INVERTIS
UNIVERSITY BAREILLY
BUILDING VIBRANT PERSONALITIES

COURSE STRUCTURE

DEPARTMENT OF MECHANICAL ENGINEERING

NAAC CRITERIA 1.2.2

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UNIVERSITY BAREILLY
Established by Govt. of U.P. u/s 2F of UGC Act, 1956 vide U.P. Act 22 of 2010

Scheme of Instruction & Syllabi of B.Tech+M.Tech In Mechanical Engineering

(Specialization in Production Engineering & Thermal Engineering)

IV and V Year
(Effective from 2015-16)

INVERTIS UNIVERSITY, BAREILLY
B.Tech+M.TECH (MECHANICAL ENGINEERING)
(SPECIALIZATION IN PRODUCTION ENGINEERING & THERMAL ENGINEERING EFFECTIVE FROM 2015-16)

SPECIALIZATION IN PRODUCTION ENGINEERING

YEAR IV, SEMESTER-VII

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MPE-101	Modern welding Techniques	3	1	0	20	10	30	70	100	4
2	BME-701	Computer Aided Design	3	1	0	20	10	30	70	100	4
3	BME-031	Computer Aided Manufacturing	3	1	0	20	10	30	70	100	4
4	MPE-104	Metal Forming Technology	3	1	0	20	10	30	70	100	4
5	MPE-105	Design Of Experiments	3	1	0	20	10	30	70	100	4
6	MPE-151	Seminar 1	0	2	2	25	-	25	-	25	1
7	BME-751	CAD/CAM Lab			2	25		25		25	1
Total			15	7	4	-	-	-	-	550	22

YEAR IV, SEMESTER-VIII

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	BME-063	Advanced Materials technology	3	1	0	20	10	30	70	100	4
2	BME-801	Power Plant Engineering	3	1	0	20	10	30	70	100	4
3	MPE-204	Fire Technology	3	1	0	20	10	30	70	100	4
4	MPE-205	Advance Machine Tools & Design	3	1	0	20	10	30	70	100	4
5	MOE-204	Modeling Simulation & Optimization	3	1		20	10	30	70	100	4
6	MPE-251	Seminar 2	0	4	0		-	50	-	50	2
Total			15	9	0	-	-	-	-	550	22

YEAR V, SEMESTER-IX

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MOE-30?	Elective 2	3	1	0	20	10	30	70	100	4
2	MOE-30?	Elective 3	3	1	0	20	10	30	70	100	4
3	MPE -351	Seminar 3	0	4	0	-	-	50	-	50	2
4	MPE-352	Preliminary Thesis	0	16	0	-	-	200	-	200	8
Total			6	22	0	-	-	-	-	450	18

YEAR V, SEMESTER-X

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MPE-451	THESIS	0	16	0	-	-	100	300	400	16
Total			0	16	0	-	-	-	-	400	16

SPECIALIZATION IN THERMAL ENGINEERING

INVERTIS UNIVERSITY, BAREILLY
YEAR IV, SEMESTER-VII

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MTE-101	Simulation, Modelling & Analysis	3	1	0	20	10	30	70	100	4
2	BME-701	Computer Aided Design	3	1	0	20	10	30	70	100	4
3	BME-031	Computer Aided Manufacturing	3	1	0	20	10	30	70	100	4
4	MTE-104	Advanced Thermal Engineering	3	1	0	20	10	30	70	100	4
5	MTE-105	Experimental Techniques In Fluid Flow & Heat Transfer	3	1	0	20	10	30	70	100	4
6	MTE-151	Seminar 1	0	2	2	25	-	25	-	25	1
7	BME-751	Advanced Thermal Engineering Lab			2	25		25		25	1
Total			15	7	4	-	-	-	-	550	22

YEAR IV, SEMESTER-VIII

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	BME-063	Advanced Materials technology	3	1	0	20	10	30	70	100	4
2	BME-801	Power Plant Engineering	3	1	0	20	10	30	70	100	4
3	MTE-204	Computational Fluid Dynamics	3	1	0	20	10	30	70	100	4
4	MTE-205	Advanced Heat & Mass Transfer	3	1	0	20	10	30	70	100	4
5	MOE-204	Modeling Simulation & Optimization	3	1		20	10	30	70	100	4
6	MTE-251	Seminar 2	0	4	0		-	50	-	50	2
Total			15	9	0	-	-	-	-	550	22

YEAR V, SEMESTER-IX

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MOE-30?	Elective 2	3	1	0	20	10	30	70	100	4
2	MOE-30?	Elective 3	3	1	0	20	10	30	70	100	4
3	MTE -351	Seminar 3	0	4	0	-	-	50	-	50	2
4	MTE-352	Preliminary Thesis	0	16	0	-	-	200	-	200	8
Total			6	22	0	-	-	-	-	450	18

YEAR V, SEMESTER-X

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MTE-451	THESIS	0	16	0	-	-	100	300	400	16
Total			0	16	0	-	-	-	-	400	16

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List of Electives-1 (MOE-20?)

