courses can be discussed in general BOS and uniform methodology can be adopted in handling those courses
10. For the Business Basics Entrepreneurship Lab, reference should be modified **(Annexure 3)**

S. No.	Regulation	Semester	Subject name with code	Unit	Particulars
1	2020	VII	Business Basics Entrepreneurship Practical (U20HSP703)	-	Reference names incomplete modification done

BOS / 2022/MECH/UG /4.4	**Consideration of revision of list of panel of question paper setters and Examiners for the examinations of UG and PG Programmes for the academic year 2021-22** • Recommended to approve the panel of examiners and question paper setters for UG programmes
BOS / 2022/MECH/UG /4.5	**Consideration of assessment of quality of question papers of U.G. Programme drawn in previous examinations** • End semester question papers to be internally audited after the

<table>
<tr><td></td><td>exams for the attainment of knowledge levels and outcomes with students and faculties</td></tr>
<tr><td>BOS / 2022/MECH/UG /4.6</td><td>Consideration of review of feedback received from faculties and students
• Feedbacks received from faculties and students for their handling and undergoing subjects respectively.</td></tr>
<tr><td>BOS / 2022/MECH/UG /4.7</td><td>Consideration of offering of Professional and Open electives in VII and VIII semester students admitted in the Academic Year 2020-21.
• Recommended to approve the Professional and Open electives in VII semester and VIII (Annexure 4)</td></tr>
<tr><td>: BOS / 2022/MECH/UG /4.8</td><td>To consider and approve the department committee to monitor the Academic Activities
• Recommended to approve the department committee to monitor the Academic Activities
<table>
<tr><th>S.No.</th><th>Committee Name</th><th>In-charges</th></tr>
<tr><td>1</td><td>Academic Coordinator</td><td>Dr.G.G.Sozhamannan</td></tr>
<tr><td>2</td><td>IQAC- coordinator</td><td>Dr.K.Hemalatha</td></tr>
<tr><td>3</td><td>Teaching Coordinator</td><td>Dr.J.Pavalavanapandian</td></tr>
<tr><td>4</td><td>Research coordinator</td><td>Dr.A.Thiagarajan</td></tr>
<tr><td>5</td><td>Student activity coordinator</td><td>Dr.A.G.Ganesh Kumar</td></tr>
<tr><td>6</td><td>Exam coordinator</td><td>Dr.T.Coumaressin</td></tr>
<tr><td>7</td><td>Placement coordinator</td><td>Mr.A.Jeyachandran
Mr.L.Martin</td></tr>
<tr><td>8</td><td>IIPC coordinator</td><td>Dr.L.Saravanan</td></tr>
<tr><td>9</td><td>Staff support coordinator</td><td>Mr.P.Sathiaprathap</td></tr>
<tr><td>10</td><td>Infrastructure coordinator</td><td>Mr.E.Manikandan</td></tr>
<tr><td>11</td><td>Media, website and MIS coordinator</td><td>Mr.R.Hemanthkumar</td></tr>
<tr><td>12</td><td>Alumni & scholarship coordinator</td><td>Mr.S.Arulpradeep</td></tr>
<tr><td>13</td><td>Department Activity coordinator</td><td>Mr.D.Karunakaran
Mr.P.Jayakumar</td></tr>
</table></td></tr>
<tr><td>BOS / 2022/MECH/UG /4.9</td><td>Consideration and approve the students admitted in the Academic Year 2021-22
• Discussed about the admission procedure</td></tr>
<tr><td>BOS / 2022/MECH/PHD /4.10</td><td>Mode of admission procedure discussed and approved the existing admission procedure</td></tr>
</table>

Annexure -1

U20MEP712	AUTOMATION AND ROBOTICS LAB	L	T	P	C	Hrs
		0	0	2	1	30

Course Objectives

- To provide the student with basic skills useful in identifying the concepts of automation.
- To familiarize with part program for gear cutting operations.
- To impart knowledge on drilling and Milling operations.
- To impart knowledge on robot kinematics and programming for a given application.
- To provide an introduction to Industry 4.0 its applications in industry

Course Outcomes

After completion of the course, the students will be able to

CO1 - Understand the part program for gear cutting using Mill cycle. **(K2)**
CO2 - Generate Part program for multiple drilling operation. **(K3)**
CO3 - Understand the concepts industrial robotics and its application. **(K3)**
CO4 - Solve direct and inverse kinematics and choose appropriate Robot for given application. **(K3)**
CO5 - Choose appropriate materials handling devices and perform robot programming for a given application. **(K3)**

List of Experiments

1. Co-ordinated motion of multiple actuator, electro – pneumatic systems in a desired sequence using hard – wire programmed control systems
2. To Measure temperature of the given liquid using RTD or Thermocouple and PLC.
3. To develop Electric logic sensor and actuators and wiring them to PLC
4. To demonstration of robot with 2 DOF, 3 DOF, 4 DOF.
5. To detect the sensor scanning system to overcome limitation of fixed sensors on various robotic applications, ultrasonic sensor, laser range finders, infrared detectors and miniature.
6. To find the horizontal and vertical movement up to 180degree in either direction.
7. To detect objects with infrared ray detector.
8. To determine object distance (3cm – 300cm).
9. To detect distance (10cm to 80 cm) with infrared object detector.
10. To determine 5 Axis Robotic Arm movement and its degree of rotation.

