

Rashtrasant Tukdoji Maharaj Nagpur University, Nagpur
Faculty of Science & Technology
Scheme of Examination and Evaluation
Bachelor of Technology (Mechanical Engineering) (Choice Based Credit System)
I Semester B. Tech (Mechanical Engineering)

Sr No	Course Code	Category	Course Title	Teaching Scheme			Credits	Examination Scheme									
				L	T	P		Theory					Practical				
								Duration of Exam (Hrs)	Max. Marks College Assessment	Max. Marks University Assessment	Total Marks	Min. Passing Marks	Max. Marks College Assessment	Max. Marks University Assessment	Total Marks	Min. Passing Marks	
1		Basic Science course	Mathematics - I	3	1	-	4	3	30	70	100	45	-	-	-	-	
2		Basic Science course	Applied Physics	3	1	-	4	3	30	70	100	45	-	-	-	-	
3		Engineering Science Courses	Engineering Graphics	1	-	-	1	2	15	35	50	23	-	-	-	-	
4		Engineering Science Courses	Energy & Environment	3	-	-	3	3	15	35	50	23	-	-	-	-	
5		Humanities, Social Sciences & Management courses	Communication & Aptitude Skills	2	-	-	2	-	15	35	50	23	-	-	-	-	
6		Engineering Science Courses	Basics of Civil & Mechanical	4	-	-	Audit (0)	-	50	-	50	-	-	-	-	-	
7		Basic Science course	Applied Physics Lab	-	-	2	1	-	-	-	-	-	25	25	50	25	
8		Engineering Science Courses	Engineering Graphics Lab	-	-	4	2	-	-	-	-	-	25	25	50	25	
9		Engineering Science Courses	Energy & Environment Lab	-	-	2	1	-	-	-	-	-	25	25	50	25	
10		Humanities, Social Sciences & Management courses	Communication Skills Lab	-	-	2	1	-	-	-	-	-	25	25	50	25	
11		Mandatory Course	Induction Program	Three Weeks			-	-	-	-	-	-	-	-	-	-	
Total				16	2	10	-	-	155	245	400	-	100	100	200	-	
Semester Total				28			19	Marks 600									

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Bachelor of Technology (Mechanical Engineering) (Choice Based Credit System)
II Semester B. Tech (Mechanical Engineering)

Sr No	Course Code	Category	Course Title	Teaching Scheme (Hours/Week)			Credits	Examination Scheme								
				L	T	P		Theory				Practical				
								Duration of Exam (Hrs)	Max. Marks College Assessment	Max. Marks University Assessment	Total Marks	Min. Passing Marks	Max. Marks College Assessment	Max. Marks University Assessment	Total Marks	Min. Passing Marks
1		Basic Science course	Mathematics -II	3	1	-	4	3	30	70	100	45	-	-	-	-
2		Basic Science course	Applied Chemistry	3	1	-	4	3	30	70	100	45	-	-	-	-
3		Engineering Science Courses	Advance Engineering Materials	3	-	-	3	2	15	35	50	23	-	-	-	-
4		Engineering Science Courses	Engineering Mechanics	2	-	-	2	2	15	35	50	23	-	-	-	-
5		Engineering Science Courses	Basic Electrical Engineering	2	-	-	2	2	15	35	50	23	-	-	-	-
6		Engineering Science Courses	Computational Skills	2	-	-	2	2	15	35	50	23	-	-	-	-
7		Basic Science course	Applied Chemistry Lab	-	-	2	1	-	-	-	-	-	25	25	50	25
8		Engineering Science Courses	Advance Engineering Materials Lab	-	-	2	1	-	-	-	-	-	25	25	50	25
9		Engineering Science Courses	Workshop Practices	-	-	4	2	-	-	-	-	-	25	25	50	25
10		Engineering Science Courses	Computational Skills Lab	-	-	2	1	-	-	-	-	-	25	25	50	25
11		Mandatory Course	Indian Culture and Constitution	2	-	-	Audit (0)	-	-	-	-	-	25	25	50	25
Total				17	2	10	-	-	120	280	400	-	100	100	200	-
Semester Total				29			22	Marks 600								

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Bachelor of Technology (Mechanical Engineering) (Choice Based Credit System)
III Semester B. Tech (Mechanical Engineering)

