

The Mechanical Engineering Department of IEST, Shibpur is offering the following academic programs:

- 1. Five Year INTEGRATED B. TECH and M. TECH DUAL DEGREE Program with exit option (after 8 semester) and without exit option (10 semester).**
- 2. Two Year (4 semester) M.Tech Program**
- 3. Doctor of Philosophy (Ph.D) program with and without Scholarship.**

INDIAN INSTITUTE OF ENGINEERING SCIENCE & TECHNOLOGY, SHIBPUR
5 yr INTEGRATED B. TECH & M. TECH DUAL DEGREE COURSE STRUCTURE

1st semester (COMMON TO ALL DEPARTMENTS)

Sl. No	Course Name	Course code	Class Load/Week			Credit	Class load/week
			L	T	P		
1.	Mathematics – I	MA101	3	1	0	4	4
2.	Physics/Chemistry	PH1201/CH1201	3	1	0	4	4
3.	Int. to comp. & prog./ Prof. Comm. In English	CS1201/HU1201	2	1	0	3	3
4.	Basic Electrical Eng./Basic Electronics Eng.	EE1201/ET1201	3	1	0	4	4
5.	Environment & Ecology/Mechanics	CE1201/AM1201	2/3	0/1	0	2/4	2/4
	Theory Sub-total		13/14	4/5	NIL	17/19	17/19
6.	Physics-I Lab./Chemistry Lab.	PH1251/CH1251	0	0	3	2	
7.	Basic EE. Lab./Basic Electronics Eng. Lab.	EE1251/ET1251	0	0	3	2	
8.	Drawing Practice/Workshop Practice	AM1251/WS1251	0	0	3	2	
9.	Computing Practice Lab./None	CS1251/NIL	0	0	3/0	2/0	
	Sessional Sub-total		NIL	NIL	12/9	8/6	12/09
	1 st Semester Total					25/23	29/28

2nd semester (COMMON TO ALL DEPARTMENTS)

Sl. No	Course Name	Course code	Class Load/Week			Credit	Class load/Week
			L	T	P		
1.	Mathematics – II	MA102	3	1	0	4	4
2.	Chemistry/Physics	CH1201/PH1201	3	1	0	4	4
3.	Prof.Comm. In English/Int. to comp. & Prog.	HU1201/CS1201	2	1	0	3	3
4.	Basic Electronics Eng./Basic Electircal Engg.	ET 1201/EE1201	3	1	0	4	4
5.	Mechanics/Environment& Ecology	AM 1201/CE1201	3/2	1/0	0	4/2	4/2
	Theory Sub-total		14/13	5/4	NIL	19/17	19/17
6.	Chemistry Lab./Physics Lab	CH1251/PH1251	0	0	3	2	
7.	Basic EE Lab./Basic Electronics Eng. Lab.	ET1251/EE1251	0	0	3	2	
8.	Workshop Practice / Drawing Practice	WS1251/AM1251	0	0	3	2	
9.	NONE/Computing Practice Lab.	NIL/CS1251	0	0	0/3	0/2	
	Sessional Sub-total		NIL	NIL	9/12	6/8	9/12
	1 st Semester Total					22/24	28/29

Distribution of common core subjects

Group	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th
Aerospace, Civil, Mech, Met & Mining	CE1201 CH1201 CS1201 ET1201	AM1201 PH1201 HU1201 EE1201	HU3401 MA 301		HU5601		HU7801	

	AM1251 ET1251	EE1251 WS 1251						
CS, EE, ET, IT	AM1201 PH1201 HU1201 EE1201 EE1251 WS 1251	CE1201 CH1201 CS1201 ET1201 AM1251 ET 1251	MA 301	HU3401		HU5601		HU7801

MECHANICAL ENGINEERING

3rd Semester

Sl. No	Course Name	Course code	Class Load/Week			Credit	Class load/week
			L	T	P		
1.	Mathematics – III	MA301	3	1	0	4	4
2.	Intr. To Mgmt. & Ind. Sociology	HU3401	4	0	0	4	4
3.	Fundamentals of Thermodynamics	ME 301	3	0	0	3	3
4.	Rigid body Dynamics	AM 302	3	1	0	4	4
5.	Strength of Materials	AM 304	3	1	0	4	4
	Theory Sub-total		16	3	NIL	19	19
6.	Thermodynamics Lab	ME 351	0	0	3	2	3
7.	Machine Drawing	AM351	0	0	3	2	3
8.	Strength of Materials Lab	AM 354	0	0	3	2	3
9.	Mini Project I	ME 371	0	0	0	2	0
	Sessional Sub-total		NIL	NIL	9	8	09
	3 rd Semester Total					27	28

