B.TECH

(FACULTY OF MECHANICAL ENGINEERING)

)

PROGRAMME OBJECTIVES:

PEO1: To prepare graduates who will be successful professionals in industry, government, academia, research, entrepreneurial pursuit and consulting firms.

PEO2: To prepare graduate who can plan, design, construct, maintain and improve mechanical engineering systems that are technically sound, economically feasible and socially acceptable to enhance quality of life.

PEO3: To prepare graduate who can apply modern computational, analytical, simulation tools and technique to address the challenges faced in mechanical and allied engineering streams.

PEO4: Exhibit professionalism, communication skill, ethical attitude, team spirit, multidisciplinary approach and pursue lifelong learning to achieve career and organizational goals.

PROGRAMME LEARNING OUTCOMES:

PO1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2. Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. Communication: Communicate effectively on complex 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 presentations, and give and receive clear instructions.

PO11. Project management and finance: 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.

PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OBJECTIVES:

Our graduate should be:

PSEO1: productively employed or in good academic standing in a program of graduate studies in a variety of fields (including those outside of mechanical engineering);

PSEO2: engaged in activities that further their education;

PSEO3: participating in organizations that serve their profession;

PROGRAMME SPECIFIC LEARNING OUTCOMES:

PSO1: Analyze, design and evaluate mechanical components and systems using state-of-the-art IT tools.

PSO2: Plan the manufacturing of given mechanical components and systems (methods design, process plan, process automation and manufacturing methods).

PSO3: Analyze, design and evaluate thermal systems including IC engines, refrigerating, air-conditioning, and power generating systems.

PSO4: Apply modern management methods to manufacturing of components and systems.

PSO5: Analyze and design quality assurance systems.

B. Tech.: Mechanical Engineering

II Year: III Semester

S. No.	Subject Code	Subject	L	T	P	CIE	ESE	Total	C
THEORY									
1.	BMA3001/ ---	Mathematics-III/ Science Based Open Elective	3	2	0	40	60	100	4
2.	BHU3018/BHU3019	Organizational Psychology/ Organizational Sociology	2	0	0	40	60	100	2
3.	BME3001	Fluid Mechanics	3	2	0	40	60	100	4
4.	BME3002	Material Science in Engineering	3	1	0	40	60	100	3
5.	BME3003	Mechanics of Machines and Mechanisms - I	3	2	0	40	60	100	4
6.	BME3004	Basics of Thermodynamic	3	1	0	40	60	100	3
PRACTICAL/TRAINING/PROJECT									
7.	BME3501	Fluid Mechanics Lab	0	0	2	80	20	100	1
8.	BME3502	Material Science Lab	0	0	2	80	20	100	1
9.	BME3503	Machine Drawing Practices-I	0	0	3	80	20	100	1
10.	BME3504	Thermodynamics Lab	0	0	2	80	20	100	1
11.	BME3505	Industrial Visit-I	0	0	0	100	-	100	1
TOTAL			**17**	**8**	**9**	**660**	**440**	**1100**	**25**

L - Lecture
T -Tutorial
P -Practical
CIE -Continuous Internal Evaluation
ESE -End Semester Exam
C - Credit

Note : Effective from Session 2017-18

B. Tech.: Mechanical Engineering

IIYear: IV Semester

S. No.	Subject Code	Subject	L	T	P	CIE	ESE	Total	C
THEORY									
1.	--- / BMA4001	Science Based Open Elective/ Mathematics-III	3	2	0	40	60	100	4
2.	BHU4019/BHU4018	Organizational Sociology / Organizational Psychology	2	0	0	40	60	100	2
3.	BME4001	Mechanics of Machines and Mechanisms-II	3	2	0	40	60	100	4
4.	BME4002	Mechanics of Material	3	2	0	40	60	100	4
5.	BME4003	Manufacturing Science-I	3	1	0	40	60	100	3
6.	BME4004	Measurement and Metrology	2	1	0	40	60	100	2
PRACTICAL/TRAINING/PROJECT									
7.	BME4501	Mechanics of Machinery and Mechanisms Lab	0	0	2	80	20	100	1
8.	BME4502	Mechanics of Material Lab	0	0	3	80	20	100	1
9.	BME4503	Manufacturing Science Lab-I	0	0	3	80	20	100	1
10.	BME4504	Measurement and Metrology Lab	0	0	2	80	20	100	1
11.	BME4505	Industrial Visit-II	0	0	0	100	-	100	1
TOTAL			**16**	**8**	**10**	**660**	**440**	**1100**	**24**

Note : Effective from Session 2017-18

B. Tech.: Mechanical Engineering

IIIYear: V Semester

S. No.	Subject Code	Subject	L	T	P	CIE	ESE	Total	C
THEORY									
1.	BMG5006/ BMG5007	Engineering and Managerial Economics / Principles of Management	3	0	0	40	60	100	3
2.	BME5001	Design of Machine Elements –I	3	2	0	40	60	100	4
3.	BME5002	Heat and Mass Transfer	3	2	0	40	60	100	4
4.	BME5003	Manufacturing Science-II	3	1	0	40	60	100	3
5.	BME5004	Computer Aided Design	3	1	0	40	60	100	3
6.	BME5005	Applied Thermodynamics	3	2	0	40	60	100	4
PRACTICAL/TRAINING/PROJECT									
7.	BME5501	Machine Design-I Practice	0	0	3	80	20	100	1
8.	BME5502	Heat and Mass Transfer Lab	0	0	2	80	20	100	1
9.	BME5503	Manufacturing Science Lab-II	0	0	3	80	20	100	1
10.	BME5504	Machine Drawing Practice-II	0	0	3	80	20	100	1
11.	BSS5501	Soft Skill	0	0	2	100	-	100	1
12.	BAP5501	Aptitude & Reasoning and Online Test	0	0	2	100	-	100	1
13	BME5505	Industrial Visit-III	0	0	0	100	-	100	1
TOTAL			**18**	**8**	**15**	**860**	**440**	**1200**	**28**