Sr No	Course Code	Category	Course Title	Teaching Scheme (Hours/Week)			Credits	Examination Scheme								
				L	T	P		Theory				Practical				
								Duration of Exam (Hrs)	Max. Marks College Assesment	Max. Marks University Assessment	Total Marks	Min. Passing Marks	Max. Marks College Assesment	Max. Marks University Assessment	Total Marks	Min. Passing Marks
1	BEME301T	Basic Science course	Applied Mathematics – III	3	-	-	3	3	30	70	100	45	-	-	-	-
2	BEME302T	Professional core courses	Manufacturing Processes	3	-	-	3	3	30	70	100	45	-	-	-	-
3	BEME302P	Professional core courses	Manufacturing Processes Lab	-	-	2	1	-	-	-	-	-	25	25	50	25
4	BEME303T	Professional core courses	Fluid Mechanics	3	-	-	3	3	30	70	100	45	-	-	-	-
5	BEME304T	Professional core courses	Kinematics of Machines	3	-	-	3	3	30	70	100	45	-	-	-	-
6	BEME305P	Professional core courses	Machine Drawing & Solid Modelling	-	1	2	2	-	-	-	-	-	50	50	100	50
7	BEME306T	Professional core courses	Material Science & Engineering	3	-	-	3	3	30	70	100	45	-	-	-	-
8	BEME307P	Project work, seminar and internship in industry or elsewhere	Skill Development (Basics of Computer aided drafting)	-	-	2	1	-	-	-	-	-	50	-	50	25
9	BEME308P	Mandatory Course	Sports / Yoga / NSS/NCC	-	-	2	Audit (0)	College Assessment in Grades O, A, B, C (Evaluation is to be done out of 50 marks, Evaluation guidelines mentioned in the syllabus of concerned course)								
Total				15	1	8	-	-	150	350	500	-	125	75	200	-
Semester Total				24			19	Marks 700								

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IV Semester B. Tech (Mechanical Engineering)

Sr No	Course Code	Category	Course Title	Teaching Scheme (Hours/Week)			Credits	Examination Scheme								
				L	T	P		Theory					Practical			
								Duration of Exam (Hrs)	Max. Marks College Assesment	Max. Marks University Assessment	Total Marks	Min. Passing Marks	Max. Marks College Assesment	Max. Marks University Assessment	Total Marks	Min. Passing Marks
1	BEME401T	Professional core courses	Machining Processes	3	-	-	3	3	30	70	100	45	-	-	-	-
2	BEME401P	Professional core courses	Machining Processes Lab	-	-	2	1	-	-	-	-	-	25	25	50	25
3	BEME402T	Professional core courses	Hydraulic Machines	3	-	-	3	3	30	70	100	45	-	-	-	-
4	BEME402P	Professional core courses	Fluid Mechanics & Hydraulic Machines Lab	-	-	2	1	-	-	-	-	-	25	25	50	25
5	BEME403T	Professional core courses	Mechanics of Materials	3	-	-	3	3	30	70	100	45	-	-	-	-
6	BEME403P	Professional core courses	Material Testing Lab	-	-	2	1	-	-	-	-	-	25	25	50	25
7	BEME404T	Professional core courses	Engineering Thermodynamics	3	-	-	3	3	30	70	100	45	-	-	-	-
8	BEME405P	Professional core courses	Computer Programming	-	1	2	2	-	-	-	-	-	25	25	50	25
9	BEME406T	Humanities & Social Science	Professional Ethics	3	-	-	3	3	30	70	100	45	-	-	-	-
10	BEME407P	Project work, seminar and internship in industry or elsewhere	Skill Development (Training on Matlab)	-	-	2	1	-	-	-	-	-	50	-	50	25
TOTAL				15	1	10	-	-	150	350	500	-	150	100	250	-
Semester Total				26			21	Marks 750								

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V Semester B. Tech (Mechanical Engineering)