4th Semester ME

Sl. No	Course Name	Course code	Class Load/Week			Credit	Class load/week
			L	T	P		
1.	Fluid Mechanics	AM403	3	1	0	4	4
2.	Basics of Machine Design	ME 401	3	0	0	3	3
3.	Applied Thermodynamics	ME 402	3	1	0	4	4
4.	Engineering Materials and Processes	ME 403	3	1	0	4	4
5.	Mechanical Measurement and Control Engineering	ME 404	4	0	0	4	4
	Theory Sub-total		14	4	NIL	19	19
6.	Fluid Mechanics Lab	AM453	0	0	3	2	3
7.	Applied Thermodynamics lab	ME 451	0	0	3	2	3
8.	Mechanical Measurement lab	ME 454	0	0	3	2	3
9.	Mini Project II	ME471	0	0	0	2	0
	Sessional Sub-total		NIL	NIL	9	8	9
	4 th Semester Total					27	28

5th Semester Mechanical Engineering

Sl. No	Course Name	Course code	Class Load/Week			Credit	Class load/week
			L	T	P		
1.	Economics	HU5601	3	0	0	3	3
2.	Kinematics of Mechanisms	ME 501	3	0	0	3	3
3.	Heat Transfer	ME 502	3	0	0	3	3
4.	Machine Tools & Metal Cutting	ME 503	3	0	0	3	3
5.	Open Elective I	ME 531/X	3	0	0	3	3
	Theory Sub-total		15	0	NIL	15	15
6.	Basics of Machine Design Sessional	ME 551	0	0	3	2	3
7.	Heat Transfer Lab	ME 552	0	0	3	2	3
8.	Machine Tools & Metal Cutting Lab	ME 553	0	0	3	2	3
	Sessional Sub-total		NIL	NIL	9	6	9
	5 th Semester Total					21	24

Open Elective I

X=1: Solar Energy and its applications

X=2: Composite Materials

X=3: Industrial Management

6th Semester Mechanical Engineering

Sl. No.	Course Name	Course code	Class Load/Week			Credit	Class load/week
			L	T	P		
1.	Design of Power Transmission Elements	ME - 601	3	0	0	3	3
2.	Boiler and Steam Turbine	ME - 602	3	0	0	3	3
3.	Dynamics of Machines and Vibration	ME - 603	3	0	0	3	3
4.	Manufacturing Technology	ME - 604	3	0	0	3	3
5.	Fluid Power Engineering	AM - 6 ...	3	0	0	3	3
	Theory Sub-total		15	0	NIL	15	15
6.	Design of Power Transmission Elements Sessional	ME - 651	0	0	3	2	3
7.	Modelling and Simulation Lab	ME - 652	0	0	3	2	3
8.	Fluid Power Engineering Lab	AM- 67...	0	0	3	2	3
8.	Comprehensive Viva-voce	ME - 671	0	0	0	2	0
	Sessional Sub-total		NIL	NIL	9	8	9
	6 th Semester Total					23	24

**Course Structure of B.Tech-M.Tech. Dual Degree
for 7th to 10th Semester Mechanical Engineering**

7th Semester

Sl. No.	Course Name	Course code	Class Load/Week			Credit	Class load/ week
			L	T	P		
1.	Accountancy and F.M.	HU-7801	3	0	0	3	3
2.	Tribo-Design of Machine Elements	ME - 701	3	0	0	3	3
3.	EL II (OE) : See below	ME-731/1,2,..	3	0	0	3	3
4.	ADS I : see below	ME 7NMD	3	0	0	3	3
5.	ADS II : see below	ME 7NMD	3	0	0	3	3
	Theory Sub-total		15	0	0	15	15
6.	Tribo-Design of Machine Elements Sessional	ME - 751	0	0	3	2	3
7.	IC Engines Lab	ME - 752	0	0	3	2	3
8.	Steam Power Lab	ME - 753	0	0	3	2	3
	Sessional Sub-total		0	0	9	6	09
	7 th Semester Total					21	24

Elective II (OE):

Power Plant Engineering (ME-703/1)

Computational Fluid Dynamics (ME 703/2)

Metal Forming (ME 703/3)

Advanced Departmental Subjects I (ADS I)

Specialization	Subject	Code
M/C Design	Solid Mechanics for Mechanical Design	ME 709D
Thermal Engineering	Advanced Conductive and Radiative Heat Transfer	ME 701D
Production	Material Processing Technology	ME 714D

