

BOS 2018



**SETHU INSTITUTE OF TECHNOLOGY, PULLOOR,  
KARIAPATTI – 626 115**



MINUTES OF THE 6<sup>th</sup> MEETING FOR THE BOARD OF STUDIES IN THE  
DEPARTMENT OF MECHANICAL ENGINEERING HELD ON 30/07/2018.


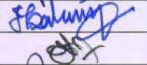
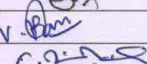
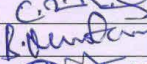
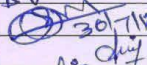

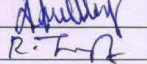
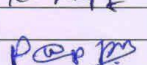
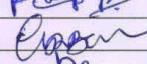
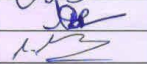
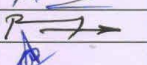
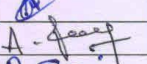
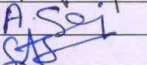
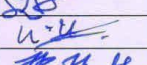
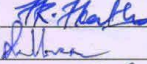
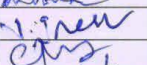
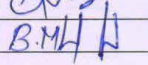

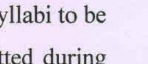
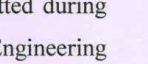
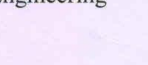

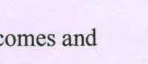




The Sixth Meeting of the Board of Studies in the Department of Mechanical  
Engineering was held at 10.00 AM on **30/07/2018** at Seminar Hall of Mechanical  
Engineering Department, Sethu Institute of Technology, Pulloor, Kariapatti.

The following members were present.

Sl. No	Name of the Members	Designation and Institution	Position	Signature
1.	Dr. G.D. Siva Kumar	Vice principal / HOD Mechanical Sethu Institute of Technology.	Chairman	
2.	Dr. U. Natarajan	Associate Professor Department of Mechanical Engineering, Alagappa College of Engineering and Technology, Karaikkudi – 630 004.	University Nominee	
3.	Dr. U. Arunachalam	Assistant Professor University College of Engineering Anna university Constituent College Konam, Nagercoil -629004	Member- External	
4.	Dr. A. Asha	Professor, Department of Mechanical Engineering, Kamaraj College of Engineering and Technology, Virudhunagar – 625 701	Member- External	

