

**COURSE STRUCTURE, EVALUATION SCHEME AND
DETAILED SYLLABI FOR B.TECH
MECHANICAL ENGINEERING PROGRAMME**

(Effective from Session 2017-18 for New Entrants)



**DEPARTMENT OF MECHANICAL ENGINEERING
HARCOURT BUTLER TECHNICAL UNIVERSITY, KANPUR
KANPUR-208002 (U.P.)**

DEPARTMENT OF MECHANICAL ENGINEERING
SEMESTER WISE COURSE STRUCTURE & EVALUATION SCHEME
B.TECH. (MECHANICAL ENGINEERING)
Effective from Session 2017-18 (for New Entrants)

I SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks
					CT	TA	Lab	Total		
1.	BSC	BPH 101	Physics	4(3-0-2)	15	20	15	50	50	100
2.	BSC	BMA 101	Maths -I	4(3-1-0)	30	20	-	50	50	100
3.	ESC	EEE 101	Electrical Engg.	4(3-0-2)	15	20	15	50	50	100
4.	ESC	EME 101	Engg. Mechanics	3(3-0-0)	30	20	-	50	50	100
5.	HSMC	HHS 103	Professional Communication	3(2-0-2)	15	20	15	50	50	100
6.	HSMC	HHS 101	English Language & Composition	2(2-0-0)	30	20	-	50	50	100
Total Credits 20										

II SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks
					CT	TA	Lab	Total		
1.	BSC	BCY 102	Engg. Chemistry	4(3-0-2)	15	20	15	50	50	100
2.	BSC	BMA 102	Maths-II	4(3-1-0)	30	20	-	50	50	100
3.	ESC	EET 102	Electronics & Instrumentation Engg.	3(3-0-0)	30	20	-	50	50	100
4.	ESC	ECE 102	Engg. Graphics	3(0-0-6)	30	20	-	50	50	100
5.	ESC	ECS 102	Computer Concept & Programming	4(3-0-2)	15	20	15	50	50	100
6.	ESC	EWS 102	Workshop Practice	2(0-0-4)	-	20	30	50	50	100
7.	MC (Non-credit)	ECE 104	Environment and Ecology	2(2-0-0)	30	20	-	50	50	100
Total Credits 20										

III SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks
					CT	TA	Lab	Total		
1.	BSC	BMA 201	Maths-III	4(3-1-0)	30		-	50	50	100
2.	ESC	EME 201	Strength of Material	5(3-1-2)	15	20	15	50	50	100
3.	PCC	EME 203	Material Science	4(3-0-2)	15	20	15	50	50	100
4.	PCC	EME 205	Engineering Thermodynamics	4(3-1-0)	30	20	-	50	50	100
5.	PCC	EME 207	Machine Drawing	2(0-0-4)	-	20	30	50	50	100
6.	HSMC	HHS 201	Engg. Economics & Management	3(3-0-0)	30	20	-	50	50	100
7.	MC (Non-credit)	HHS 205	Indian Constitution	2(2-0-0)	30	20	-	50	50	100
Total Credits 22										

IV SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks
					CT	TA	Lab	Total		
1.	BSC	BMA 206	CONM	4(3-1-0)	30	20	-	50	50	100
2.	ESC	ECE 202	Engineering Fluid Mechanics	5(3-1-2)	15	20	15	50	50	100
3.	PCC	EME 202	Manufacturing Science-I	5(3-1-2)	15	20	15	50	50	100
4.	PCC	EME 206	Applied Thermodynamics	4(3-1-0)	30	20	-	50	50	100
5.	PCC	EME 208	Kinematics of Machine	4(3-1-0)	30	20	-	50	50	100
6.	MC (Non-credit)	ECS 202	Cyber Security	2(2-0-0)	30	20	-	50	50	100
Total Credits 22										

V SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks
					CT	TA	Lab.	Total		
1.	PCC	EME 301	Manufacturing Science-II	5(3-1-2)	15	20	15	50	50	100
2.	PCC	EME 303	Heat & Mass Transfer	5(3-1-2)	15	20	15	50	50	100
3.	PCC	EME 305	Dynamics of Machine	5(3-1-2)	15	20	15	50	50	100
4.	PCC	EME 307	Machine Design-I	4(3-0-2)	15	20	15	50	50	100
5.	OEC (Math)	BMA 341	Operation Research	3(3-0-0)	30	20	-	50	50	100
Total Credits 22										

