



**INDIAN INSTITUTE OF TECHNOLOGY MADRAS
CHENNAI 600 036**

**Curriculum for
B.Tech. Degree Programme
2013 Batch**



INDIAN INSTITUTE OF TECHNOLOGY MADRAS

Curriculum for B.Tech. Degree Programme

2013 Batch

Sl.No.	Details	Page No.
1	Category & Branch-wise credit requirements	3
2	Aerospace Engineering	4
3	Chemical Engineering	7
4	Civil Engineering	10
5	Computer Science and Engineering	13
6	Electrical Engineering	16
7	Mechanical Engineering	19
8	Metallurgical and Materials Engineering	22
9	Naval Architecture and Ocean Engineering	25
10	Engineering Physics	28



B.Tech. Degree Programme Category and Branch-wise credit requirements

Category	AE	CH	CE	CS	EE	ME	MM	NA	EP
BES	9	9	9	9	9	9	9	9	9
BET	17	17	17	17	14	17	17	17	14
HPF	4	4	4	4	4	4	4	4	4
HSS	9	9	9	9	9	9	9	9	9
MNS	9	9	9	9	9	9	9	9	9
PIL	1	1	1	1	0	1	1	1	1
PIT	2	2	2	2	2	2	2	2	2
PML	12	14	10	18	12	13	14	19	14
PMP	9	9	11	8	9	11	13	12	12
PMT	66	61	64	60	67	67	58	60	68
PPF	0	6	6	8	0	0	6	0	0
PSS	4	4	3	0	0	3	3	3	3
SCY	7	7	7	7	7	7	7	7	7
SMA	17	14	14	14	14	14	14	14	14
SPH	10	10	10	10	10	10	10	10	10
SLS	2	2	2	2	2	2	2	2	2
FRE	6	6	6	6	9	6	6	6	6
EXT	0	0	0	0	0	0	0	0	0
Total	184	184	184	184	177	184	184	184	184

AE - B.Tech. Aerospace Engineering 2013 - Batch

SEMESTER 1

S.No	Course No	Course Name	L	T	P	C	Category
1	AS1010	Introduction to Aerospace Engineering	2	0	0	2	PMT
2	CY1002	Chemistry Lab I	1	0	3	3	SCY
3	ID1100	Concepts in Engineering Design	2	0	0	2	BET
4	MA1010	Calculus I Functions of One Variable	3	1	0	4	SMA
5	ME1100	Thermodynamics	3	0	0	3	BET
6	ME1120	Engineering Drawing	1	0	3	3	BES
7	PH1010	Physics I	3	0	0	3	SPH
8	PH1030	Physics Laboratory I	0	0	2	2	SPH
9	GN1100	Life Skills	2	0	0	2	HPF
						Total Credits :	24

SEMESTER 2

S.No	Course No	Course Name	L	T	P	C	Category
1	AM1100	Engineering Mechanics	4	0	0	4	BET
2	CS1100	Computational Engineering	3	0	0	3	BET
3	CY1001	Chemistry: Structure, Bonding & Reactivity	4	0	0	4	SCY
4	MA1020	Calculus II Functions of Several Variables	3	1	0	4	SMA
5	PH1020	Physics II	3	0	0	3	SPH
6	PH1040	Physics Laboratory II	0	0	3	2	SPH
						Total Credits :	20
	WS1010	Workshop I	0	0	6	4	BES
	WS1020	Workshop II	0	0	3	2	BES

SEMESTER 3

S.No	Course No	Course Name	L	T	P	C	Category
1	AS1020	Fluid Mechanics	4	0	0	4	PMT
2	AS2010	Basic Strength of Materials	4	0	0	4	PMT
3	AS2100	Introduction to Aerospace Lab	0	0	6	4	PML
4	BT1010	Life Sciences	2	0	0	2	SLS
5	EE1100	Basic Electrical Engineering	3	0	0	3	BET
6	ID1200	Ecology and Environment	2	0	0	2	BET
7	HSE1	Humanities Elective 1	3	0	0	3	HSS
8	MA2020	Differential Equations	3	0	0	3	SMA
						Total Credits :	25

SEMESTER 4

S.No	Course No	Course Name	L	T	P	C	Category
1	AS2030	Gas Dynamics	4	0	0	4	PMT
2	AS2050	Aerodynamics	4	0	0	4	PMT
3	AS2070	Aerospace Structural Mechanics	4	0	0	4	PMT
4	AS2080	Vibrations	4	0	0	4	PMT
5	AS2510	Low Speed Lab	0	0	3	2	PML
6	HSE2	Humanities Elective 2	3	0	0	3	HSS
7	MA2010	Complex Variables & Transform Techniques	3	0	0	3	SMA
						Total Credits :	24

SEMESTER 5

S.No	Course No	Course Name	L	T	P	C	Category
1	AS2040	Flight Dynamics I	4	0	0	4	PMT
2	AS2060	Experimental Aerodynamics	3	0	0	3	PMT
3	AS2520	Propulsion Lab	0	0	3	2	PML
4	AS3020	Aerospace Structures	4	0	0	4	PMT
5	AS3270	Propulsion	4	0	0	4	PMT
6	AS3510	Aero Lab I	0	0	3	2	PML
7	MAE3	Mathematics Elective 3	3	0	0	3	SMA
8	MNS1	Minor Elective 1	3	0	0	3	MNS
		Total Credits :				25	