PRODUCTION ENGINEERING & THERMAL ENGINEERING

1. Materials management
2. Quality Engineering
3. Renewable Energy Systems
4. Total Quality Management
5. Product design and development
6. Industrial metrology and inspection
7. Advanced composite materials
8. Theory of vibration
9. Alternative Fuels & Engine Pollution
10. Refrigeration & Air Conditioning
11. Advanced Fluid Mechanics
12. Gas Dynamics

List of Electives-2 (MOE-30?)

PRODUCTION ENGINEERING & THERMAL ENGINEERING

1. Design of manufacturing and assembly
2. Non-conventional methods of manufacturing
3. Cutting tool engineering
4. Advance casting and welding technologies
5. Hydraulics and pneumatics for production
6. Machine Tool Dynamics
7. Turbo Machines
8. Cryogenic Engineering
9. Advanced I.C. Engines
10. Solar Energy Technology

List of Electives-3 (MOE-30?)

PRODUCTION ENGINEERING & THERMAL ENGINEERING

1. Advanced Finite Element Analysis
2. Fuels, Combustion and Environment
3. Energy Management
4. Equipment Design for Thermal Systems
5. Optimization Techniques & Design of Experiments
6. Experimental Techniques in Fluid Flow & Heat Transfer
7. Convective Heat Transfer
8. Thermal and Nuclear Power Plants Elective – V
9. Thermal Measurements and Process Controls
10. Combustion Technology
11. Environmental Pollution & Its Control
12. Advanced Power Plant Engineering

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PROPOSED SYLLABUS
FOR

B.Tech. (ME) + MBA

As Per Course Structure to Be Effective From Academic Year 2019 Onward

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Year -3 Semester-7

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks				Credit
				E	I	P	T	
1	MBA101	Management- Micro and Macro	4+1+0	70	30		100	4
2	MBA102	Market Science	4+1+0	70	30		100	4
3	MBA104	Recording and Analysis of Business Operations	4+1+0	70	30		100	4
4	MBA105	Micro Economics & Economic Planning	4+1+0	70	30		100	4
5	Paper B.Tech.	ME	4+1+0	70	30		100	4
6	Paper B.Tech.	ME	4+1+0	70	30		100	4
		Total		420*	180*		600*	24*

*** Two Paper from Btech will be studied by Students in this Semester based on their Course.**

Year-3 Semester-8

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks			Credit
1	MBA201	Management Science	4+1+0	70	30	100	4
2	MBA202	Market Intelligence	4+1+0	70	30	100	4
3	MBA203	Identification, addition and delivery of Value	4+1+0	70	30	100	4
4	MBA204	Economics of Human Resource	4+1+0	70	30	100	4
5	MBA205	Legal Issues in Business	4+1+0	70	30	100	4
6	MBA206	Financial Issues	4+1+0	70	30	100	4
7	MBA207	Professional Communications and Aptitude	4+1+0	70	30	100	4
		Total		480	210	700	28

**After 2nd Semester, students will undergo 8 weeks summer training compulsorily in Public Sector undertakings or Private Sector, known as Hands on Experience. 100 marks will be on viva of students on their management experience in 3rd Semester.

This is the policy of the university not to allocate students in their home town. In case of extraordinary circumstances specific permission will be necessary from Hon'ble Chancellor.

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Year-4 Semester-9

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks			Credit
1	MBA301	Strategic Management	4+1+0	70	30	100	4
2	MBA302	Event Management*	2+1+2	40	60	100	4
3		Spec. Group 1 Paper 1	4+1+0	70	30	100	4
4		Spec. Group 1 Paper 2	4+1+0	70	30	100	4
5		Spec. Group 2 Paper 1	4+1+0	70	30	100	4
6		Spec. Group 2 Paper 2	4+1+0	70	30	100	4
7	MBA396	Hands on Experience Viva**		100		100	4
		Total		490	210	700	28

*Event Management being a highly practical subject, student's Organizing capacity evaluation become important. The students will be divided into group of four and these groups are expected to organize at-least one event. Evaluation of the group will be based on the report submitted by the group and viva will be conducted for individual assessment.