Reference Books

1. James A Rehg, "Introduction to Robotics in CIM Systems", Prentice Hall of India, 2002.
2. Mikell P. Groover, "Automation, Production Systems and Computer Integrated Manufacturing", Third Edition, Pearson Education, 2009.
3. Mikell Groover, "Fundamentals of modern manufacturing", John Wiley & Son, 2010.
4. Rex Miller, "Robots and Robotics: Principles, Systems, and Industrial Applications", Mc Graw Hill, 2017.
5. Stamatios Manesis, George Nikolakopoulos., "Introduction to Industrial Automation", CRC Press 2018.

Web References

1. https://nptel.ac.in/courses/112/101/112101098/
2. https://ed.iitm.ac.in/img/files/Robotics%20and%20Automation%20Laboratory
3. https://www.jnec.org/labmanuals/mech/be/sem1/Final%20Year%20B.Tech-ROBOTICS%20LAB%20%20MANUAL
4. http://www.kctgroups.com/downloads/files/n543b9e884d583
5. https://www.srmist.edu.in/mech-engg/robotics-lab

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	1	2	1	2	-	-	-	1	-	-	2	3	2	2
2	3	1	2	1	2	-	-	-	1	-	-	2	2	3	2
3	3	1	1	1	3	-	-	-	1	-	-	2	3	2	2
4	3	2	3	1	2	-	-	-	1	-	-	1	3	3	2
5	3	2	3	1	3	-	-	-	1	-	-	2	3	2	3

Correlation Level: 1- Low, 2 - Medium, 3 - High

Dr. K. Velmurugan, M.E., Ph.D.,
Professor & Head
Department of Mechanical Engineering
Sri Manakula Vinayagar Engineering College
Madagadipet, Puducherry - 605107

Annexure -2

U20MEW701 **PROJECT PHASE - I**

L	T	P	C	Hrs
0	0	4	2	45

Course Objectives

- To enable students to use all concepts of Mechanical engineering in creating a solution for a problem
- To offer students a glimpse into real world problems and challenges that need.
- To create awareness among the students of the characteristics of several domain areas where Mechanical engineering can be effectively used.
- To improve the team building, communication and management skills of the students.
- To learn various research challenges in the field of Mechanical engineering.

Course Outcomes

After completion of the course, the students will be able to

CO1 - Identify an innovative or creative idea/concept/solution to a problem. **(K2)**
CO2 – Work independently to lead the project along with team members. **(K3)**
CO3 - Interpret the results and document the report. **(K3)**
CO4 - Communicate effectively through presentation. **(K3)**
CO5 - Design and Develop the working model. **(K4)**

CONTENTS

- The Project is a theoretical study/analysis/prototype design/modeling and simulation or a combination of these.
- Should be done as group (preferably four students) project.
- The progress of the project is evaluated based on a minimum three reviews and final viva-voce examination.
- A project report is required to be submitted in the standard prescribed format.

COs/POs/PSOs Mapping

COs	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	2	2	1	2	2	2	3	2	3	3	3	3	3
2	3	2	2	2	1	2	2	2	3	2	3	3	3	3	3
3	3	2	2	2	1	2	2	2	3	2	3	3	3	3	3
4	3	2	3	3	1	3	3	3	3	3	3	3	3	3	3
5	3	2	3	3	1	3	3	3	3	3	3	3	3	3	3

Correlation Level: 1- Low, 2 - Medium, 3 – High

U20MEW803 **PROJECT PHASE - II**

L	T	P	C	Hrs
0	0	16	8	45

Course Objectives

- To develop students ability to apply Mechanical Engineering knowledge to transfer ideas to solve real life problems in industries as an individual or as a team.
- To develop design and fabrication of the products.
- To apply engineering disciplines and analysis the fabrication of the product.
- To compare the result analysis with follow standards norms develop the components.
- To conclude the developed product.

Course Outcomes

After completion of the course, the students will be able to

CO1 - Demonstrate and practice the concepts of basics sciences and mechanical engineering principles in addressing a real time and real life situation. **(K2)**

CO2 - Enhance the financial management skills to achieve project goal in a stipulated time by working as a Team. **(K3)**

CO3 - Familiarize in technical writing skills and create a project proposal and report on completion. **(K3)**

CO4 - Develop a model comprising of real time application in the industry. **(K6)**

CO5 - Challenge and Achieve the real time solutions for industry and society oriented problems. **(K6)**

Guidelines For Carrying Out Project Work

- Create a model/fabricate a model/conduct experiment/simulate mechanical system/implement improved ideas for the project work.
- Analyze data, evaluate the results and conclude the appropriate solution, suggestion for feature work.
- The continuous assessment shall be made as prescribed in the regulations.
- The review committee may be constituted by the Head of the Department.
- The progress of the project is evaluated based on a minimum of three reviews.
- Each student shall finally produce a comprehensive report covering background information, literature survey, problem statement, project work details and conclusion.
- This final report shall be typewritten form as specified in the guidelines.