SEMESTER 6

S.No	Course No	Course Name	L	T	P	C	Category
1	AS3010	Introduction to Space Technology	4	0	0	4	PMT
2	AS3050	Flight Dynamics II	3	0	0	3	PMT
3	AS3500	Industrial Training[Summer]	0	0	0	2	PIT
4	AS3520	Aero Lab II	0	0	3	2	PML
5	AS4020	Industrial Lecture	0	0	0	1	PIL
6	AS5210	Aerodynamic Design (Self Study)	4	0	0	4	PSS
7	DPE1	Department Elective 1	3	0	0	3	PMT
8	DPE2	Department Elective 2	3	0	0	3	PMT
9	DPE3	Department Elective 3	3	0	0	3	PMT
10	MNS2	Minor Elective 2	3	0	0	3	MNS
		Total Credits :				28	

SEMESTER 7

S.No	Course No	Course Name	L	T	P	C	Category
1	AS4590	Project I	0	0	0	0	PMP
2	DPE4	Department Elective 4	3	0	0	3	PMT
3	DPE5	Department Elective 5	3	0	0	3	PMT
4	DPE6	Department Elective 6	3	0	0	3	PMT
5	FRE1	Free Elective 1	3	0	0	3	
6	HSE3	Humanities Elective 3	3	0	0	3	HSS
7	MNS3	Minor Elective 3	3	0	0	3	MNS
		Total Credits :				18	

SEMESTER 8

S.No	Course No	Course Name	L	T	P	C	Category
1	AS4600	Project II	0	0	0	9	PMP
2	HS3050	Professional Ethics	2	0	0	2	HPF
3	FRE2	Free Elective 2	3	0	0	3	
		Total Credits :				14	

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Req. Cr.	24	20+6	25	24	25	28	18	14	184

Category	BES	BET	HPF	HSS	MNS	PIL	PIT	PML	PMP
Req. Cr.	9	17	4	9	9	1	2	12	9

Category	PMT	PPF	PSS	SCY	SMA	SPH	SLS	FRE	EXT
Req. Cr.	66	0	4	7	17	10	2	6	0

Remarks

1. Electives I to VI from Aero Elective List or other equivalents from other departments with the consent of the Faculty Adviser.
2. If required by the student area of B.Tech project, a maximum of 2 electives relevant to the project area may be taken for PMT credit even though they are not in Aero electives or equivalent thereof.
3. Grade for projects assigned in VIII semester. Project is optional. It will be decided based only on the discussion between the student and the faculty guide and upon their mutual concurrence. There will be no CGPA cutoff for project. Those who do not do project shall substitute it with 3 PMT electives including maximum of two from any other Engineering/Physics/Chemistry departments.
4. Free Electives I & II category will be indicated in the grade card according to the course chosen by the student from own department or from other departments such as MA, HS & PH.
5. **B.Tech. Honours:** (Total credit requirement: $184+12 = 196$)

Students having a CGPA of ≥ 8.5 and who have cleared all the courses in the first attempt can opt for B.Tech (Honours) at the end of the fourth semester.

1. Those who opt for B.Tech (Honours) must register for 12 additional PMT credits.
2. Students can register for a maximum of 2 additional PMT courses in a semester from the Honours basket of courses over and above the courses prescribed in the B.Tech curriculum from 5th semester onwards.
3. Project work is a must for B.Tech (Honours) students in B.Tech programme. B.Tech. Honours students should carry out a B.Tech. project worth 12 credits instead of 9 credit B.Tech project
4. Those who have registered for B.Tech (Honours) must maintain an average CGPA of 8.5 from 4th semester onwards. Otherwise, they will be awarded only B.Tech Degree.
5. Extra credits earned by the students will be counted for prizes and awards.

**CH - B.Tech. Chemical Engineering
2013-Batch**

SEMESTER 1

S.No	Course No	Course Name	L	T	P	C	Category
1	CH1010	Introduction to Chemical Engineering	2	0	0	2	PMT
2	CS1100	Computational Engineering	3	0	0	3	BET
3	CY1001	Chemistry: Structure, Bonding & Reactivity	4	0	0	4	SCY
4	ID1100	Concepts in Engineering Design	2	0	0	2	BET
5	MA1010	Calculus I Functions of One Variable	3	1	0	4	SMA
6	PH1010	Physics I	3	0	0	3	SPH
7	PH1030	Physics Laboratory I	0	0	0	2	SPH
8	GN1100	Life Skills	2	0	0	0	HPF
		Total Credits :				22	