It is therefore necessary to reduce the weightage of external written examination to 40 marks and event organized assessment to 60 Marks. Out of 60 marks UTs consist of 20 marks and the rest 40 marks will be on viva of students on their event management experience.

Year-4 Semester-10

Sl. No.	Paper Code	Paper Name	L+T+P	Maximum marks			Credit
1		Spec. Group 1 Paper 3	4+1+0	70	30	100	4
2		Spec. Group 1 Paper 4	4+1+0	70	30	100	4
3		Spec. Group 1 Paper 5	4+1+0	70	30	100	4
4		Spec. Group 2 Paper 3	4+1+0	70	30	100	4
5		Spec. Group 2 Paper 4	4+1+0	70	30	100	4
6		Spec. Group 2 Paper 5	4+1+0	70	30	100	4
7	MBA496	Comprehensive Viva		100		100	4
		Total		520	180	700	28

Note: Students required choosing any two Specializations out of TEN offering by the University. First Specialization chosen by student will be treated as Spec. Group 1 and second Specialization will be treated as Spec. Group 2.

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List of Specializations

Specialization - 1: FINANCE
MBA 311 –Tax planning and Management
MBA 312 -Security Analysis & Portfolio Management
MBA 411- Corporate Restructuring
MBA 412 Banking Operations Management
MBA 413 -Financial Market & Services

Specialization -2: MARKETING
MBA316: Sales and Distribution
MBA317: Service Management
MBA416: CB and IMC
MBA417: Rural Marketing
MBA418: International Marketing

Specialization -3: HUMAN RESOURCE
MBA321: Organizational Change and Development
MBA322: Training & Development and competency mapping
MBA421: Employee welfare and Labour Legislation
MBA422: Strategic Human Resource Management
MBA423: Performance Appraisal and compensation Management

Specialization-4: INFORMATION TECHNOLOGY
MBA336: Business Intelligence and Data Mining
MBA337: E-Commerce
MBA436: Big Data Analytics
MBA437: IT Project Management
MBA438: Data communication and Networking security

Specialization -5: INTERNATIONAL BUSINESS
MBA326: International Business
MBA327: EXIM Procedure & Documentation
MBA426: International Financial Management
MBA427: Global Business Environment
MBA428: International Logistics

Specialization -6: HOSPITALITY & TOURISM
MBA331: Introduction to Tourism Industry
MBA332: Hospitality and Tourism Planning
MBA431: Travel agency and tour operators
MBA432: Hospitality Information System
MBA433: Tourist Products design and destination development

Specialization -7: RETAIL MANAGEMENT
MBA341: Retail Science
MBA342: Pricing and Branding
MBA441: International Retailing
MBA442: Merchandising and Mall Management
MBA443: Acquiring, Maintaining and Retaining Customer

Specialization -8: HEALTHCARE MANAGEMENT
MBA351: Hospital Planning
MBA352: Medical Terminology and Procedures
MBA451: Hospital Administration
MBA452: Laws Related to Hospital and Medical Services
MBA453: Healthcare and Administration of Clinical and non-clinical Services

Specialization-9: Project Management
Mba371: project formulation and appraisal
Mba372: construction
Planning, scheduling and control.
Mba471: construction personnel management
Mba472: construction project management
Mba473: project safety management

Secialization-10: Rural and Agriculture Management
Mba376: rural economy
Mba377: basics of rural and agricultural marketing
Mba476:distribution strategies for rural and agricultural marketing
Mba477: evolution of agricultural marketing in India
Mba478: rural and agricultural financing

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Established by Govt. of U.P. u/s 2F of UGC Act, 1956 vide U.P. Act 22 of 2010.