5.	Dr. N. Rajini	Professor, Department of Mechanical Engineering, Kalasalingam University, Srivilliputtur 626 126	Member- External	<i>N. Rajini</i>
6.	Mr. G. Rajamurthy	Managing Director Singai Coirs Pvt Ltd Singampunari Sivanga District	Industrial Expert	<i>G. Rajamurthy</i>
7.	Mr. A. Kosalram	Senior Design Engineer, Auro Lab Madurai	Alumni	<i>A. Kosalram</i>
8.	Dr. A. Senthil Kumar	Professor	Member	<i>A. Senthil Kumar</i>
9.	Dr. C. Kailasanathan	Professor	Member	<i>C. Kailasanathan</i>
10.	Dr. S. Mothilal	Professor	Member	<i>S. Mothilal</i>
11.	Dr. R. MuraliKannan	Professor	Member	<i>R. MuraliKannan</i>
12.	Dr. K. ArunBalasubramanian	Professor	Member	<i>K. ArunBalasubramanian</i>
13.	Dr. C. Muthusamy	Professor	Member	<i>C. Muthusamy</i>
14.	Dr. B. Raja Mohamed Rabi	Professor	Member	<i>B. Raja Mohamed Rabi</i>
15.	Dr. V. Srinivasa Raman	Professor	Member	<i>V. Srinivasa Raman</i>
16.	Dr. G. Pitchayya Pillai	Professor	Member	<i>G. Pitchayya Pillai</i>
17.	Mr. G.K. ThamilSelvan	Associate Professor	Member	<i>G.K. ThamilSelvan</i>
18.	Dr. I. Vijay Arasu	Associate Professor	Member	<i>I. Vijay Arasu</i>
19.	Mr. S. Paramasamy	Associate Professor	Member	<i>S. Paramasamy</i>
20.	Mr. G. Nagaraj	Associate Professor	Member	<i>G. Nagaraj</i>
21.	Dr. K. Vinayagar	Associate Professor	Member	<i>K. Vinayagar</i>
22.	Mr. S. Shaik Mohamed Ferozdheen	Associate Professor	Member	<i>S. Shaik Mohamed Ferozdheen</i>
23.	Dr. N. Premalatha	Associate Professor	Member	<i>N. Premalatha</i>
24.	Mr. T. Gangadharan	Assistant Professor (Sr. Grade)	Member	<i>T. Gangadharan</i>
25.	Mr. P. R. Rajkumar	Assistant Professor (Sr. Grade)	Member	<i>P. R. Rajkumar</i>
26.	Mr. K.M. Ahamed Sheriff	Assistant Professor (Sr. Grade)	Member	<i>K.M. Ahamed Sheriff</i>
27.	Mr. R. Sridhar	Assistant Professor (Sr. Grade)	Member	<i>R. Sridhar</i>
28.	Mr. A. SaravanaKumaar	Assistant Professor (Sr. Grade)	Member	<i>A. SaravanaKumaar</i>
29.	Mr. R. Karuppasamy	Assistant Professor (Sr. Grade)	Member	<i>R. Karuppasamy</i>
30.	Mr. A. Syed Ibrahim	Assistant Professor (Sr. Grade)	Member	<i>A. Syed Ibrahim</i>
31.	Mr. G. Venkatesan	Assistant Professor (Sr. Grade)	Member	<i>G. Venkatesan</i>
32.	Mr. S. Shanmugam	Assistant Professor	Member	<i>S. Shanmugam</i>



33.	Mr. P. Meenatchisundaram	Assistant Professor	Member	
34.	Mr. T.P. Balaji	Assistant Professor	Member	
35.	Mr. R. SelvaBharathi	Assistant Professor	Member	
36.	Mr. V. Ramachandran	Assistant Professor	Member	
37.	Mr. C. Tamilarasan	Assistant Professor	Member	
38.	Mr. B. MuthuChozhaRajan	Assistant Professor	Member	
39.	Mr. S. Devanand	Assistant Professor	Member	
40.	Mr. A. ShyamSundar	Assistant Professor	Member	
41.	Mr. K.Sarbudeen	Assistant Professor	Member	
42.	Mr. K. Amirtharaj	Assistant Professor	Member	
43.	Mr. R. Jayaprakash	Assistant Professor	Member	
44.	Mr. M. Jeyaram	Assistant Professor	Member	
45.	Mr. P. Karuppasamy	Assistant Professor	Member	
46.	Mr. R. Balaji	Assistant Professor	Member	
47.	Mr. M. Pasumpon	Assistant Professor	Member	
48.	Mr. S. Saravanan	Assistant Professor	Member	
49.	Mr. R. Seenivasan	Assistant Professor	Member	
50.	Mr. M. Elavarasan	Assistant Professor	Member	
51.	Mr. A. Perumal	Assistant Professor	Member	
52.	Mr. A. Shenbagaraj	Assistant Professor	Member	
53.	Mr. A. SethuRamalingam	Assistant Professor	Member	
54.	Mr. J. David Gnanaraj	Assistant Professor	Member	
55.	Mr. R. Kathirvel	Assistant Professor	Member	
56.	Mr. S.M. SadharmJavidur Rahman	Assistant Professor	Member	
57.	Mr. V. Vignesh	Assistant Professor	Member	
58.	Mr. C. Ramaraj	Assistant Professor	Member	
59.	Mr. B. Mohmed Fazil	Assistant Professor	Member	