Advanced Departmental Subjects II (ADS II)

Specialization	Subject	Code
M/C Design	Engineering Tribology	ME 711D
Thermal Engineering	Advanced Engineering Thermodynamics	ME 706D
Production	Theory of Metal Cutting	ME 715D

8th semester

Sl. No.	Course Name	Course code	Class Load/Week			Credit	Class load/ week
			L	T	P		
1.	Computational Methods	ME 802	3	0	0	3	3
2.	Modern Manufacturing Technology	ME 805	3	0	0	3	3
3.	ADS III: See below	ME 8NMD	3	0	0	3	3
4.	ADS IV: See below	ME 8NMD	3	0	0	3	3
5.	ADS V: See below	ME 8NMD	3	0	0	3	3
	Theory Sub-total		15	0	0	15	15
6.	Term paper (Project Thesis I)	ME- 850	0	0	2	3	2
7.	Computational Methods Lab	ME 851	0	0	3	2	3
9.	Comprehensive viva-voce	ME 871	0	0	0	2	0
	Sessional Sub-total		0	0	05	07	05
	8 th Semester Total					22	20

Advanced Departmental Subjects III (ADS III)

Specialization	Subject	Code
M/C Design	Geometric Modelling for CAD	ME 809D
Thermal Engineering	Gas Turbine and Compressors	ME 803D
Production	Operation Research in Production Management	ME 817D

Advanced Departmental Subjects IV (ADS IV)

Specialization	Subject	Code
M/C Design	Design Optimization	ME 810D
Thermal Engineering	Air Conditioning Engineering	ME 804D
Production	Energy Beam Processing of Materials	ME 819D

Advanced Departmental Subjects V (ADS V)

Specialization	Subject	Code
M/C Design	Industrial Tribology	ME 811D
Thermal Engineering	Numerical Heat Transfer	ME 807D
Production	Quality and Reliability Management	ME 826D

9th semester

Sl. No.	Course Name	Course code	Class Load/Week			Credit	Class load/ week
			L	T	P		
1.	ADS VI: See below	ME 9NMD	3	0	0	3	3
2.	ADS VII: See below	ME 9NMD	3	0	0	3	3
	Theory Sub-total		06	0	0	06	06
6.	Project Thesis – II	ME - 950	0	0	10	5	10
8.	Project Thesis Viva-voce	ME - 951	0	0	0	2	0
	Sessional Sub-total		0	0	10	07	10
	9 th Semester Total					13	16

Advanced Departmental Subjects VI (ADS VI)

Specialization	Subject	Code
M/C Design	Theory of Mechanical Vibration	ME 913D
Thermal Engineering	Internal Combustion Engine	ME 902D
Production	Design of Production Systems	ME 918D

Advanced Departmental Subjects VII (ADS VII)

Specialization	Subject	Code
M/C Design	Finite Element Methods	ME 929D
Thermal Engineering	Alternative Energy	ME 907D
Production	Industrial Engineering	ME 916D

10th Semester

Sl. No.	Course Name	Course code	Class Load/Week			Credit	Class load/ week
			L	T	P		
1.	ADS VIII: See below	ME 10NMD	3	0	0	3	3
	Sessional Sub-total		3	0	0	3	3
2.	Project thesis III	ME - 1050	0	0	18	9	18
3.	Comprehensive viva-voce (specialisation)	ME - 1071	0	0	0	2	0
4.	Project Thesis Viva-voce	ME - 1051	0	0	0	2	0
	Sessional Sub-total		0	0	18	13	18
	10 TH Semester Total					16	21

Advanced Departmental Subjects VIII (ADS VIII)

Specialization	Subject	Code
M/C Design	Dynamics and Control of Mechanical Systems	ME 1008D
Thermal Engineering	Advanced Convective Heat Transfer	ME 1001D
Production	Operations Management	ME 1016D

Course Structure of Mechanical Engineering Department for Four years B.Tech. (with Exit option) (7th and 8th Semester)

7th Semester

Sl. No.	Course Name	Course code	Class Load/Week			Credit	Class load/week
			L	T	P		
1.	Tribo-Design of Machine Elements	ME - 701	3	0	0	3	3
2.	IC Engines	ME - 702	3	0	0	3	3
3.	Elective II (OE): Listed at the end	ME - 703/1,2,..	3	0	0	3	3
4.	Modern Manufacturing Technology	ME - 704	3	0	0	3	3
5.	Elective III (DE): Listed at the end	ME - 705/1,2,..	3	0	0	3	3
	Theory Sub-total		15	0	0	15	15
6.	Tribo-Design of Machine Elements Sessional	ME - 751	0	0	3	2	3
7.	IC Engines Lab	ME - 752	0	0	3	2	3
8.	B.Tech. Project term paper	ME - 753	0	0	2	3	3
9.	Modern Manufacturing Technology Lab.	ME - 754	0	0	3	2	3
	Sessional Sub-total		0	0	9	9	12
	7 th Semester Total					24	27