Scheme of Instruction & Syllabi of

Master of Technology In Mechanical Engineering

(Specialization in Production Engineering)

I and II Year
(Effective from 2015-16)

INVERTIS UNIVERSITY, BAREILLY
M. TECH (MECHANICAL ENGINEERING)
(SPECIALIZATION IN PRODUCTION ENGINEERING)
EFFECTIVE FROM 2015-16

INVERTIS UNIVERSITY, BAREILLY

YEAR I, SEMESTER-I

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MPE-101	Modern welding Techniques	3	1	0	20	10	30	70	100	4
2	MPE-102	Foundry Technology	3	1	0	20	10	30	70	100	4
3	MPE-103	Modern methods of manufacturing	3	1	0	20	10	30	70	100	4
4	MPE-104	Metal Forming Technology	3	1	0	20	10	30	70	100	4
5	MPE-151	Seminar 1	0	4	0		-	50	-	50	2
Total			12	8	0	-	-	-	-	450	18

YEAR I, SEMESTER-II

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MPE-201	Mathematical Modeling and Optimization	3	1	0	20	10	30	70	100	4
2	MPE-202	Production Planning and Control	3	1	0	20	10	30	70	100	4
3	MPE-203	Advanced Machine Tool Design	3	1	0	20	10	30	70	100	4
4	MOE-20?	Elective 1	3	1	0	20	10	30	70	100	4
3	MPE-251	Seminar 2	0	4	0		-	50	-	50	2
Total			12	8	0	-	-	-	-	450	18

YEAR II, SEMESTER-III

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MOE-30?	Elective 2	3	1	0	20	10	30	70	100	4
2	MOE-30?	Elective 3	3	1	0	20	10	30	70	100	4
3	MPE -351	Seminar 3	0	4	0	-	-	50	-	50	2
4	MPE-352	Preliminary Thesis	0	16	0	-	-	200	-	200	8
Total			6	22	0	-	-	-	-	450	18

YEAR II, SEMESTER-IV

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			E-SEM		
			L	T	P	CT	TA	TOTAL			
1	MPE-451	THESIS	0	16	0	-	-	100	300	400	16
Total			0	16	0	-	-	-	-	400	16

List of Electives-1 (MOE-20?)

1. Materials management
2. Quality Engineering
3. Renewable Energy Systems
4. Total Quality Management
5. Product design and development
6. Industrial metrology and inspection
7. Advanced composite materials
8. Theory of vibration

List of Electives-2 (MOE-30?)

1. Design of manufacturing and assembly
2. CNC machines and computer aided inspection
3. Computer integrated manufacturing
4. Non conventional methods of manufacturing
5. Cutting tool engineering
6. Advance casting and welding technologies
7. Hydraulics and pneumatics for production
8. Machine Tool Dynamics

List of Electives-3 (MOE-30?)

1. Design of manufacturing and assembly
2. CNC machines and computer aided inspection
3. Computer integrated manufacturing
4. Non conventional methods of manufacturing
5. Cutting tool engineering
6. Advance casting and welding technologies
7. Hydraulics and pneumatics for production
8. Machine Tool Dynamics
9. Materials management
10. Quality Engineering
11. Renewable Energy Systems
12. Total Quality Management
13. Product design and development
14. Industrial metrology and inspection
15. Advanced composite materials
16. Theory of vibration

INVERTIS UNIVERSITY, BAREILLY

DEPARTMENT OF MECHANICAL ENGINEERING SCHEME OF INSTRUCTION AND DETAILED SYLLABI OF B.TECH PROGRAM IN MECHANICAL ENGINEERING

Effective from the batches admitted in 2014-2015 and onwards

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DEPARTMENT OF MECHANICAL ENGINEERING

Vision

To be a global knowledge hub in mechanical engineering education, research, entrepreneurship and industry outreach services.

- To evolve into a premier technological and research institution, molding eminent professionals with creative minds, innovative ideas and sound practical skill, and to shape a future where technology works for the enrichment of mankind.

- To evolve into a centre of excellence by imparting professional education in mechanical engineering with a unique academic and research ambience that fosters innovation, creativity and excellence.

Mission

Impart quality education and training to the nurture globally competitive mechanical engineers.
Provide vital state of the art research facilities to create, interpret, apply and disseminate knowledge.
Develop linkages with world class educational institutions and R&D organizations for excellence in teaching, research and consultancy services.

To implement holistic approach in curriculum and pedagogy through Industry Integrate Interactions to meet the needs of Global Engineering Environment.

To develop students with knowledge, attitude and skill of employability, entrepreneurship (Be Job creators than job seekers), research potential and professionally ethical citizens.