The Chairman welcomed the members and presented the Curriculum and Syllabi to be followed based on **Choice Based Credit System(CBCS)** for students who admitted during the academic year 2015-16, 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. Mapping of COs with POs and PSOs and Mapping of Curriculum with Programme Specific Criteria
3. Assessment Questions and Assessment Pattern for Courses

4. Updation in core courses of VII and VIII Semester
5. Updation in Elective Courses
6. Multi / Inter disciplinary Courses
7. External Examiners and Scrutiny Members
8. Employability/ Entrepreneurship/ Skill Development
9. Industry involved / Project based / Problem based courses
- 10.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 to modify the 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 to modify the PEOs, POs and PSOs as follows

**Program Educational Objectives 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**

- **PO 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]**

- **PO 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]**

- **PO 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)
- **PO 8:** “Apply ethical principles, and commit to professional ethics and responsibilities and norms of the engineering practice”. (Ethics)

**Program Specific Outcomes PSOs**

- Apply the concepts of design and manufacturing to solve industrial problems.
- Apply the knowledge of Mechanical engineering to design solutions, systems and components to meet the needs of Automobile Industry.

## **2. Mapping of COs with POs and PSOs and Mapping of Curriculum with Programme Specific Criteria**

The Chairperson presented the Mapping of COs of R2015 with POs and PSOs and curriculum and syllabi with programme specific criteria to all the members of BOS and the board approved the same

## **3. Assessment Questions and Assessment Pattern for Courses**

The Chairperson presented the Assessment Questions and Assessment Pattern and course outcomes for all the Courses available in R2015 curriculum prepared by the faculty members. The BoS members approved the course outcomes, Assessment question and Assessment Pattern.

## **4. Updation in core courses of VII and VIII Semester**

The Board analyzed the technology forecast and stake holders feedback regarding curriculum and syllabi under 2015 regulation

### **Technology Forecast**

Sl.No.	Publishers	Content of forecast
1	CII Mission Manufacturing	India is the fastest growing economy in the world today and is uniquely positioned with the a deeper engagement with global value chain to emerge as a leader in adopting Industry4.0
2	CII Renewable Energy	Renewable energy growth dynamics in the small hydropower and Biomass power generation

### **Stakeholders Feedback**

Sl.No	Stakeholders	Name	Feedback
1.	International Faculty	Dr.G. Sivakumar Lecturer Mechanical Section Ibra college of	In a world of increasing volatility, shorter product life cycles, higher product complexity, and simple chains, companies are seeking to became more flexible and



		technology Sultanate of Oman	<p>responsive to business trends. The Industry 4.0 vision provides the digitalization of the whole product life cycle from production, service and social media which will lead to faster product improvements. I suggest to include "Industry 4.0" as a multidisciplinary course in R2015 or forth coming curriculum.</p> <p>Agriculture is the most important sector of Indian Economy. Indian agriculture sector accounts for 18 per cent of India's gross domestic product (GDP) and provides employment to 50% of the countries workforce. I suggest to include "Agriculture Automation system" as a multidisciplinary course in R2015 or forth coming curriculum.</p>
2.	Industry	Mr.G.Rajamurthy Managing Director Singai coirs cluster (p) Ltd.,	Introduce new courses like Smart manufacturing and Automation in Agriculture
3.	Employer	Mr. C. Jaikumar Managing Director 3D Maker , Madurai	Repetition of course content in Unit II of 15UME703 – Mechatronics course
4.	Industry	Srinivasan Sethuraman SAI Inspection Limited	Suggested to include the topic Objective of the safety audit and Hazard identified to the safety audit in the course Industrial Safety Engineering
5.	Alumni 2014 - 2018	Mr.B.Partha sarathi Engineer , Assembly line Mygunghwa Automotive , Kanchipuram	IPR and Employer rights content to be added in 8 <sup>th</sup> semester 15UME801 – Professional Ethics course
6.	Alumni	P.Arunpadi Quality control Engineer Sriram Engineering works	Suggested to remove the Machine drawing course in the curriculum
7.	Student 2015 - 2019	R. Arunkumar	Industrial safety Engineering course as core course in curriculum