SEMESTER 2

S.No	Course No	Course Name	L	T	P	C	Category
1	CH1020	Process Calculations	4	0	0	4	PMT
2	CY1002	Chemistry Lab I	1	0	3	3	SCY
3	EE1100	Basic Electrical Engineering	3	0	0	3	BET
4	MA1020	Calculus II Functions of Several Variables	3	1	0	4	SMA
5	ME1100	Thermodynamics	3	0	0	3	BET
6	ME1120	Engineering Drawing	3	0	0	3	BES
7	PH1020	Physics II	3	0	0	3	SPH
8	PH1040	Physics Laboratory II	0	0	0	2	SPH
		Total Credits :				25	
9	WS1010	Workshop I				4	BES
10	WS1020	Workshop II				2	BES

SEMESTER 3

S.No	Course No	Course Name	L	T	P	C	Category
1	AM1100	Engineering Mechanics	4	0	0	4	BET
2	BT1010	Life Sciences	2	0	0	2	SLS
3	CH2010	Chemical Engineering Thermodynamics	4	0	0	4	PMT
4	CH2030	Momentum Transfer	4	0	0	4	PMT
5	ID1200	Ecology and Environment	2	0	0	2	BET
6	HSE1	Humanities Elective 1	3	0	0	3	HSS
7	MAE1	Mathematics Elective 1	3	0	0	3	SMA
		Total Credits :				22	

SEMESTER 4

S.No	Course No	Course Name	L	T	P	C	Category
1	CH2020	Principles of Mass Transfer	4	0	0	4	PMT
2	CH2040	Mechanical Operations	4	0	0	4	PMT
3	CH2061	Computational Techniques	4	0	0	4	PMT
4	CH2082	Computational Prog. & Process Simulation Lab	0	0	3	2	PML
5	CH2100	Chemical Technology	3	0	0	3	PMT
6	HSE2	Humanities Elective 2	3	0	0	3	HSS
7	MAE2	Mathematics Elective 2	3	0	0	3	SMA
		Total Credits :				23	

SEMESTER 5

S.No	Course No	Course Name	L	T	P	C	Category
1	CH3010	Chemical Reaction Engineering I	3	0	0	3	PMT
2	CH3030	Applications of Mass Transfer	4	0	0	4	PMT
3	CH3051	Process Heat Transfer	4	0	0	4	PMT
4	CH3510	Momentum Transfer & MO Lab	0	0	6	4	PML
5	DPE1	Department Elective 1	3	0	0	3	PMT
6	FRE1	Free Elective 1	3	0	0	3	
7	MNS1	Minor Elective 1	3	0	0	3	MNS
Total Credits :						24	

SEMESTER 6

S.No	Course No	Course Name	L	T	P	C	Category
1	CH3020	Chemical Reaction Engg. II	4	0	0	4	PMT
2	CH3040	Instrumentation & Process Control	4	0	0	4	PMT
3	CH3060	Transport Phenomena	3	0	0	3	PMT
4	CH3080	Process Equipment Design	4	0	0	4	PSS
5	CH3500	Summer Training	0	0	0	2	PIT
6	CH3520	Heat & Mass Transfer Lab	0	0	6	4	PML
7	DPE2	Department Elective 2	3	0	0	3	PMT
8	MNS2	Minor Elective 2	3	0	0	3	MNS
Total Credits :						27	

SEMESTER 7

S.No	Course No	Course Name	L	T	P	C	Category
1	CH4010	Chemical Process Des. & Economics	4	0	0	4	PMT
2	CH4510	CRE & TDC Lab	0	0	6	4	PML
3	CH4530	Project I	0	0	0	3	PMP
4	DPE3	Department Elective 3	3	0	0	3	PMT
5	FRE2	Free Elective 2	3	0	0	3	
6	HSE4	Humanities Elective 4	3	0	0	3	HSS
7	MNS3	Minor Elective 3	3	0	0	3	MNS
Total Credits :						23	

SEMESTER 8

S.No	Course No	Course Name	L	T	P	C	Category
1	CH4560	Project II	0	0	0	6	PMP
2	CH4620	Industrial Lecture	0	0	0	1	PIL
3	HS3050	Professional Ethics	2	0	0	2	HPF
4	DPE4	Department Elective 4	3	0	0	3	PMT
Total Credits :						12	

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Req. Cr.	22	25+6	22	23	24	27	23	12	184

Category	BES	BET	HPF	HSS	MNS	PIL	PIT	PML	PMP
Req. Cr.	9	17	4	9	9	1	2	14	9

Category	PMT	PPF	PSS	SCY	SMA	SPH	SLS	FRE	EXT
Req. Cr.	61	6	4	7	14	10	2	6	0

Remarks

1. Electives I to IV from Chemical Elective List or other equivalents from other departments with the consent of the Faculty Adviser & HoD.
2. Any two PMT electives can be taken as Pass/Fail courses
3. Free Electives I & II category will be indicated in the grade card according to the course chosen by the student from own department or from other departments such as MA, HS & PH.
4. **B.Tech. Honours:** (Total credit requirement: $184+12 = 196$)

Students having a CGPA of ≥ 8.5 and who have cleared all the courses in the first attempt can opt for B.Tech (Honours) at the end of the fourth semester.