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PROGRAM EDUCATIONAL OBJECTIVES (PEO):-

PEO 1: Demonstrated the ability to analyze, formulate and solve/design engineering/real life problems based on his/her solid foundation in mathematics, science and engineering.

PEO 2: Adapt state-of-the-art mechanical engineering broad-based technologies to work in multi-disciplinary work environments.

PEO 3: Provide socially responsible, environment friendly broad-based solutions to mechanical engineering related problems adapting professional ethics.

PEO 4: Graduates will practice ethical responsibilities and service towards their peers, employers, society and follow these precepts in their daily life.

Program Outcomes: At the end of the program the student will be able to

PO1	Apply knowledge of mathematics, science and engineering to analyze, design and evaluate mechanical components & systems using state -of-the-art IT tools.
PO2	Analyze problems of mechanical engineering including thermal, manufacturing and industrial systems to formulate design requirements.
PO3	To prepare mechanical engineering graduates with an outstanding knowledge of mathematical, scientific, engineering, technology, management, humanities and various other interdisciplinary subjects for a successful career.
PO4	Design and conduct experiments using domain knowledge and analyze data to arrive at valid conclusions.
PO5	To equip students with broad based knowledge to support the service industries, economic development and to address social and engineering challenges of the nation.
PO6	Analyze the local and global impact of modern technologies on individual organizations, society and culture.
PO7	Apply knowledge of contemporary issues to investigate and solve problems with a concern for sustainability and eco friendly environment.
PO8	Exhibit responsibility in professional, ethical, legal, security and social issues.
PO9	Demonstrate appropriate inter-personal skills to function effectively as an individual, as a member or as a leader of a team and in a multi-disciplinary setting.

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SCHEME OF INSTRUCTION
B.Tech. (Mechanical Engineering) Course Structure

B. Tech. I - Year I - Semester

S. No.	Course Code	SUBJECT	L	T	P	Credits	
1	BAS-103	Mathematics-I	3	1	0	4	
2	BAS-102 or BME-102	Engg. Chemistry Or Engg. Mechanics	3	1	0	4	
3	BEE-101 or BCS-101	Electrical Engg. Or Computer fundamentals & programming in C	3	1	0	4	
4	BEC-101 or BHU-101	Electronics Engineering Or Professional Communication	3	1	0	4	
5	BAS-101	Engg. Physics-I	3	1	0	4	
6	BME-101 or BAS-104	Manufacturing Process Or Environment & Ecology	2	0	0	2	
7	BME-151 Or BCE-151	Workshop Practice Or Engg. Drawing & Computer Graphics	0	1	3	2	
8	BAS-152 Or BCE-151	Engg. Chemistry Lab Or Engg. Mechanics Lab	0	0	2	1	
9	BEE-151 Or BCS-151	Electrical Engg. Lab Or Computer fundamentals & Programming in C lab	0	0	2	1	
10	BAS-151 Or BHU-151	Physics Lab Or Professional Communication Lab	0	0	2	1	
11	GP-101	General Proficiency	-	-	-	1	
Total			17	6	9	28	

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B. Tech. I - Year II - Semester

S. No.	Course Code	SUBJECT	L	T	P	Credits	
1	BAS-203	Mathematics-II	3	1	0	4	
2	BME-202 or BAS-202	Engg. Mechanics -I Or Engg. Chemistry	3	1	0	4	
3	BCS-201 or BEE-201	Computer Fundamentals & Programming in C Or Electrical Engg.	3	1	0	4	
4	BHU-201 or BEC-201	Professional Communication Or Electronics Engineering	3	1	0	4	
5	BAS-201	Engg. Physics-II	3	1	0	4	
6	BAS-204 Or BME-201	Environment & Ecology Or Manufacturing Process	2	0	0	2	
7	BCE-251 Or BME-251	Engg. Drawing & Computer Graphics Or Workshop Practice	0	1	3	2	
8	BME-252 Or BAS-252	Engg. Mechanics Lab Or Engg. Chemistry Lab	0	0	2	1	
9	BCS-251 Or BEE-251	Computer Fundamentals & Programming in C Lab Or Electrical Engg. Lab	0	0	2	1	
10	BHU-251 Or BAS-251	Professional Communication Lab Or Physics Lab	0	0	2	1	
11	GP-201	General Proficiency	-	-	-	1	
		Total	17	6	9	28	