Sr No	Course Code	Category	Course Title	Teaching Scheme (Hours/Week)			Credits	Examination Scheme								
				L	T	P		Theory					Practical			
								Duration of Exam (Hrs)	Max. Marks College Assesment	Max. Marks University Assessment	Total Marks	Min. Passing Marks	Max. Marks College Assesment	Max. Marks University Assessment	Total Marks	Min. Passing Marks
1	BEME501T	Professional core courses	Heat Transfer	3	-	-	3	3	30	70	100	45	-	-	-	-
2	BEME501P	Professional core courses	Heat Transfer Lab	-	-	2	1	-	-	-	-	-	25	25	50	25
3	BEME502T	Professional core courses	Energy Conversion-I	3	-	-	3	3	30	70	100	45	-	-	-	-
4	BEME503T	Professional core courses	Design of Machine Elements	3	1	-	4	3	30	70	100	45	-	-	-	-
5	BEME504T	Humanities, Social Sciences & Management courses	Industrial Economics and Management	3	-	-	3	3	30	70	100	45	-	-	-	-
6	BEME505T	Professional core courses	Mechanical Measurement & Metrology	3	-	-	3	3	30	70	100	45	-	-	-	-
7	BEME505P	Professional core courses	Mechanical Measurement & Metrology Lab	-	-	2	1	-	-	-	-	-	25	25	50	25
8	BEME506P	Project work, seminar and internship in industry or elsewhere	Industrial Visit*	-	-	2	1	-	-	-	-	-	50	-	50	25
9	BEME507P	Mandatory Course	Performing Art	-	-	2	Audit (0)	College Assessment in Grades O, A, B, C (Evaluation is to be done out of 50 marks, Evaluation guidelines mentioned in the syllabus of concerned course)								
TOTAL				15	1	8	-	-	150	350	500	-	100	50	150	-
Semester Total				24			19	Marks 650								
Industrial Visit*				Visit to minimum TWO industries must be carried out by every student. Visit to be carried out in a batch of 6 students. Assessment should be based on Visit report and presentation.												

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VI Semester B. Tech (Mechanical Engineering)

Sr No	Course Code	Category	Course Title	Teaching Scheme (Hours/Week)			Credits	Examination Scheme								
				L	T	P		Theory					Practical			
								Duration of Exam (Hrs)	Max. Marks College Assessment	Max. Marks University Assessment	Total Marks	Min. Passing Marks	Max. Marks College Assessment	Max. Marks University Assessment	Total Marks	Min. Passing Marks
1	BEME601T	Professional core courses	Automation in Production	3	-	-	3	3	30	70	100	45	-	-	-	-
2	BEME601P	Professional core courses	Automation in Production Lab	-	-	2	1	-	-	-	-	-	25	25	50	25
3	BEME602T	Professional core courses	Energy Conversion-II	3	-	-	3	3	30	70	100	45	-	-	-	-
4	BEME602P	Professional core courses	Energy Conversion Lab	-	-	2	1	-	-	-	-	-	25	25	50	25
5	BEME603T	Professional core courses	Dynamics of Machines	3	-	-	3	3	30	70	100	45	-	-	-	-
6	BEME603P	Professional core courses	Dynamics of Machines Lab	-	-	2	1	-	-	-	-	-	25	25	50	25
7	BEME604T	Professional Elective courses	Elective - I	3	-	-	3	3	30	70	100	45	-	-	-	-
8	BEME605T	Professional Elective courses	Elective - II	3	-	-	3	3	30	70	100	45	-	-	-	-
9	BEME606T	Open Elective Course	Open Elective - I	3	-	-	3	-	30	70	100	45	-	-	-	-
11	BEME607T	Mandatory Course	Environment Science	2	-	-	Audit (0)	College Assessment in Grades O, A, B, C (Evaluation is to be done out of 50 marks. Evaluation guidelines mentioned in the syllabus of concerned course)								
TOTAL				18	0	8	-	-	180	420	600		75	75	150	-
Semester Total				26			21	Marks 750								

Summer Internship**

Summer Internship should be undertaken after end of 6th Semester for a minimum duration of 4 weeks in Industry/ Research Institute/ Organizations & its evaluation to be done in 7th semester

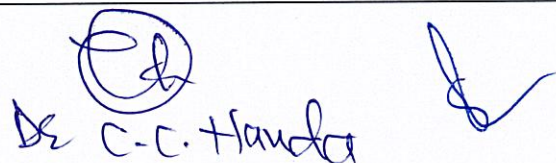
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Scheme of Examination and Evaluation
Bachelor of Technology (Mechanical Engineering) (Choice Based Credit System)
VII Semester B. Tech (Mechanical Engineering)