8.	Student 2015 - 2019	R. Arunpandian	Non destructive testing course as one credit course
9.	Student 2016 - 2020	M. Velvignesh	Suggested to include the course Automation in Agriculture
10.	Student	P.Raghul	Suggested to include Electrical vehicle course in R2015
11.	Student	P.Manikandan	Suggested to include the course Additive Manufacturing course in R2015

- 4.1 The BoS members approved to remove the content in **15UME701 – Project Management and Finance** of Unit II “Constructing network diagram, AON basics, Forward Pass and Backward Pass”, because in Unit II the basic concepts of Operation Research is enough for the student to have the idea about scheduling and CPM/PERT.

The BoS members approved to remove the topic in **15UME701 - Project Management and Finance** of Unit IV “TQM in projects Earned Value Management, performance measurement methods to monitor, evaluate and control planned cost and schedule performance” because the same topic was already covered in 15UME975- Total Quality Management.

The BoS members approved to remove the topic **15UME701 - Project Management and Finance** in Unit V “Analysis & Interpretation of financial statements Risks and return evaluation of investment decision” because Analysis& Interpretation of financial statement needed enormous basics in Accountancy. The entire basic of Accountancy is needed to correlate this topic. The stipulated hours allotted will be sufficient to cover the basics of financial statements alone. Analysis financial statement requires more hours and it will be difficult for the circuit branch students.

- 4.2 The BoS members approved to remove the content “Electrical Actuation Systems - Mechanical Switches - Solid State Switches - Solenoids Construction and working principle of DC and AC Motors - speed control of AC and DC drives, Stepper Motors-switching circuitries for stepper motor - AC & DC Servo motors.” in Unit – II of **15UME703 – Mechatronics** “because these topics were already in 3rd semester 15UEE323 – Electrical Machines and also approved the changes in Text and Reference books.

- 4.3 The BoS members approved to include the content “Assessment of safety and risk, Risk Benefit analysis, Professional Rights, Employee rights, Intellectual Property Rights” in Unit II of **15UME801 - Professional Ethics**, because these topics are necessary topics for student to broaden their knowledge in ethics course.

## 5. Updation in Elective Courses:

### 5.1 Professional Elective

- 5.1.1 The BoS members approved to remove the content “Leadership, Strategic quality planning, Motivation” in Unit III and “improvement needs – Cost of Quality – Performance measures” in Unit IV of **15UME901 -**



**Industrial and quality management**, these topics covered in previous units.

## **5.2 Open Elective**

5.2.1 The BoS members approved to remove the content “History of Safety movement –general concepts of management –line and staff functions for safety. Incident Recall Technique (IRT), evaluation of performance of supervisors on safety” in Unit I and the contact hours reduced from 10 to 9 of 15UME972 - Industrial Safety and Engineering

The BoS members approved to rename the topic in Unit II form “Safety audit” to “Safety audit and Techniques” and contact hours reduced from 10 to 9 hours in 15UME972 - Industrial Safety and Engineering

The BoS members approved to **remove the content** “Components of safety audit, types of audit, audit methodology, non-conformity reporting (NCR), audit checklist and report –review of inspection, remarks by government agencies, consultants, experts –perusal of accident and safety records, formats –implementation of audit indication –liaison with departments to ensure co-ordination –check list –identification of unsafe acts of workers and unsafe conditions in the shop floor-IS 14489 : 1998 Code of practice on occupational Safety and health audit” in Unit II of 15UME972 - Industrial Safety and Engineering and **replace with the following content** “Objective of safety audit- Hazard identification safety audits, checklist, what if analysis, vulnerability models event tree analysis fault tree analysis, Hazard & Operability (HAZOP) studies Hazard Analysis (HAZAN)-Fault Tree Analysis, Consequence Analysis, Preliminary Hazard Analysis (PHA), Job Safety Analysis (JSA), safety – survey, inspection, sampling in Unit II of 15UME972 - Industrial Safety and Engineering