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B. Tech. II - Year III - Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credit
						SESSIONAL EXAM.			End - SEM		
			L	T	P	CT	TA	TOTAL			
THEORY											
1	BHU-301/BHU-302	Industrial Psychology/Industria l Sociology	2	1	0	10	5	15	35	50	2
2	BAS-301/BOE-031-BOE-038	Mathematics-III	3	1	0	20	10	30	70	100	4
3	BCE-301	Fluid Mechanics	3	1	0	20	10	30	70	100	4
4	BME-301	Material Science Engineering	3	1	0	20	10	30	70	100	4
5	BME-302	Strength of Materials	3	1	0	20	10	30	70	100	4
6	BME-303	Thermodynamics	2	1	0	10	5	15	35	50	2
PRACTICAL/DESIGN/DRAWING											
7	BME-351	Material Science & Testing Lab	0	1	2	-	-	10	15	25	1
8	BME-352	Machine Drawing Lab	1	0	2	-	-	15	35	50	2
8	BME-353	Thermodynamics Lab	0	0	2	-	-	10	15	25	1
9	BCE-351	Fluid Mechanics Lab	0	0	3	-	-	10	15	25	1
11	GP-301	General Proficiency	0	0	0	-	-	25	-	25	1
Total			**15**	**6**	**9**	100	50	220	430	**650**	**26**

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B. Tech. II - Year IV - Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.					
			L	T	P	CT	TA	TOTAL	End-SEM		
THEORY											
1	BHU-402/ BHU-401	Industrial Psychology/Industrial Sociology	2	0	0	10	5	15	35	50	2
2	BAS-401/ BOE 041-BOE-048	Science Electives/Mathematics-III	3	1	0	20	10	30	70	100	4
3	BEE-409	Electrical Machines & Automatic Control Engineering	3	1	0	20	10	30	70	100	4
4	BME-401	Applied Thermodynamics	3	1	0	20	10	30	70	100	4
5	BME-402	Manufacturing Science	3	1	0	20	10	30	70	100	4
6	BME-403	Measurement & Metrology	2	1	0	10	5	15	35	50	2
PRACTICAL/DESIGN/DRAWING											
7	BME-451	Machine Drawing-II	1	0	2			15	35	50	2
8	BME-452	Manufacturing Science Lab	0	0	3			10	15	25	1
9	BME-453	Measurement & Metrology Lab	0	0	2			10	15	25	1
10	BEE-459	Electrical Machines & Automatic Control Lab	0	0	2			10	15	25	1
11	GP-401	General Proficiency	0	0	0			25	-	25	1
Total			**12**	**3**	**12**	-	-	220	430	**650**	**26**

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B. Tech. III - Year V – Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			End - SEM		
			L	T	P	CT	TA	TOTAL			
THEORY											
1	BHU-501	Engineering & Managerial Economics	3	1	0	20	10	30	70	100	4
2	BME-501	Theory of Machines-I	2	1	0	10	5	15	35	50	2
3	BME-502	Machine Design-I	3	1	0	20	10	30	70	100	4
4	BME-503	Manufacturing Science-II	3	1	0	20	10	30	70	100	4
5	BME-504	Heat & Mass Transfer	3	1	0	20	10	30	70	100	4
6	BME-505	I.C. Engine & Compressor	2	1	0	10	5	15	35	50	2
PRACTICAL/DESIGN/DRAWING											
7	BME-551	Machine Design-I Lab	0	0	2	-	-	10	15	25	1
8	BME-552	Seminar	0	0	2	-	-	25	-	25	1
9	BME-553	Manufacturing Science- II Lab	0	0	2	-	-	10	15	25	1
10	BME-554	Heat & Mass Transfer Lab	0	0	2	-	-	10	15	25	1
11	GP-501	General Proficiency	0	0	0	-	-	25	-	25	1
Total			**16**	**6**	**8**	100	50	230	395	**625**	**25**