1. Those who opt for B.Tech (Honours) must register for 12 additional PMT credits.
2. Students can register for a maximum of 2 additional PMT courses in a semester from the Honours basket of courses over and above the courses prescribed in the B.Tech curriculum from 5th semester onwards.
3. Project work is a must for B.Tech (Honours) students in B.Tech programme.
4. Those who have registered for B.Tech (Honours) must maintain an average CGPA of 8.5 from 4th semester onwards. Otherwise, they will be awarded only B.Tech Degree.
5. Extra credits earned by the students will be counted for prizes and awards.

**CE - B.Tech. Civil Engineering
2013-Batch**

SEMESTER 1

S.No	Course No	Course Name	L	T	P	C	Category
1	CE1010	Introduction to Civil Eng. Profession	2	0	0	2	PMT
2	CY1002	Chemistry Lab I	1	0	3	3	SCY
3	ID1100	Concepts in Engineering Design	2	0	0	2	BET
4	MA1010	Calculus I Functions of One Variable	3	1	0	4	SMA
5	ME1100	Thermodynamics	3	0	0	3	BET
6	ME1120	Engineering Drawing	3	0	0	3	BES
7	PH1010	Physics I	3	0	0	3	SPH
8	PH1030	Physics Laboratory I	0	0	3	2	SPH
9	GN1100	Life Skills	2	0	0	2	HPF
		Total Credits :				24	

SEMESTER 2

S.No	Course No	Course Name	L	T	P	C	Category
1	AM1100	Engineering Mechanics	4	0	0	4	BET
2	CE1020	Functional Design of Buildings	2	0	0	2	PMT
3	CS1100	Computational Engineering	3	0	0	3	BET
4	CY1001	Chemistry: Structure, Bonding & Reactivity	4	0	0	4	SCY
5	MA1020	Calculus II Functions of Several Variables	3	1	0	4	SMA
6	PH1020	Physics II	3	0	0	3	SPH
7	PH1040	Physics Laboratory II	0	0	3	2	SPH
		Total Credits :				22	
	WS1010	Workshop I	0	0	6	4	BES
	WS1020	Workshop II	0	0	3	2	BES

SEMESTER 3

S.No	Course No	Course Name	L	T	P	C	Category
1	BT1010	Life Sciences	2	0	0	2	SLS
2	CE2050	Building Drawing	0	0	3	2	PML
3	CE2310	Mechanics of Materials	4	0	0	4	PMT
4	CE2330	Civil Engg Materials & Construction	4	0	0	4	PMT
5	EE1100	Basic Electrical Engineering	3	0	0	3	BET
6	ID1200	Ecology and Environment	2	0	0	2	BET
7	HSE1	Humanities Elective 1	3	0	0	3	HSS
8	MAE1	Mathematics Elective 1	3	0	0	3	SMA
		Total Credits :				23	

SEMESTER 4

S.No	Course No	Course Name	L	T	P	C	Category
1	CE2020	Structural Analysis	4	0	0	4	PMT
2	CE2040	Hydraulic Engineering	4	0	0	4	PMT
3	CE2060	Geology and Soil Mechanics	4	0	0	4	PMT
4	CE2080	Surveying	4	0	0	4	PMT
5	CE2100	Surveying Practical	0	0	3	2	PML
6	HSE2	Humanities Elective 2	3	0	0	3	HSS
7	MAE2	Mathematics Elective 2	3	0	0	3	SMA
		Total Credits :				24	

SEMESTER 5

S.No	Course No	Course Name	L	T	P	C	Category
1	CE3010	Transportation Engineering I	3	0	0	3	PMT
2	CE3030	Water Resources Engineering	4	0	0	4	PMT
3	CE3050	Basic Structural Steel Design	4	0	0	4	PMT
4	CE3350	Geotechnical Engineering	4	0	0	4	PMT
5	CE3410	Construction Materials Lab	0	0	3	2	PML
6	DPE1	Department Elective 1	3	0	0	3	PMT
7	MNS1	Minor Elective 1	3	0	0	3	MNS
Total Credits :						23	

SEMESTER 6

S.No	Course No	Course Name	L	T	P	C	Category
1	CE3020	Transportation Engg. II	3	0	0	3	PMT
2	CE3040	Environmental Engineering	4	0	0	4	PMT
3	CE3060	Basic Reinforced Concrete Design	4	0	0	4	PMT
4	CE4030	Hydraulic & Environment Engg. Lab	0	0	2	2	PML
5	CE3280	Industrial Training	0	0	0	2	PIT
6	DPE2	Department Elective 2	3	0	0	3	PMT
7	FRE1	Free Elective 1	3	0	0	3	
8	MNS2	Minor Elective 2	3	0	0	3	MNS
Total Credits :						24	

SEMESTER 7

S.No	Course No	Course Name	L	T	P	C	Category
1	CE3100	Structural Engg. Lab	0	0	3	2	PML
2	CE4010	Estimation & Construction Management	4	0	0	4	PMT
3	CE4050	Project I	0	0	0	3	PMP
4	CE4070	Viva Voce	0	0	0	2	PMP
5	DPE3	Department Elective 3	3	0	0	3	PMT
6	FRE2	Free Elective 2	3	0	0	3	
7	HSE4	Humanities Elective 4	3	0	0	3	HSS
8	MNS3	Minor Elective 3	3	0	0	3	MNS
9	SSE1	Self-Study Elective 1	3	0	0	3	PSS
Total Credits :						26	