The BoS members approved to reduce the contact hours from 10 to 9 hours in Unit III and increase the contact hours from 7 to 9 hours in Unit V of 15UME972 - Industrial Safety and Engineering

The BoS members approved to rename the topic in Unit IV from “Safety Performance Monitoring” to “Hazards & Risk Analysis” and contact hours increased from 8 to 9 hours in 15UME972 - Industrial Safety and Engineering.

The BoS members approved to **remove the content** “ANSI (Z16.1) Recommended practices for compiling and measuring work injury experience –permanent total disabilities, permanent partial disabilities, temporary total disabilities - Calculation of accident indices, frequency rate, severity rate, frequency severity incidence, incident rate, accident rate, safety “t” score, safety activity rate ,Total Injury illness incidence rate, Lost workday cases incidence rate (LWDI ), Number of lost workdays rate –problem”in Unit IV of 15UME972 - Industrial Safety and Engineering

and replace with the following content “Fire hazards- Chemical hazards, Toxic hazards, Explosion hazards, Electrical hazards, Mechanical hazards, Radiation hazards, Noise hazards-Over all risk analysis—emergency planning- on site & off site emergency planning, risk management ISO 14000, EMS models case studies. Quantitative risk assessment” in Unit IV of 15UME972 - Industrial Safety and Engineering

#### 6. Multi / Inter disciplinary Courses

The Chairperson presented the syllabi of the following Multi/Inter disciplinary courses to the Board for approval :

15UGM951 - Smart Manufacturing (MECH, IT)

15UGM952- Automation in Agriculture Engineering (MECH, AGRI, IT)

15UMG953- Electric Vehicles (MECH, EEE)

15UMG954 - Bio Fluid Mechanics (MECH, BIO-MEDICAL)

The BoS member Dr. A. Asha suggested that **15UGM952 – Automation in Agriculture Engineering** is suitable for ECE Department also.

The BoS member Dr. U. Natarajan suggested that the course **15UGM952 – Automation in Agriculture Engineering** may be offered for all Departments

The BoS member Dr. A. Asha suggested that recent edition Books may be added for the course **15UMG95 -Electric Vehicles**

The BoS members approved the above inter/multi-disciplinary courses

#### New courses introduced

- 15UME906 Computational Fluid Dynamics
- 15UGM951 Automation in Agriculture Engineering
- 15UGM952 Smart Manufacturing
- 15UME861 Smart Materials
- 15UME864 Basics in Refrigeration and Air-conditioning
- 15UME865 Jigs and Fixtures
- 15UME972 Industrial Safety and Engineering

#### Percentage of changes in Syllabus

S.No	Course Code	Course Name	Changes		Percentage of change
			Removed (if Any unitwise)	Added (if Any unitwise)	
1	15UME701	Project Management and Finance	25 %	-	25 %
2	15UME703	Mechatronics	10 %	-	10 %
3	15UME972	Industrial Safety and Engineering	35%	20%	55 %
4	15UME801	Professional Ethics	-	10 %	10 %
5	15UME901	Industrial and quality management	10 %	-	10%
Total Percentage of change					Sum of % of Change = 110%
Percentage of revision in syllabus = Total Percentage of change /Total No of courses in which the syllabus revision is made					= 110 / 5 = 22%



## **7. External Examiners and Scrutiny Members**

The Chairperson presented the Panel of Faculty members for Valuation/Scrutiny Examiners for approval.

The BoS members reviewed and approved the end semester External Examiners and Scrutiny Members for R2015.

