SETHU INSTITUTE OF TECHNOLOGY
(An Autonomous Institution)

Pulloor, Kariapatti, Virudhunagar (Dist.) -Pin: 626 115.

Department of Mechanical Engineering

(Accredited by NBA, New Delhi and NAAC with 'A' Grade)

(Approved Research Centre by Anna University, Chennai)

REGULATION 2015

Choice Based Credit System

CURRICULUM AND SYLLABUS

(Ist Semester To VIIIth Semester)

After Academic Council Meeting

Department Vision statement

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

Department 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.

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):	
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):	
The Mechanical Engineering Graduates will be able to:	
1.	Apply the concepts of design and manufacturing to solve industrial problems.
2.	Apply the knowledge of Mechanical engineering to design solutions, systems and components to meet the needs of Automobile Industry.

Estd.1995

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An ISO 9001:2008 Certified Institution

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B.E. MECHANICAL ENGINEERING

REGULATION 2015

Choice Based Credit System

CURRICULUM & SYLLABUS

(1st Semester to 8th Semester)

CHAIRPERSON

Chairperson
Board of Studies
Mechanical Engineering
Sethu Institute of Technology
Kariapatti - 626 115

CHAIRMAN
ACADEMIC COUNCIL

CHAIRMAN
ACADEMIC COUNCIL
Sethu Institute of Technology
Pulloor, Kariapatti - 626 115

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Pulloor, Kariapatti

Department of Mechanical Engineering

CBCS 2015

Sl.No	Category	Credits	% of Credit Distribution
1.	Humanities and social science	14	8.24
2.	Basic Sciences	28	16.47
3.	Engineering Science	30	17.64
4.	Professional Core	56	32.94
5.	Project	15	8.82
6.	Professional Electives	18	10.59
7.	Open Electives	9	5.29
Total		**170**	**100**

Employability Courses
Skill Development Courses
Entrepreneurship Development Courses
Any two or all of the above

Semester – I

Sl.No	Course Category	Course Code	Course Name	L	T	P	C
1.	HS	15UEN101	Technical English (Common to All Branches)	2	0	0	2
2.	BS	15UMA102	Engineering Mathematics - I (Common to All Branches)	3	2	0	4
3.	BS	15UPH103	Engineering Physics (Common to All Branches)	3	0	0	3
4.	BS	15UCY104	Engineering chemistry (common to Mech& Chemical, Fashion Technology)	3	0	0	3
5.	ES	15UCS107	Computer Programming (Common to All Branches)	3	0	0	3
6.	ES	15UME108	Engineering Graphics (Common to All Branches)	3	2	0	4
7.	ES	15UCS109	Computer Programming Laboratory - I (Common to All Branches)	0	0	2	1
8.	ES	15UME110	Engineering Practices Laboratory (Common to Mech, EEE, Civil, Chemical Agricultural and Bio Medical)	0	0	2	1
9.	BS	15UGS112	Basic Sciences Laboratory - I	0	0	2	1
Total Credits :22				**17**	**4**	**6**	**22**

Semester – II

Sl.No	Course Category	Course Code	Course Name	L	T	P	C
1.	HS	15UEN201	Business English and Presentation skills (Common to All Branches)	3	0	0	3
2.	BS	15UMA202	Engineering Mathematics - II (Common to All Branches)	3	2	0	4
3.	BS	15UPH203	Material Science (Common to Mech& Chemical)	3	0	0	3
4.	HS	15UCY207	Environmental Science (Common to All Branches)	3	0	0	3
5.	ES	15UME208	Basic civil and Mechanical Engineering (Common to Mech,EEE,EIE)	3	0	0	3
6.	ES	15UEE208	Basic Electrical and Electronics Engineering (Common to Mech, Civil. Chemical, Agriculture)	3	0	0	3
7.	BS	15UGS210	Basic Sciences Laboratory - II (Common to All Branches)	0	0	2	1
8.	ES	15UME211	Computer Aided Drafting and Modeling Laboratory	0	0	2	1
Total Credits :21				**18**	**2**	**4**	**21**