VI SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks
					CT	TA	Lab	Total		
1.	PCC	EME 302	Fluid Machinery	5(3-1-2)	15	20	15	50	50	100
2.	PCC	EME 304	Machine Design II	5(3-1-2)	15	20	15	50	50	100
3.	PCC	EME 306	Computer Aided Design	5(3-1-2)	15	20	15	50	50	100
4.	PCC	EME 310	I C Engine & Energy Conversion	4(3-0-2)	15	20	15	50	50	100
5.	OEC (Humanities)	HHS 342	Entrepreneurship Development	3(3-0-0)	30	20	-	50	50	100
Total Credits 22										

VII SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks
					CT	TA	Lab	Total		
1.	PCC	EME 401	Refrigeration & Air Conditioning	4(3-0-2)	15	20	15	50	50	100
2.	PEC	EME-415 to 421	Elective-I	4(3-0-2)	15	20	15	50	50	100
3.	PEC	EME-425 to 433	Elective-II	3(3-0-0)	30	20	-	50	50	100
4.	OEC	OEC-441, 443	Open Elective - I	3(3-0-0)	30	20	-	50	50	100
5.	INDUSTRIAL TRAINING	EME 461	Industrial. Training	2(0-0-4)	-	50	-	50	50	100
6.	SEMINAR	EME-471	Seminar	2(0-0-4)	-	50	-	50	50	100
7.	PROJECT	EME 497	Project	4(0-0-8)	-	50	-	50	50	100*
Total Credits 22										

VIII SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks
					CT	TA	Lab	Total		
1.	OEC	OEC-442, 444	Open Elective-II	4(3-1-0)	30	20	-	50	50	100
2.	PEC	EME-436 to 444	Elective - III	4(3-1-0)	30	20	-	50	50	100
3.	PEC	EME-452 to 460	Elective - IV	4(3-1-0)	30	20	-	50	50	100
4.	PROJECT	EME-498	Project	10(0-0-20)	-	50	-	50	50	100*
Total Credits 22										

* EME-497 Project will have Internal Evaluation while EME-498 Project will have External Evaluation.

TOTAL B.Tech. Mechanical Engineering Credits = 172

List of Elective and Open Electives Courses B.Tech. (Mechanical Engineering)

EME-415 to 421 ELECTIVE I 4[3-0-2]

Sr. No.	Subject Code	Course Title	L	T	P	Credits
1.	EME-415	Finite Element Method	3	0	2	4
2.	EME-417	Automobile Engineering	3	0	2	4
3.	EME-419	Measurement & Control	3	0	2	4
4.	EME-421	Computer Aided Manufacturing	3	0	2	4

EME-425 to 433 ELECTIVE II 3[3-0-0]

Sr. No.	Subject Code	Course Title	L	T	P	Credits
1.	EME-425	Advance Materials	3	0	0	3
2.	EME-427	Mechanical Vibration	3	0	0	3
3.	EME-429	Power Plant Engineering	3	0	0	3
4.	EME-431	Production Planning & Control	3	0	0	3
5.	EME-433	Non-conventional Energy Resources & Utilization	3	0	0	3

OEC-441,443 OPEN ELECTIVE-I 3[3-0-0]

Sr. No.	Subject Code	Course Title	L	T	P	Credits
1.	OEC-441	Solar Energy	3	0	0	3
2.	OEC-443	Composite Materials	3	0	0	3

OEC-442,444 OPEN ELECTIVE-II 4[3-1-0]

Sr. No.	Subject Code	Course Title	L	T	P	Credits
1.	OEC-442	Alternative Energy Resources	3	1	0	4
2.	OEC-444	Industrial Engineering & Automation	3	1	0	4

EME-436 to 444 ELECTIVE-III 4[3-1-0]

Sr. No.	Subject Code	Course Title	L	T	P	Credits
1.	EME-436	Non-Destructive Evaluation	3	1	0	4
2.	EME-438	Non-conventional Manufacturing	3	1	0	4
3.	EME-440	Product Design & Development	3	1	0	4
4.	EME-442	Industrial Engineering	3	1	0	4
5.	EME-444	Fracture Mechanics	3	1	0	4

EME-452 to 460 ELECTIVE-IV 4[3-1-0]

Sr. No.	Subject Code	Course Title	L	T	P	Credits
1.	EME-452	Rapid Prototyping & Rapid Tooling	3	1	0	4
2.	EME-454	Machine Tool Design	3	1	0	4
3.	EME-456	Optimization Methods in Engineering	3	1	0	4
4.	EME-458	Experimental Stress Analysis	3	1	0	4
5.	EME-460	Thermal Turbo Machines	3	1	0	4