## **8. Employability/ Entrepreneurship/ Skill Development**

The BoS members reviewed and approved the courses with focus on Employability, Entrepreneurship/ Skill Development in R2015 Curriculum and syllabus as follows

### **8.1 Courses with focus on Employability**

1. 15UME302 Manufacturing Technology – I
2. 15UME403 Manufacturing Technology – II
3. 15UME404 Thermal Engineering
4. 15UME406 Machine Drawing
5. 15UME407 I.C. Engine and Steam Laboratory
6. 15UME502 Engineering Materials and Metallurgy
7. 15UME503 Design of Machine Elements
8. 15UME504 Operations Research
9. 15UME507 CAD/CAM Laboratory
10. 15UME602 Engineering Metrology and Measurements
11. 15UME608 Metrology and Measurements Laboratory
12. 15UME609 Heat and Mass Transfer Laboratory
13. 15UME702 Finite Element Analysis
14. 15UME706 Computer Aided Analysis Laboratory
15. 15UME804 Project Work
16. 15UME901 Industrial and Quality Management
17. 15UME903 Automobile Engineering
18. 15UME905 Design of Jigs, Fixtures & Press Tools
19. 15UME906 Computational Fluid Dynamics
20. 15UME907 Quality Control and Reliability Engineering
21. 15UME916 Refrigeration and Air Conditioning
22. 15UME919 Maintenance Engineering
23. 15UME920 Production Planning and Control
24. 15UME921 Design of Heat Exchangers
25. 15UME922 Advanced I.C. Engines
26. 15UME926 Industrial Robotics
27. 15UME927 Introduction to aircraft industry and aircraft systems
28. 15UME928 Design of aircraft structures
29. 15UME972 Industrial Safety and Engineering

### 8.2 Courses with focus on Entrepreneurship

1. 15UME916 Refrigeration and Air Conditioning
2. 15UME918 Entrepreneurship Development
3. 15UME701 Project Management and Finance
4. 15UME913 Process Planning and Cost Estimation
5. 15UME971 Industrial Psychology and Work Ethics

### 8.3 Courses with focus on Skill Development

1. 15UEN101 Technical English
2. 15UME108 Engineering Graphics
3. 15UME110 Engineering Practices Laboratory
4. 15UME201 Business English and Presentation skills
5. 15UME211 Computer Aided Drafting and Modeling Laboratory
6. 15UME307 Manufacturing Technology Laboratory – I
7. 15UME408 Manufacturing Technology Laboratory – II
8. 15UGS431 Reasoning and Quantitative Aptitude
9. 15UGS531 Soft skills and communication Laboratory
10. 15UME607 Technical Project
11. 15UME804 Project Work
12. 15UME862 CNC Programming
13. 15UME866 Work Study

### 9. Industry involved / Project based / Problem based courses

The BoS members reviewed and approved the Industry involved / Project based / Problem based courses in R2015 Curriculum and syllabus as follows

#### 9.1 Industry involved Courses

##### Industry Designed Elective Course

S. No.	Industry	Name of the Industry designed course
1.	INFOSYS	Introduction to aircraft industry and aircraft systems
2.		Design of aircraft structures

##### Industry Designed One credit Course

S. No.	Industry	Name of the Industry designed course
1.	Singai Coirs Cluster Pvt Ltd.,	Smart materials
2.	3D MAKERS CADD ACADEMY	CNC Programming
3.	SOLARIZ REGEN technologies Pvt Ltd.,	Solar Energy
4.	HI-TECH Arai Pvt Ltd.,	Work Study
5.	HVAC projects, Madurai	Basics in Refrigeration and Air conditioning
6.	Anu Poly craft	Jigs & Fixtures