Elective II (OE):

Power Plant Engineering (ME - 703/1)
Computational Fluid Dynamics (ME - 703/2)
Metal Forming (ME - 703/3)

Elective III (DE):

Automation and Computerized Manufacturing (ME - 705/1)
Non-conventional Energy Systems (ME - 705/2)
Introduction to Finite Element Method (ME - 705/3)

8th semester

Sl. No.	Course Name	Course code	Class Load/Week			Credit	Class load/ week
			L	T	P		
1.	Accountancy and F.M	HU - 7801	3	0	0	3	3
2.	Industrial Engineering and Operations Research	ME - 801	2+2	0	0	4	4
3.	Computational Methods	ME -802	3	0	0	3	3
4.	Elective IV (DE): Listed at the end	ME - 803/1,2,..	3	0	0	3	3
5.	Refrigeration and Air-conditioning	ME - 804	3	0	0	3	3
	Theory Sub-total		16	0	0	16	16
6.	B.Tech. Project Thesis	ME - 850	0	0	2	3	2
7.	Computational Methods Lab	ME - 851	0	0	3	2	3
8.	Steam Power Lab	ME-852	0	0	3	2	3
9.	Comprehensive Viva-voce	ME - 871	0	0	0	2	0
	Sessional Sub-total		0	0	05	09	08
	8 th Semester Total					25	24

Elective IV (DE):

Automobile Engineering (ME-803/1)
CNC Machine Tools (ME 803/2)
Fundamentals of Tribology (ME 803/3)
Circulating Fluidized Beds (ME 803/4)

COURSE STRUCTURE OF POST GRADUATE (M.Tech.) PROGRAM (4 Semesters)

FIRST SEMESTER

SL.NO.	SUBJECT	COURSE NO.	HOURS/WEEK			MARKS	
			L	T	S	Theory	Sess.
1	Paper I		3	0	0	100	--
2	Paper II		3	0	0	100	--
3	Paper III		3	0	0	100	--
4	Paper IV (Elective) outside Field of specialisation. Any one from Group-I		3	0	0	100	--
5	Paper V (Elective) outside Field of specialisation. Any one from Group-II		3	0	0	100	--
6	Sessionals on Field subjects (Paper I, II & III)		0	0	6	--	90
7	Sessionals on Paper IV		0	0	2	--	30
8	Sessionals on Paper V		0	0	2	--	30
		TOTAL	15	0	10	500	150

Total Contact Hours: 25 Total Marks: 650

B. SECOND SEMESTER

SL.NO.	SUBJECT	COURSE NO.	HOURS/WEEK			MARKS	
			L	T	S	Theory	Sess.
1	Paper VI		3	0	0	100	--
2	Paper VII		3	0	0	100	--
3	Paper VIII		3	0	0	100	--
4	Paper IX		3	0	0	100	--
5	Paper X (Elective) Any one from the list of Elective subjects other than papers VI, VII, VIII, IX		3	0	0	100	--
6	a. Sessionals: Term paper and or project related to thesis laboratory sessional		0	0	6	--	100
	b. Seminar on Term paper and or project related to thesis/laboratory sessionals		0	0	-		50
		TOTAL	15	0	6	500	150

Total Contact Hours: 21 Total Marks: 650

C. THIRD SEMESTER

SL.NO.	SUBJECT	COURSE NO.	HOURS/WEEK			MARKS	
			L	T	S	Theory	Sess.
1	Thesis		0	0	22	--	100
2	Viva-voce on thesis		0	0	0	--	50
		TOTAL	0	0	22	0	150

Total Contact Hours: 22 Total Marks: 150

D. FOURTH SEMESTER

SL.NO.	SUBJECT	COURSE NO.	HOURS/WEEK			MARKS	
			L	T	S	Theory	Sess.
1	Thesis		0	0	22	--	250
2	Viva-voce on thesis		0	0	0	--	100
		TOTAL	0	0	22	0	350

Total Contact Hours: 22 Total Marks: 350

Specializations Offered:

1. Heat Power
2. Machine Design
3. Production Engineering