COs/POs/PSOs Mapping

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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	3	2	2	2	3	2	2	2	3	2	3	3	3	3	3
2	3	2	2	2	3	2	2	2	3	2	3	3	3	3	3
3	3	2	2	2	3	2	2	2	3	2	3	3	3	3	3
4	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3
5	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3

Correlation Level: 1- Low, 2 - Medium, 3 – High

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Annexure - 3

U20HSP703	BUSINESS BASICS FOR ENTREPRENEUR	L	T	P	C	Hrs
		0	0	2	1	18

Course Objectives

- To develop a clear understanding on Business Plans and their significance.
- To be familiar with various forms of business appropriate for an individual entrepreneur
- To understand various ways of judging a successful opportunity for an entrepreneur
- To know the ways to formulate a successful Operation Plan
- To be aware of things to know to prepare effective financial and marketing plans

Course Outcomes

After completion of the course, the students will be able to

CO1 - Impact comprehensive knowledge of an entrepreneurial ecosystem. **(K2)**
CO2 - Understand the need and significance of Business Plan in the success of an Enterprise. **(K2)**
CO3 - Understand the ways to judge the economic and business viability of proposed venture. **(K2)**
CO4 - Utilize the elements of success of entrepreneurial ventures. **(K2)**
CO5 - Evaluate the effectiveness of different entrepreneurial strategies. **(K3)**

UNIT I THE ENTREPRENEURIAL PERSPECTIVE **(6 Hrs)**

Entrepreneurship and Family Business Management, Entrepreneurship theory and practice, The Nature and Importance of Entrepreneurs, The Entrepreneurial and Entrepreneurial Mind, The Individual Entrepreneur, International Entrepreneurship Opportunities

UNIT II CREATING AND STARTING THE VENTURE **(6 Hrs)**

Creativity and the Business Idea, Legal Issues for the Entrepreneur, the Business Plan, the Marketing Plan, the Financial Plan, the Organizational Plan

UNIT III FINANCING THE VENTURE **(6 Hrs)**

Raising Finance, scaling up the venture, NDA'S and term sheet, Sources of the Capital, Informal Risk Capital and Venture Capital

Report Submission:

- Grooming Entrepreneurial Mind-set
- Interaction with Business Leaders/Bankers/Venture Capitalists
- Finding and evaluating an idea
- Develop a business plan
- Financing for a company start-up
- Setting up a company-legal entity
- Entrepreneurial development and employment creation
- Effects of creativity and innovation on the entrepreneurial performance of family business

Text Books

1. Michael Laverty, Chris Little. Entrepreneurship, OpenStax publication,2020
2. Lasher, Perfect Business Plan Made Simple: The best guide to writing a plan that will secure financial backing for your business. Broadway Books, 2010.
3. Arjun Kakkar. Small Business Management: Concepts and Techniques for improving Decisions. Global India Publications, 2009.

Reference Books

1. Prajakt Raut, Starting up and Fund Raising, Notion Press, 2020.

2. Rhett Power, Entrepreneurs Book of Actions: Essential Daily Exercises and Habits for Becoming Wealthier, Smarter, and More Successful, McGraw-Hill Education, 2017.
3. Robert D. Hisrich, Veland Ramadani, Effective Entrepreneurial Management, Springer International Publishing, 2017
4. Eric W. Liguori, Mark, Entrepreneurship in Action The Power of Student-Run Ventures, Edward Elgar Publishing, 2021.
5. N. V. R. Naidu, Management and Entrepreneurship, I.K. International Publishing House Pvt. Limited,2013

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1. https://www.waveapps.com/blog/entrepreneurship/importance-of-a-business-plan
2. https://www.entrepreneur.com/article/200516
3. https://smallbusinessbc.ca/article/how-to-use-viability-to-test-if-you-should-invest-in-your-business/
4. https://www.infoentrepreneurs.org/en/guides/strategic-planning/
5. http://www.marketingmo.com/strategic-planning/marketing-plans-budgets/
6. https://www.mbda.gov/page/loan-documentation

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2	1	2	2	2	2	2	3	3	3	2	1	2	2	2	1
3	1	2	2	1	2	2	3	3	3	3	2	3	1	2	3
4	1	3	2	2	2	2	3	3	3	3	2	3	1	2	2
5	1	3	2	2	2	2	3	3	3	2	2	3	1	3	2

Correlation Level: 1- Low, 2 - Medium, 3 - High

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