#### **Industry related course in curriculum**

1. 15UME302 Manufacturing Technology-I
2. 15UME402 Kinematics of Machinery
3. 15UME403 Manufacturing Technology II
4. 15UME406 Machine Drawing
5. 15UME502 Engineering Materials and Metallurgy
6. 15UME503 Design of Machine Elements
7. 15UME504 Operations Research
8. 15UME601 Design of Transmission Systems
9. 15UME602 Engineering Metrology and Measurements
10. 15UME801 Professional Ethics
11. 15UME926 Industrial Robotics
12. 15UME922 Advanced I.C. Engines
13. 15UME924 Computer Integrated Manufacturing
14. 15UME901 Industrial and Quality Management
15. 15UME905 Design of Jigs, Fixtures & Press Tools
16. 15UME907 Quality Control and Reliability Engineering
17. 15UME909 Industrial Tribology
18. 15UME910 Power Plant Technology
19. 15UME911 Unconventional Machining Processes
20. 15UME913 Process Planning and Cost Estimation
21. 15UME916 Refrigeration and Air conditioning
22. 15UME919 Maintenance Engineering
23. 15UME920 Production Planning and Control

#### **9.2Project based Courses**

1. 15UME504 Operations Research
2. 15UME601 Design of Transmission Systems
3. 15UME603 Heat and Mass Transfer
4. 15UME607 Technical Project
5. 15UME701 Project Management and Finance
6. 15UME703 Mechatronics
7. 15UME804 Project Work / Multi-Disciplinary Project
8. 15UME926 Industrial Robotics
9. 15UME921 Design of Heat Exchangers
10. 15UME903 Automobile Engineering
11. 15UME904 Applied Hydraulics and pneumatics
12. 15UME908 Renewable Sources of Energy
13. 15UME912 Composite Materials
14. 15UME916 Refrigeration and Air conditioning

### 9.3 Problem based courses

1. 15UME303 Engineering Thermodynamics
2. 15UME304 Fluid Mechanics and Machinery
3. 15UME305 Engineering Mechanics
4. 15UME402 Kinematics of Machinery
5. 15UME404 Thermal Engineering
6. 15UME405 Strength of Materials
7. 15UME501 Dynamics of Machinery
8. 15UME503 Design of Machine Elements
9. 15UME504 Operations Research
10. 15UME601 Design of Transmission Systems
11. 15UME603 Heat and Mass Transfer
12. 15UME702 Finite Element Analysis
13. 15UME923 Failure Analysis and Design
14. 15UME902 Gas Dynamics and Jet Propulsion
15. 15UME905 Design of Jigs, Fixtures & Press Tools
16. 15UME906 Computational Fluid Dynamics
17. 15UME921 Design of Heat Exchangers
18. 15UME915 Vibration and Noise Control

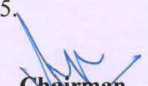
- The BoS members analyzed previous batch PO attainment and suggested that following courses may improve PO 5, 11, 12 & PSO 1, PSO 2 and forwarded to academic council for their approval.
- Computational Fluid Dynamics in professional elective course may offered to student
  - Smart manufacturing
  - Automation in agriculture

### 10. M.E.CAD/CAM

The Members of BoS thoroughly discussed about the curriculum and Syllabi for M.E. CAD/CAM. They prescribed that there is no change in the curriculum 2015 and they recommended to follow the curriculum and syllabi of regulation 2015 for 2017-2018 batch also. The members of BoS reviewed and accepted.

11. The Board of Studies of Department of Mechanical Engineering approves and recommends the changes proposed in the Course Outcomes, Program Outcomes, PEOs and Program Specific Outcomes. Also it approves, the updation in seventh and eighth semester courses, Interdisciplinary Courses, Assessment Questions and Assessment Pattern of R2015 Curriculum, External Examiners, Scrutiny Members and identified Employability/ Entrepreneurship/ Skill Development Courses.

The Chairperson thanked the members for their contribution and valuable Suggestions given by them in various aspects under Autonomous Regulations 2015.

  
**Chairman**  
**Board of Studies**  
**Mechanical Engineering**