SEMESTER 8

S.No	Course No	Course Name	L	T	P	C	Category
1	CE4020	Industrial Lecture	0	0	0	1	PIL
2	CE4060	Project II	0	0	0	6	PMP
3	HS3050	Professional Ethics	2	0	0	2	HPF
4	DPE4	Department Elective 4	3	0	0	3	PMT
Total Credits :						12	

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Req. Cr.	24	22+6	23	24	23	24	26	12	184

Category	BES	BET	HPF	HSS	MNS	PIL	PIT	PML	PMP
Req. Cr.	9	17	4	9	9	1	2	10	11

Category	PMT	PPF	PSS	SCY	SMA	SPH	SLS	FRE	EXT
Req. Cr.	64	6	3	7	14	10	2	6	0

Remarks

1. Electives I to IV from Civil Elective List or other equivalents from other departments with the consent of the Faculty Adviser.
2. Any two PMT electives can be taken as Pass/Fail courses
3. Free Electives I & II category will be indicated in the grade card according to the course chosen by the student from own department or from other departments such as MA, HS & PH.
4. Those students who obtain a "B" grade or above in Project phase I will only be eligible to register for Project phase II. Other students are required to take two elective courses from existing B.Tech./M.Tech. electives of CE dept. Student who get U grade in CE4050 – Project phase I will be given an opportunity to do the project again in the ensuing even semester or during the summer. These students also should register for two PMT elective courses in lieu of even students who secure grades B and above are also eligible to register for 2 courses in lieu of Project phase II. This provision is not applicable for B.Tech. (Hon.)
5. **B.Tech. Honours:** (Total credit requirement: $184+12 = 196$)

Students having a CGPA of ≥ 8.5 and who have cleared all the courses in the first attempt can opt for B.Tech (Honours) at the end of the fourth semester.

 1. Those who opt for B.Tech (Honours) must register for 12 additional PMT credits.
 2. Students can register for a maximum of 2 additional PMT courses in a semester from the Honours basket of courses over and above the courses prescribed in the B.Tech curriculum from 5th semester onwards.
 3. Project work is a must for B.Tech (Honours) students in B.Tech programme.
 4. Those who have registered for B.Tech (Honours) must maintain an average CGPA of 8.5 from 4th semester onwards. Otherwise, they will be awarded only B.Tech Degree.
 5. Extra credits earned by the students will be counted for prizes and awards.

CS - B.Tech. Computer Science & Engineering
2013-Batch

SEMESTER 1

S.No	Course No	Course Name	L	T	P	C	Category
1	CS1100	Computational Engineering	3	0	0	3	BET
2	CS1300	Introduction to Computer Science & Engineering	2	0	0	2	PMT
3	CY1001	Chemistry: Structure, Bonding & Reactivity	4	0	0	4	SCY
4	ID1100	Concepts in Engineering Design	2	0	0	2	BET
5	MA1010	Calculus I Functions of One Variable	3	1	0	4	SMA
6	PH1010	Physics I	3	0	0	3	SPH
7	PH1030	Physics Laboratory I	0	0	3	2	SPH
8	GN1100	Life Skills	2	0	0	2	HPF
		Total Credits :				22	

SEMESTER 2

S.No	Course No	Course Name	L	T	P	C	Category
1	CY1002	Chemistry Lab I	1	0	3	3	SCY
2	EE1100	Basic Electrical Engineering	3	0	0	3	BET
3	MA1020	Calculus II Functions of Several Variables	3	1	0	4	SMA
4	ME1100	Thermodynamics	3	0	0	3	BET
5	ME1120	Engineering Drawing	3	0	0	3	BES
6	PH1020	Physics II	3	0	0	3	SPH
7	PH1040	Physics Laboratory II	0	0	3	2	SPH
		Total Credits :				21	
8	WS1010	Workshop I				4	BES
9	WS1020	Workshop II				2	BES

SEMESTER 3

S.No	Course No	Course Name	L	T	P	C	Category
1	AM1100	Engineering Mechanics	4	0	0	4	BET
2	BT1010	Life Sciences	2	0	0	2	SLS
3	CS2100	Discrete Mathematics for Computer Science	3	0	0	3	PMT
4	CS2110	Computer Programming Lab	0	0	3	2	PML
5	CS2300	Switching Theory & Digital Design	3	0	0	3	PMT
6	CS2310	Digital Logic and Design Lab	0	0	3	2	PML
7	ID1200	Ecology and Environment	2	0	0	2	BET
8	HSE1	Humanities Elective 1	3	0	0	3	HSS
9	MAE1	Mathematics Elective 1	3	0	0	3	SMA
		Total Credits :				24	