Sr No	Course Code	Category	Course Title	Teaching Scheme (Hours/Week)			Credits	Examination Scheme								
				L	T	P		Theory				Practical				
								Duration of Exam (Hrs)	Max. Marks College Assessment	Max. Marks University Assessment	Total Marks	Min. Passing Marks	Max. Marks College Assessment	Max. Marks University Assessment	Total Marks	Min. Passing Marks
1	BEME701T	Professional Elective courses	Elective - III	3	-	-	3	3	30	70	100	45	-	-	-	-
2	BEME701P	Professional Elective courses	Elective - III Lab	-	-	2	1	-	-	-	-	-	-	-	-	-
3	BEME702T	Professional core courses	Energy Conversion III	3	-	-	3	3	30	70	100	45	25	25	50	25
5	BEME703T	Open Elective Course	Open Elective - II	3	-	-	3	3	30	70	100	45	-	-	-	-
6	BEME704T	Professional core courses	Design of Transmission systems	3	1	-	4	3	30	70	100	45	-	-	-	-
7	BEME705P	Project work, seminar and internship in industry or elsewhere	Summer Internship**	During Summer Vacation after sixth semester			2	-	-	-	-	-	50	-	50	25
8	BEME706P	Project work, seminar and internship in industry or elsewhere	Project Phase I	-	-	6	3	-	-	-	-	-	50	-	50	25
9	BEME707P	Project work, seminar and internship in industry or elsewhere	Employability Enhancement*	-	-	2	1	-	-	-	-	-	50	-	50	25
TOTAL				12	1	10	-	-	120	280	400	-	175	25	200	-
Semester Total				23			20	Marks 600								
Summer Internship**			Summer Internship should be undertaken after end of 6th Semester for a minimum duration of 4 weeks in Industry/ Research Institute/ Organizations & its evaluation to be done in 7th semester													
Employability Enhancement*			Students should be given training on Technical aptitude, General aptitude, Group Discussion, Interview Techniques to enhance their chances of employment													

Note: A load of 2 hours/week per project guide for the course "Project Phase I"

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Bachelor of Technology (Mechanical Engineering) (Choice Based Credit System)
VIII Semester B. Tech (Mechanical Engineering)

Sr No	Course Code	Category	Course Title	Teaching Scheme (Hours/Week)			Credits	Examination Scheme									
				L	T	P		Theory					Practical				
								Duration of Exam (Hrs)	Max. Marks College Assessment	Max. Marks University Assessment	Total Marks	Min. Passing Marks	Max. Marks College Assessment	Max. Marks University Assessment	Total Marks	Min. Passing Marks	
1	BEME801T	Professional core courses	Industrial Engineering	3	-	-	3	3	30	70	100	45	-	-	-	-	
2	BEME802T	Professional Elective courses	Elective - IV	3	-	-	3	3	30	70	100	45	-	-	-	-	
3	BEME802P	Professional Elective courses	Elective - IV Lab	-	-	2	1	-	-	-	-	-	25	25	50	25	
4	BEME803T	Professional Elective courses	Elective - V	3	-	-	3	3	30	70	100	45	-	-	-	-	
5	BEME804T	Professional Elective courses	Elective - VI	3	-	-	3	3	30	70	100	45	-	-	-	-	
6	BEME805P	Project work, seminar and internship in industry or elsewhere	Project Phase II	-	-	12	6	-	-	-	-	-	100	100	200	100	
TOTAL				12	0	14	-	-	120	280	400	-	125	125	250	-	
Semester Total				26			19	Marks 650									
Note: A load of 4 hours/week per project guide for the course "Project Phase II"																	


 Dr. C.C. Handa

Rashtrasant Tukdoji Maharaj Nagpur University, Nagpur

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ELECTIVE I	ELECTIVE II	ELECTIVE III	ELECTIVE IV	ELECTIVE V	ELECTIVE VI	OPEN ELECTIVE I	OPEN ELECTIVE II
VI SEM	VI SEM	VII SEM (T+P)	VIII SEM (T+P)	VIII SEM	VIII SEM	VI SEM	VII SEM
Operation Research	Advanced Manufacturing Techniques	Mechatronics	Finite Element Method	Heating Ventilation & Air Conditioning	Industrial IOT	Entrepreneurship Development	Introduction to Electric Vehicles
Production Planning & Control	Power Plant Engineering	Computer Aided Design	Computer Integrated Manufacturing	Electric and Hybrid Vehicles	Additive Manufacturing	Automobile Engineering	Waste Management
Tool Design	Supply Chain Management	Advancements in Automobile Engineering	Refrigeration & Air conditioning	Design of Material Handling systems	Energy Conservation and Management	Project Evaluation & Management	Finance & Cost Management
Renewable Energy sources	Introduction to Artificial Intelligence	Computational Fluid Dynamics	CNC & Robotics	Total Quality Management	Green & Sustainable Manufacturing	Operation Research Techniques	Industrial Robotics
						Industrial Safety & Environment	Introduction to Renewable Energy resources

Note : Open electives are strictly applicable for other branches students only.