Note : Effective from Session 2017-18

B. Tech.: Mechanical Engineering

IIIYear: VI Semester

S. No.	Subject Code	Subject	L	T	P	CIE	ESE	Total	C
THEORY									
1.	BMG6006/ BMG6007	Engineering and Managerial Economics / Principles of Management	3	0	0	40	60	100	3
2.	BEE6004	Electrical Machines and Automatic Control	3	2	0	40	60	100	4
3.	BME6001	Design of Machine Elements-II	3	2	0	40	60	100	4
4.	BME6002	Refrigeration and Air- Conditioning	3	2	0	40	60	100	4
5.	BME6003	Internal Combustion Engine	2	1	0	40	60	100	2
6.	---	Department Elective-I	3	1	0	40	60	100	3
PRACTICAL/TRAINING/PROJECT									
7.	BEE6504	Electrical Machines and Automatic Control Lab	0	0	2	80	20	100	1
8.	BME6501	Machine Design Practice-II	0	0	3	80	20	100	1
9.	BME6502	Refrigeration and Air- Conditioning Lab	0	0	2	80	20	100	1
10.	BME6503	Seminar	0	0	2	100	-	100	1
11.	BSS6501	Soft Skill	0	0	2	100	-	100	1
12.	BAP6501	Aptitude & Reasoning and Online Test	0	0	2	100	-	100	1
13.	BME6505	Industrial Visit-IV	0	0	0	100	-	100	1
TOTAL			**17**	**8**	**13**	**880**	**420**	**1300**	**27**

***Semester End Activity – Summer Training

Note : Effective from Session 2017-18

B. Tech.: Mechanical Engineering

IVYear: VII Semester

S. No.	Subject Code	Subject	L	T	P	CIE	ESE	Total	C
THEORY									
1.	BME7001	Fluid Machinery	3	1	0	40	60	100	3
2.	BME7002	Computer Aided Manufacturing	3	1	0	40	60	100	3
3.	BME7003	Industrial Engineering & Operation Research-I	3	2	0	40	60	100	4
4.	---	Department Elective II	3	1	0	40	60	100	3
5.	---	Open Elective – I	3	0	0	40	60	100	3
PRACTICAL/TRAINING/PROJECT									
6.	BME7501	Fluid Machinery Lab	0	0	3	80	20	100	1
7.	BME7502	CAD/CAM Lab	0	0	2	80	20	100	1
8.	BME7503	Summer Training	0	0	2	100	-	100	1
9.	BME7504	Project-I	0	0	2	100	-	100	2
10.	BME7505	Industrial Visit-V	0	0	0	100	-	100	1
TOTAL			**15**	**5**	**9**	**660**	**340**	**1000**	**22**

Note : Effective from Session 2017-18

B. Tech.: Mechanical Engineering

IVYear: VIII Semester

S. No.	Subject Code	Subject	L	T	P	CIE	ESE	Total	C
THEORY									
1.	BME8001	Industrial Engineering & Operation Research-II	3	2	0	40	60	100	4
2.	---	Department Elective III	3	1	0	40	60	100	3
3.	---	Department Elective IV	3	1	0	40	60	100	3
4.	---	Open Elective-II	3	0	0	40	60	100	3
PRACTICAL/TRAINING/PROJECT									
5.	BME8501	Project-II	0	0	4	80	20	100	6
6.	BME8502	Industrial Visit-VI	0	0	0	100	-	100	1
TOTAL			**12**	**4**	**4**	**340**	**260**	**600**	**20**

Note : Effective from Session 2017-18

B. Tech.: Mechanical Engineering

List of Electives

S. No.	Subject Code	Subject
Science Based Open Electives		**III/ IV Semester**
1	BCY3301 / BCY4301	Industrial Chemical & Environment
2	BCY3302 / BCY4302	Polymer Technology
3	BMA3301 / BMA4301	Discrete Mathematics
4	BST3301 / BST4301	Statistical and Numerical Analysis
5	BPH3301 / BPH4301	Nano Science
6	BPH3302 / BPH4302	Space Science
Department Elective -I		**VI Semester**
1	BME6101	Energy Management
2	BME6102	Finite Element Method
3	BME6103	Unconventional Manufacturing Processes
4	BME6104	Maintenance Engineering and Management
Open Elective-I		**VII Semester**
1	BME7301	Operation Management
2	BME7302	Product Development and Design
Department Elective -II		**VII Semester**
1	BME7101	Thermal Turbo Machines
2	BME7102	Mechanical Vibrations and Control
3	BME7103	Analysis and Synthesis of Mechanisms
4	BME7104	Management Information System
5	BME7105	Product Development and Design
6	BME7106	Automobile Engineering
Department Elective –III		**VIII Semester**
1	BME8101	Design of Thermal Systems
2	BME8102	Concurrent Engineering
3	BME8103	Advanced Welding Technology
4	BME8104	Automation and Robotics
Department Elective-IV		**VIII Semester**
1	BME8201	Advance Mechanics of Materials
2	BME8202	Power Plant Engineering
3	BME8203	Machine Tool Design
4	BME8204	Non-Destructive Testing
5	BME8205	Quality Management
Open Elective-II		**VIII Semester**
1	BME8301	Quality Management
2	BME8302	Project Management