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B. Tech. III - Year VI - Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			End-SEM		
			L	T	P	CT	TA	TOTAL			
THEORY											
1	BHU-601	Industrial Management	2	1	0	10	5	15	35	50	2
2	BME-011 to BME-014	Departmental Elective-I	3	1	0	20	10	30	70	100	4
3	BME-021 to BME-024	Departmental Elective-II	2	1	0	10	5	15	35	50	2
4	BME-602	Machine Design-II	3	1	0	20	10	30	70	100	4
5	BME-603	Theory of Machines-II	3	1	0	20	10	30	70	100	4
6	BME-604	Refrigeration & Air-conditioning	3	1	0	20	10	30	70	100	4
PRACTICAL/DESIGN/DRAWING											
7	BME-651	Fluid Machinery Lab	0	0	2	-	-	10	15	25	1
8	BME-652	Machine Design-II Lab	0	0	2	-	-	10	15	25	1
9	BME-653	Theory of Machines Lab	0	0	2	-	-	10	15	25	1
10	BME-654	Refrigeration & Air conditioning Lab	0	0	2	-	-	10	15	25	1
11	GP-601	General Proficiency	-	-	-	-	-	25		25	1
Total			**16**	**6**	**8**	100	50	215	410	**625**	**25**

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B. Tech. IV - Year VII - Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			End - SEM		
			L	T	P	CT	TA	TOTAL			
THEORY											
1	BOE-071 to BOE-074	Open Elective-I**	3	1	0	20	10	30	70	100	4
2	BME-031 to BME-036	Departmental Elective-III	3	1	0	20	10	30	70	100	4
3	BME-041 to BME-046	Departmental Elective-IV	3	1	0	20	10	30	70	100	4
4	BME-701	Computer Aided Design	3	1	0	20	10	30	70	100	4
5	BME 702	Automobile Engineering	3	1	0	20	10	30	70	100	4
PRACTICAL/DESIGN/DRAWING											
7	BME-751	CAD/CAM Lab	0	0	2	-	-	10	15	25	1
8	BME-752	I.C. Engine & Automobile Lab	0	0	2	-	-	10	15	25	1
9	BME-753	Project	0	0	2	-	-	10	15	25	1
10	BME-754	Industrial training I & II Evaluation and Viva	0	0	2	-	-	10	15	25	1
11	GP-701	General Proficiency	0	0	0	0	0	25	-	25	1
Total			**15**	**5**	**8**	100	50	215	410	**625**	**25**

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B. Tech. IV - Year VIII - Semester

S. No.	Course Code	SUBJECT	PERIODS			Evaluation Scheme				SUBJECT TOTAL	Credits
						SESSIONAL EXAM.			End - SEM		
			L	T	P	CT	TA	TOTAL			
THEORY											
1	BOE-081 to BOE-084	Open Elective-II	3	1	0	20	10	30	70	100	4
2	BME-051 to BME-056	Departmental Elective-V	3	1	0	20	10	30	70	100	4
3	BME-041 to BME-046	Departmental Elective-VI	3	1	0	20	10	30	70	100	4
4	BME-801	Quality Control	3	1	0	20	10	30	70	100	4
PRACTICAL/DESIGN/DRAWING											
7	BME-851	Project	0	0	12	0	50	50	150	200	8
	GP-601	General Proficiency	0	0	0	-	-	25	0	25	1
Total			**12**	**3**	**12**	80	40	195	430	**625**	**25**

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Syllabus of 4th Year

OPEN ELECTIVES – I

BOE-071 Entrepreneurship Development BOE-072 Quality Management

BOE-073 Operations Research

BOE-074 Introduction to Biotechnology

DEPARTMENT ELECTIVE - III

BME-031 Computer Aided Manufacturing
BME-032 Project Management
BME-033 Advanced Fluid Mechanics
BME-034 Experimental Stress Analysis
BME-035 Advanced Dynamics of Machines
BME-036 Management Information System

DEPARTMENT ELECTIVE - IV

BME-041 Total Quality Management
BME-042 Thermal Turbo Machines
BME-043 Mechanical System Design
BME-044 Tribology
BME-045 Industrial Ergonomics
BME-046 Concurrent Engineering

OPEN ELECTIVES – II

BOE-081 Non Conventional Energy Resources BOE-082 Nonlinear Dynamic Systems

BOE-083 Product Development BOE-084 Automation and Robotics

DEPARTMENTAL ELECTIVES-V:

BME-051 Operations Research
BME-052 Maintenance Engineering &Management
BME-053 Design of Thermal Systems
BME-054 Advanced Synthesis of Mechanisms
BME-055 Six Sigma Methods &Applications
BME-056 Concepts of Modern Physics

DEPARTMENT ELECTIVE-VI

BME-061 Finite Element Method

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BME-062 Non-Destructive Testing
BME-063 Advanced Materials Technology
BME-064 Production & Operations Management
BME-065 Energy Management
BME-066 Fundamentals of Bio Medical Engineering

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