SEMESTER 4

S.No	Course No	Course Name	L	T	P	C	Category
1	CS2200	Language Machines and Computations	3	0	0	3	PMT
2	CS2400	Principles of Communication	3	0	0	3	PMT
3	CS2600	Computer Organisation	3	0	0	3	PMT
4	CS2610	Assembly Language Programming Lab	0	0	3	2	PML
5	CS2800	Data Structures and Algorithms	4	0	0	4	PMT
6	CS2810	Advanced Programming Lab	0	0	3	2	PML
7	HSE2	Humanities Elective 2	3	0	0	3	HSS
8	MAE2	Mathematics Elective 2	3	0	0	3	SMA
		Total Credits :				23	

SEMESTER 5

S.No	Course No	Course Name	L	T	P	C	Category
1	CS3100	Paradigms of Programming	4	0	0	4	PMT
2	CS3300	Compiler Design	3	0	0	3	PMT
3	CS3310	Compiler Design Lab	0	0	3	2	PML
4	CS3500	Operating Systems	3	0	0	3	PMT
5	CS3510	Operating Systems Lab	0	0	2	2	PML
6	CS3700	Introduction to Database Systems	4	0	0	4	PMT
7	DPE1	Department Elective 1	4	0	0	4	PMT
8	MNS1	Minor Elective 1	3	0	0	3	MNS
		Total Credits :				25	

SEMESTER 6

S.No	Course No	Course Name	L	T	P	C	Category
1	CS3200	Computer Networks	3	0	0	3	PMT
2	CS3210	Computer Networks Lab	0	0	3	2	PML
3	CS3400	Principles of Software Engg.	3	0	0	3	PMT
4	CS3410	Software Engg Lab	0	0	3	2	PML
5	CS3660	Industrial Training	0	0	0	2	PIT
6	DPE2	Department Elective 2	4	0	0	4	PMT
7	FRE1	Free Elective 1	3	0	0	3	*
8	MNS2	Minor Elective 2	3	0	0	3	MNS
9	DPE3	Department Elective 3	4	0	0	4	PSS
		Total Credits :				26	

SEMESTER 7

S.No	Course No	Course Name	L	T	P	C	Category
1	CS4100	Computer System Design	3	0	0	3	PMT
2	CS4110	Computer System Design Lab	0	0	3	2	PML
3	DPE4	Department Elective 4	4	0	0	4	PMT
4	DPE5	Department Elective 5	4	0	0	4	PMT
5	DPE6	Department Elective 6	4	0	0	4	PMT
6	FRE2	Free Elective 2	3	0	0	3	*
7	HSE3	Humanities Elective 3	3	0	0	3	HSS
8	MNS3	Minor Elective 3	3	0	0	3	MNS
		Total Credits :				26	

SEMESTER 8

S.No	Course No	Course Name	L	T	P	C	Category
1	CS4800	Project	0	0	0	8	PMP
2	CS4880	Industrial Lecture	0	0	0	1	PIL
3	HS3050	Professional Ethics	2	0	0	2	HPF
		Total Credits :				11	

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Req. Cr.	22	21+6	24	23	25	26	26	11	184

Category	BES	BET	HPF	HSS	MNS	PIL	PIT	PML	PMP
Req. Cr.	9	17	4	9	9	1	2	18	8

Category	PMT	PPF	PSS	SCY	SMA	SPH	SLS	FRE	EXT
Req. Cr.	60	8	0	7	14	10	2	6	0

Remarks

1. Electives I to VI from Computer Science and Engineering Elective List or other equivalents from other departments with the consent of the Faculty Adviser & HoD.
2. Any two PMT electives can be taken as Pass/Fail courses
3. Free Electives I & II category will be indicated in the grade card according to the course chosen by the student from own department or from other departments such as MA, HS & PH.

4. **B.Tech. Honours:** (Total credit requirement: $184+12 = 196$)

Students having a CGPA of ≥ 8.5 and who have cleared all the courses in the first attempt can opt for B.Tech (Honours) at the end of the fourth semester.

1. Those who opt for B.Tech (Honours) must register for 12 additional PMT credits.
2. Students can register for a maximum of 2 additional PMT courses in a semester from the Honours basket of courses over and above the courses prescribed in the B.Tech curriculum from 5th semester onwards.
3. Project work is a must for B.Tech (Honours) students in B.Tech programme.
4. Those who have registered for B.Tech (Honours) must maintain an average CGPA of 8.5 from 4th semester onwards. Otherwise, they will be awarded only B.Tech Degree.
5. Extra credits earned by the students will be counted for prizes and awards.

