

B.Tech (Four Years) Course Structure

Department of Mechanical Engineering



Indian Institute of Engineering Science and Technology, Shibpur

भारतीय अभियांत्रिकी विज्ञान एवं प्रौद्योगिकी संस्थान, शिवपुर
ভারতীয় প্রকৌশল বিজ্ঞান এবং প্রযুক্তিবিদ্যা প্রতিষ্ঠান, শিবপুর

Howrah 711103, West Bengal, India

Website: www.iiests.ac.in

REVISED (REV 2021/2)
RECOMMENDED BY DFC ON 08 Oct 2021
APPROVED BY BOAC HELD ON 08 Oct 2021
RECOMMENDED BY DFC ON 10th MAY 2022

COURSE STRUCTURE

B. TECH. (MECHANICAL)

(REFER TO ANNEXURE 1 FOR COURSES OFFERED BY ME DEPT TO OTHERS)

Summary of revisions (Rev 2021/2):

1. HP Theory and HP Lab (ME 3106 & ME3174) for 5th Sem (Elec)
2. Introduction to Biomechanics (ME4229) as DE in 8th Sem (Mech)
3. Subjects offered by ME for other department shifted to Annexure 1
4. Course contents shifted to Annexure 2

Summary of revisions proposed by DFC on 10th May 2022

DFC recommended to offer Core Elective -I in the 7th Semester and HSS-III in the 8th Semester. DFC also revised the list of subjects to be offered as Core Elective -I in the 7th Semester and Core Elective-II in the 8th Semester.

FIRST SEMESTER

Sl. No	Course Name	Course code	Class Load/Week			Credit	Class load/week	Marks
			L	T	P			
1.	Mathematics-I	MA 1101	3	1	0	4	4	100
2.	Chemistry	CH 1101	3	0	0	3	3	100
3.	Introduction to Computing	CS 1101	3	0	0	3	3	100
4.	Mechanics	AM 1101	4	0	0	4	4	100
5.	Professional Communication in English	HU 1101	3	0	0	3	3	100
	Theory Sub-total		16	1	0	17	17	500
6.	Chemistry Lab	CH 1171	0	0	3	2	3	50
7.	Computer Lab	CS 1171	0	0	3	2	3	50
8.	Drawing Practice	AM 1171	0	1	3	3	4	50
9.	NSS/NCC/PT/Yoga	SA 1171				R*		
	Practical Sub-total		0	1	9	7	10	200
	First Semester Total					24	27	700

*R: Required (Non-credit but with grade)

NB. No departmental subject in this Semester.

SECOND SEMESTER

Sl. No	Course Name	Course code	Class Load/Week			Credit	Class load/week	Marks
			L	T	P			
1.	Mathematics – II	MA 1201	3	1	0	4	4	100
2.	Physics	PH 1201	4	0	0	4	4	100
3.	Basic Electrical Engineering	EE 1201	4	0	0	4	4	100
4.	Environmentand Ecology	CE 1201	3	0	0	3	3	100
5.	Sociology & Professional Ethics	HU 1201	3	0	0	3	3	100
	Theory Sub-total		17	1	0	18	18	500
6.	Physics Lab	PH 1271	0	0	3	2	3	50
7.	Basic Electrical Engineering Lab	EE 1271	0	0	3	2	3	50
8.	Workshop Practice	WS 1271	0	0	3	2	3	50
9.	NSS/NCC/PT/Yoga	SA 1271				R*		
	Practical Sub-total		0	0	9	6	9	200
	Second Semester Total					24	27	700

*R: Required (Non-credit but with grade)

NB. No departmental subject in this Semester.

THIRD SEMESTER

Sl. No	Subject code	Course Name	Class Load/Week			Total Load (h)	Credit	Marks
			L	T	P			
1.	MA 2101	Mathematics – III	3	0	0	3	3	100
2.	AM 2101	Strength of Materials	4	0	0	4	4	100
3.	AM 2102	Dynamics	4	0	0	4	4	100
4.	ME2101	Basic Thermodynamics	3	0	0	3	3	100
5.	ME2102	Numerical Methods in Engineering	3	0	0	3	3	100
		Theory Sub-total	17	0	0	17	17	500
6.	AM 2171	Strength of Materials Laboratory	0	0	3	3	2	50
7.	AM 2172	Machine Drawing	0	0	3	3	2	50
8.	ME2171	Numerical Methods in Engineering Lab	0	0	3	3	2	50
9.	ME2172	Minor Project	0	0	0	0	2	50
		Sessional Sub-total	0	0	9	9	8	200
		3 rd Semester Total				26	25	700

FOURTH SEMESTER

Sl. No	Subject code	Course Name	Class Load/Week			Total Load (h)	Credit	Marks
			L	T	P			
1.	AM 2201	Fluid Mechanics	4	0	0	4	4	100
2.	ME2201	Applied Thermodynamics	3	1	0	4	4	100
3.	ME2202	Kinematics of Mechanisms and Robots	3	0	0	3	3	100
4.	ME2203	Fundamentals of Machine Design	3	0	0	3	3	100
5.	ME2204	Engineering Materials and Processes	3	1	0	4	4	100
		Theory Sub-total	16	2	0	18	18	500
6.	AM 2271	Fluid Mechanics Laboratory	0	0	3	3	2	50
7.	ME2271	Applied Thermodynamics Lab	0	0	3	3	2	50
8.	ME2272	Machine Shop Practice	0	0	3	3	2	50
9.	ME2273	CAD Modelling and Simulation Lab	0	0	3	3	2	50
		Sessional Sub-total	0	0	12	12	8	200*
		4th Semester Total				30	26	700