Semester – III

Sl.No	Course Category	Course Code	Course Name	L	T	P	C
1.	BS	15UMA321	Transform and Partial Differential Equations. (Common to MECH, ECE, EEE, CIVIL, EIE and CHEMICAL, Agriculture, Bio medical)	3	2	0	4
2.	PC	15UME302	Manufacturing Technology-I	3	0	0	3
3.	ES	15UME303	Engineering Thermodynamics	3	0	0	3
4.	ES	15UME304	Fluid Mechanics and Machinery	3	0	0	3
5.	ES	15UME305	Engineering Mechanics	3	0	0	3
6.	ES	15UEE323	Electrical Machines	3	0	2	4
7.	PC	15UME307	Manufacturing Technology Laboratory -I	0	0	2	1
8.	ES	15UME308	Fluid Mechanics and Machinery Laboratory	0	0	2	1
Total Credits : 22				**18**	**2**	**6**	**22**

Semester – IV

Sl.No	Course Category	Course Code	Course Name	L	T	P	C
1.	BS	15UMA423	Statics and Numerical Methods	3	2	0	4
2.	PC	15UME402	Kinematics of Machinery	3	0	0	3
3.	PC	15UME403	Manufacturing Technology II	3	0	0	3
4.	PC	15UME404	Thermal Engineering	3	0	0	3
5.	PC	15UME405	Strength of Materials	3	0	0	3
6.	PC	15UME406	Machine Drawing	2	2	0	3
7.	HS	15UGS431	Reasoning and Quantitative Aptitude (Common to All Branches)	1	0	0	1
8.	PC	15UME407	I.C Engine and Steam Laboratory	0	0	2	1
9.	PC	15UME408	Manufacturing laboratory - II	0	0	2	1
10.	PC	15UME409	Material Testing Laboratory	0	0	2	1
Total Credits : 23				**18**	**4**	**6**	**23**

Semester – V

Sl.No	Course Category	Course Code	Course Name	L	T	P	C
1.	PC	15UME501	Dynamics of Machinery	3	0	0	3
2.	PC	15UME502	Engineering Materials and Metallurgy	3	0	0	3
3.	PC	15UME503	Design of Machine Elements	3	0	0	3
4.	PC	15UME504	Operations Research	3	0	0	3
5.	PE	E 1	Professional Elective - I	3	0	0	3
6.	PE	E 2	Professional Elective - II	3	0	0	3
7.	PC	15UME507	CAD/CAM Laboratory	0	0	2	1
8.	PC	15UME508	Dynamics Laboratory	0	0	2	1
9.	PC	15UME509	Metallurgy Laboratory	0	0	2	1
Total Credits : 21				**18**	**0**	**6**	**21**

Semester – VI

Sl.No	Course Category	Course Code	Course Name	L	T	P	C
1.	PC	15UME601	Design of Transmission Systems	3	0	0	3
2.	PC	15UME602	Engineering Metrology and Measurements	3	0	0	3
3.	PC	15UME603	Heat and Mass Transfer	3	0	0	3
4.	PE	E 3	Professional Elective - III	3	0	0	3
5.	PE	E 4	Professional Elective - IV	3	0	0	3
6.	OE	OE 1	Open Elective - I	3	0	0	3
7.	BS	15UGS531	Soft skills and communication Laboratory (Common to MECH, EIE, Civil, Chemical)	0	0	2	1
8.	P	15UME607	Technical Project	0	0	6	3
9.	PC	15UME608	Metrology and Measurements Laboratory	0	0	2	1
10.	PC	15UME609	Heat and Mass Transfer Laboratory	0	0	2	1
Total Credits : 24				**18**	**0**	**12**	**24**

Semester – VII

Sl.No	Course Category	Course Code	Course Name	L	T	P	C
1.	HS	15UME701	Project Management and Finance (Common to Mech, CSE, ECE, EEE, IT, EIE)	3	0	0	3
2.	PC	15UME702	Finite Element Analysis	3	0	0	3
3.	PC	15UME703	Mechatronics	3	0	0	3
4.	PE	E 5	Professional Elective - V	3	0	0	3
5.	OE	OE 2	Open Elective II	3	0	0	3
6.	PC	15UME706	Computer Aided Analysis Laboratory	0	0	2	1
7.	PC	15UME707	Mechatronics Laboratory	0	0	2	1
Total Credits : 17				**15**	**0**	**4**	**17**