**EE - B.Tech. Electrical Engineering
2013-Batch**

SEMESTER 1

S.No	Course No	Course Name	L	T	P	C	Category
1	CS1100	Computational Engineering	3	0	0	3	BET
2	CY1001	Chemistry: Structure, Bonding & Reactivity	4	0	0	4	SCY
3	EC1000	Introduction to Electrical Engineering	2	0	0	2	PMT
4	ID1100	Concepts in Engineering Design	2	0	0	2	BET
5	MA1010	Calculus I Functions of One Variable	1	0	0	4	SMA
7	PH1010	Physics I	3	0	0	3	SPH
8	PH1030	Physics Laboratory I	0	0	3	2	SPH
9	GN1100	Life Skills	2	0	0	2	HPF
		Total Credits :				22	

SEMESTER 2

S.No	Course No	Course Name	L	T	P	C	Category
1	CY1002	Chemistry Lab I	1	0	3	3	SCY
2	EC1010	Electrical and Magnetic Circuits	4	0	0	4	PMT
3	MA1020	Calculus II Functions of Several Variables	3	1	0	4	SMA
4	ME1100	Thermodynamics	3	0	0	3	BET
6	ME1120	Engineering Drawing	3	0	0	3	BES
5	PH1020	Physics II	3	0	0	3	SPH
6	PH1040	Physics Laboratory II	3	0	0	3	SPH
		Total Credits :				22	
	WS1010	Workshop I	0	0	6	4	BES
	WS1020	Workshop II	0	0	3	2	BES

SEMESTER 3

S.No	Course No	Course Name	L	T	P	C	Category
1	AM1100	Engineering Mechanics	4	0	0	4	BET
2	BT1010	Life Sciences	2	0	0	2	SLS
3	EE2001	Digital Systems	4	0	0	4	PMT
4	EE2002	Networks & Systems	4	0	0	4	PMT
5	EE2701	CAD Laboratory	0	0	3	2	PML
6	ID1200	Ecology and Environment	2	0	0	2	BET
7	HSE1	Humanities Elective 1	3	0	0	3	HSS
8	MAE1	Mathematics Elective 1	3	0	0	3	SMA
		Total Credits :				24	

SEMESTER 4

S.No	Course No	Course Name	L	T	P	C	Category
1	EE2003	Computer Organisation and Microprocessors	4	0	0	4	PMT
2	EE2004	Digital Signal Processing	4	0	0	4	PMT
3	EE2005	Electrical Machines	4	0	0	4	PMT
4	EE2006	Electromagnetic Fields	4	0	0	4	PMT
5	EE2702	Digital Circuits Laboratory	0	0	3	2	PML
6	HSE2	Humanities Elective 2	3	0	0	3	HSS
7	MAE2	Mathematics Elective 2	3	0	0	3	SMA
		Total Credits :				24	

SEMESTER 5

S.No	Course No	Course Name	L	T	P	C	Category
1	EE3001	Solid State Devices	4	0	0	4	PMT
2	EE3002	Analog Circuits	4	0	0	4	PMT
3	EE3003	Power Systems	4	0	0	4	PMT
4	EE3004	Control Engineering	4	0	0	4	PMT
5	EE3701	Microprocessor Laboratory	0	0	3	2	PML
6	EE3702	Electrical Machines Laboratory	0	0	3	2	PML
7	MNS1	Minor Elective 1	3	0	0	3	MNS
Total Credits :						23	

SEMESTER 6

S.No	Course No	Course Name	L	T	P	C	Category
1	EE3005	Communication Systems	4	0	0	4	PMT
2	EE3006	Principles of Measurement	4	0	0	4	PMT
3	EE3020	Industrial Training	0	0	0	2	PIT
4	EE3703	Analog Circuits Laboratory	0	0	3	2	PML
5	DPE1	Department Elective 1	3	0	0	3	PMT
6	DPE2	Department Elective 2	3	0	0	3	PMT
7	MNS2	Minor Elective 2	3	0	0	3	MNS
Total Credits :						21	

SEMESTER 7

S.No	Course No	Course Name	L	T	P	C	Category
1	EE4701	Advanced EE Laboratory	0	0	3	2	PML
2	EE4900	B.Tech Project	0	0	0	9*	PMP
3	DPE3	Department Elective 3	3	0	0	3	PMT
4	DPE4	Department Elective 4	3	1	0	4	PMT
5	FRE1	Free Elective 1	3	0	0	3	
6	FRE2	Free Elective 2	3	0	0	3	
7	HS3050	Professional Ethics	2	0	0	2	HPF
8	MNS3	Minor Elective 3	3	0	0	3	MNS
Total Credits :						20	

* Project (EE4900) grade will be assigned in 8th semester

SEMESTER 8

S.No	Course No	Course Name	L	T	P	C	Category
1	EE4900	B.Tech. Project	0	0	0	9	PMP
2	HSE3	Humanities Elective	3	0	0	3	HSS
3	FRE3	Free Elective 3	3	0	0	3	
Total Credits :						15	

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Req. Cr.	22	22+6	24	24	23	21	20	15	177

Category	BES	BET	HPF	HSS	MNS	PIL	PIT	PML	PMP
Req. Cr.	9	14	4	9	9	0	2	12	9

Category	PMT	PPF	PSS	SCY	SMA	SPH	SLS	FRE	EXT
Req. Cr.	67	0	0	7	14	10	2	9	0

Remarks

- Electives I to III: Any EE course with number EE 3xxx or above.
- Free Electives I & III category will be indicated in the grade card according to the course chosen by the student from own department or from other departments such as MA, HS & PH.
- The Curriculum flexible by allowing students to register for credits, as given in the table below. In particular, the required Humanities elective can be taken in any one of Semesters 6 to 8. A student must earn the minimum credit requirements in both the overall and individual categories

Project Option		No Project Option (6 th semester)		No Project option (7 th semester)	
Semester	Credit Range	Semester	Credit Range	Semester	Credit Range
VI	6-8	VI	6-8	VI	6-8
VII	15-17	VII	16-19	VII	15-17
VIII	0-3	VIII	6-12	VIII	9-12

B.Tech. Honours: (Total credit requirement: $177+12 = 189$)

Students having a CGPA of ≥ 8.5 and who have cleared all the courses in the first attempt can opt for B.Tech (Honours) at the end of the fourth semester.