FIFTH SEMESTER

Sl. No	Subject code	Course Name	Class Load/Week			Total Load (h)	Credit	Marks
			L	T	P			
1.	ME3101	Heat Transfer	3	1	0	4	4	100
2.	ME3102	Steam and Gas Power Systems	3	0	0	3	3	100
3.	ME3103	Dynamics of Machines and Vibration	3	0	0	3	3	100
4.	ME3104	Design of Power Transmission Elements	3	0	0	3	3	100
5.	ME3105	Machine Tools and Metal Cutting	3	0	0	3	3	100
		Theory Sub-total	15	1	0	16	16	500
6.	ME3171	Heat Transfer Lab	0	0	3	3	2	50
7.	ME3172	Design of Power Transmission Elements Sessional	0	0	3	3	2	50
8.	ME3173	Metal Cutting and Metrology Lab	0	0	3	3	2	50
		Sessional Sub-total	0	0	9	9	6	150
		5th Semester Total				25	22	650

SIXTH SEMESTER

Sl. No	Subject code	Course Name	Class Load/Week			Total Load (h)	Credit	Marks
			L	T	P			
1.	AM 3201	Fluid Power Engineering	4	0	0	4	4	100
2.	ME3201	I.C. Engine and Jet Propulsion	3	1	0	4	4	100
3.	ME3202	Design of Frictional Machine Elements	3	1	0	4	4	100
4.	ME3203	Modelling and Control of Mechanical Systems	3	0	0	3	3	100
5.	ME3204	Manufacturing Technology	3	0	0	3	3	100
		Theory Sub-total	16	2	0	18	18	500
6.	AM 3271	Fluid Power Engineering Laboratory	0	0	3	3	2	50
7.	ME3271	Engine Lab	0	0	3	3	2	50
8.	ME3272	Design of Frictional Machine Elements Sessional	0	0	3	3	2	50
9.	ME3273	Seminar and Group Discussion.	0	0	3	3	2	50
		Sessional Sub-total	0	0	12	12	8	200
		6th Semester Total				30	26	700

SEVENTH SEMESTER

Sl. No	Subject code	Course Name	Class Load/Week			Total Load (h)	Credit	Marks
			L	T	P			
1.	ME4101	Refrigeration and Air conditioning	3	0	0	3	3	100
2.	ME4102	Advanced Manufacturing Technology	3	1	0	4	4	100
3.	ME4103	Industrial Engineering and Operations Research	3	0	0	3	3	100
4.		OPEN ELECTIVE (HSS) Core Elective -I (LIST-I)	3	0	0	3	3	100
		Theory Sub-total	12	1	0	13	13	400
5.	ME4171	Refrigeration and Air Conditioning Lab	0	0	3	3	2	50
6.	ME4172	Advanced Manufacturing Lab	0	0	3	3	2	50
7.	ME4191	B. Tech Project Part-I	0	0	2	2	4	100
8.	ME4192	Evaluation of 6 th Semester Internship	0	0	0	0	2	50
		Sessional Sub-total	0	0	8	8	10	250
		7th Semester Total				21	23	650

LIST-I (Core Elective -I)

1. Automobile Engineering (ME4121)
2. Fundamentals of Tribology (ME4122)
3. Fatigue and Fracture Mechanics (ME 4123)
4. Computational Fluid Dynamics and Heat Transfer (ME4124)
5. Welding Technology (ME4125)
6. CNC Machining and Additive Manufacturing (ME4126)

EIGHTH SEMESTER

Sl. No	Subject code	Course Name	Class Load/Week			Total Load (h)	Credit	Marks
			L	T	P			
1.	See the list below	Core Elective - I (LIST-I) HSS-III	3	0	0	3	3	100
2.	See the list below	Core Elective - II (LIST-II)	3	0	0	3	3	100
3.	See the list below	Open -Elective	3	0	0	3	3	100
		Theory Sub-total	9	0	0	9	9	300
4.	ME4291	B. Tech Project Part-II	0	0	2	2	8	200
	ME4292	Project Seminar	0	0	0	0	2	50
5.	ME4293	Comprehensive Viva	0	0	0	0	2	100
		Sessional Sub-total	0	0	2	2	12	350
		8th Semester Total				11	21	650
		TOTAL CREDIT (All Semester) =					191	

List of Core Elective -II subjects (to be offered in the 8th-semester)

1. Power Plant Engineering (ME4221)
2. Manufacturing Automation (ME4222)
3. Finite Element Method for Engineering (ME4223)
4. Fluidized Bed Technology (ME4224)
5. Robotics (ME 4225)
6. Introduction to Biomechanics (ME 4226)

OPEN ELECTIVE

Students are to choose one OE from a list as declared and notified by institute.

Annexure-I**A. Subjects offered by ME Department to the other specified departments**

Sl. No.	Subject code	Course Name	Class Load/Week			Total Load (h)	Credit	Marks	Department
			L	T	P				
1.	ME2205	Heat Power and Machine Elements	3	1	0	4	4	100	Mining Engg. (4 TH Sem)
2.	ME 2274	Heat Power and Machine Elements Laboratory	0	0	3	3	2	50	Mining Engg. (4 TH Sem)
3	ME 3106	Heat Power	3	0	0	3	3	100	Elec Engg. (5 TH Sem)
4	ME 3174	Heat Power Lab	0	0	3	3	2	50	Elec Engg. (5 TH Sem)

B. Subjects offered by ME Department as Open Electives (OE)

Sl. No.	Subject code	Course Name	Class Load/Week			Total Load (h)	Credit	Marks	Department
			L	T	P				
1.	ME4241	Energy Storage Technology	3	0	0	3	3	100	All Depts. (8 TH Sem)
2.	ME4242	Solar and Wind Energy	3	0	0	3	3	100	All Depts (8 TH Sem)