Semester – VIII

Sl.No	Course Category	Course Code	Course Name	L	T	P	C
1.	HS	15UME801	Professional Ethics (Common to all branches)	2	0	0	2
2.	PE	E 6	Professional Elective - VI	3	0	0	3
3.	PE	OE 3	Open Elective - III	3	0	0	3
4.	P	15UME804	Project Work	0	0	24	12
Total Credits : 20				**8**	**0**	**24**	**20**

PROFESSIONAL ELECTIVE:

Sl.No	Course Category	Course Code	Course Name	L	T	P	C
1.	PE	15UME901	Industrial and Quality Management	3	0	0	3
2.	PE	15UME902	Gas Dynamics and Jet Propulsion	3	0	0	3
3.	PE	15UME903	Automobile Engineering	3	0	0	3
4.	PE	15UME904	Applied Hydraulics and pneumatics	3	0	0	3
5.	PE	15UME905	Design of Jigs, Fixtures & Press Tools	3	0	0	3
6.	PE	15UME906	Computational Fluid Dynamics	3	0	0	3
7.	PE	15UME907	Quality Control and Reliability Engineering	3	0	0	3
8.	PE	15UME908	Renewable Sources of Energy	3	0	0	3
9.	PE	15UME909	Industrial Tribology	3	0	0	3
10.	PE	15UME910	Power Plant Technology	3	0	0	3
11.	PE	15UME911	Unconventional Machining Processes	3	0	0	3
12.	PE	15UME912	Composite Materials	3	0	0	3
13.	PE	15UME913	Process Planning and Cost Estimation	3	0	0	3
14.	PE	15UME914	Nano Science and Technology	3	0	0	3
15.	PE	15UME915	Vibration and Noise Control	3	0	0	3
16.	PE	15UME916	Refrigeration and Air conditioning	3	0	0	3
17.	PE	15UME917	Nuclear Engineering	3	0	0	3
18.	PE	15UME918	Entrepreneurship Development	3	0	0	3
19.	PE	15UME919	Maintenance Engineering	3	0	0	3
20.	PE	15UME920	Production Planning and Control	3	0	0	3
21.	PE	15UME921	Design of Heat Exchangers	3	0	0	3
22.	PE	15UME922	Advanced I.C. Engines	3	0	0	3
23.	PE	15UME923	Failure Analysis and Design	3	0	0	3
24.	PE	15UME924	Computer Integrated Manufacturing	3	0	0	3
25.	PE	15UME925	Cryogenics	3	0	0	3
26.	PE	15UME926	Industrial Robotics	3	0	0	3
27.	PE	15UME927	Introduction to aircraft industry and aircraft systems	3	0	0	3
28.	PE	15UME928	Design of aircraft structures	3	0	0	3

OPEN ELECTIVE (Mechanical Department offering course):

Sl.No	Course Category	Course Code	Course Name	L	T	P	C
1.	OE	15UME971	Industrial Psychology and Work Ethics	3	0	0	3
2.	OE	15UME972	Industrial Safety and Engineering	3	0	0	3
3.	OE	15UME973	Synthesis of Nano Materials	3	0	0	3
4.	OE	15UME974	Principles of Management	3	0	0	3
5.	OE	15UME975	Total Quality Management	3	0	0	3

INTER/ MULTI DISCIPLINARY ELECTIVE COURSES:

Sl.No	Course Code	Course Name	L	T	P	C
1.	15UGM951	Smart Manufacturing (Common to Mech& IT)	3	0	0	3
2.	15UGM952	Automation in Agriculture Engineering (Common to Mech, Agri, IT)	3	0	0	3
3.	15UMG953	Electric Vehicles (Common to EEE &Mech)	3	0	0	3
4.	15UMG954	Bio Fluid Mechanics (Common to Biomedical &Mech)	3	0	0	3

ONE CREDIT COURSE:

Sl.No	Course Code	Course Name	L	T	P	C
1.	15UME861	Smart Materials	1	0	0	1
2.	15UME862	CNC programming	1	0	0	1
3.	15UME863	Solar energy	1	0	0	1
4.	15UME864	Basics in Refrigeration and Air-conditioning	1	0	0	1
5.	15UME865	Jigs and Fixtures	1	0	0	1
6.	15UME866	Work Study	1	0	0	1