1. Those who opt for B.Tech (Honours) must register for 12 additional PMT credits.
2. Students can register for a maximum of 2 additional PMT courses in a semester from the Honours basket of courses over and above the courses prescribed in the B.Tech curriculum from 5th semester onwards.
3. Project work is a must for B.Tech (Honours) students in B.Tech programme.
4. Those who have registered for B.Tech (Honours) must maintain an average CGPA of 8.5 from 4th semester onwards. Otherwise, they will be awarded only B.Tech Degree.
5. Extra credits earned by the students will be counted for prizes and awards.

**ME - B.Tech. Mechanical Engineering
2013-Batch**

SEMESTER 1

S.No	Course No	Course Name	L	T	P	C	Category
1	CY1002	Chemistry Lab I	1	0	3	3	SCY
2	ID1100	Concepts in Engineering Design	2	0	0	2	BET
3	MA1010	Calculus I Functions of One Variable	3	1	0	4	SMA
4	ME1100	Thermodynamics	3	0	0	3	BET
5	ME1110	Introduction to Mechanical Engineering	2	0	0	2	PMT
6	ME1120	Engineering Drawing	3	0	0	3	BES
7	PH1010	Physics I	3	0	0	3	SPH
8	PH1030	Physics Laboratory I	0	0	3	2	SPH
9	GN1100	Life Skills	2	0	0	0	HPF
		Total Credits :				24	

SEMESTER 2

S.No	Course No	Course Name	L	T	P	C	Category
1	AM1100	Engineering Mechanics	4	0	0	4	BET
2	CS1100	Computational Engineering	3	0	0	3	BET
3	CY1001	Chemistry: Structure, Bonding & Reactivity	4	0	0	4	SCY
4	MA1020	Calculus II Functions of Several Variables	3	1	0	4	SMA
5	PH1020	Physics II	3	0	0	3	SPH
6	PH1040	Physics Laboratory II				2	SPH
		Total Credits :				20	
	WS1010	Workshop I	0	0	6	4	BES
	WS1020	Workshop II	0	0	3	2	BES

SEMESTER 3

S.No	Course No	Course Name	L	T	P	C	Category
1	AM2200	Strength of Materials	4	0	0	4	PMT
2	BT1010	Life Sciences	2	0	0	2	SLS
3	EE1100	Basic Electrical Engineering	3	0	0	3	BET
4	ID1200	Ecology and Environment	2	0	0	2	BET
5	ME2050	Machine Drawing Practice	1	0	6	5	PML
6	HSE1	Humanities Elective 1	3	0	0	3	HSS
7	MAE1	Mathematics Elective 1	3	0	0	3	SMA
		Total Credits :				22	

SEMESTER 4

S.No	Course No	Course Name	L	T	P	C	Category
1	AM2530	Foundations of Fluid Mechanics	3	1	0	4	PMT
2	AM2540	Applied Mechanics Lab	0	0	3	2	PML
3	EE2100	Electrical Sciences	3	0	0	3	PMT
4	ME2220	Kinematics and Dynamics of Machinery	4	0	0	4	PMT
5	ME2240	Instrumentation and Control	4	0	0	4	PMT
6	ME2260	Materials and Design	4	0	0	4	PMT
7	ME2280	Manufacturing Technology	4	0	0	4	PMT
8	MAE4	Mathematics Elective 4	3	0	0	3	SMA
		Total Credits :				28	

SEMESTER 5

S.No	Course No	Course Name	L	T	P	C	Category
1	ME3170	Heat Transfer	4	0	0	4	PMT
2	ME3190	Machine Tools & Metrology	4	0	0	4	PMT
3	ME3270	Mechanical Engg Lab I	0	0	3	2	PML
4	ME3310	Turbomachines	4	0	0	4	PMT
5	ME3330	Internal Combustion Engines	3	0	0	3	PMT
6	ME3350	Design of Machine Elements	4	0	0	4	PMT
7	MNS1	Minor Elective 1	3	0	0	3	MNS
Total Credits :						24	

SEMESTER 6

S.No	Course No	Course Name	L	T	P	C	Category
1	ME3250	Refrigeration & Airconditioning	3	0	0	3	PMT
2	ME3260	Thermal Power Engineering	4	0	0	4	PMT
3	ME3280	Mechanical Engineering Lab II	0	0	3	2	PML
4	ME3300	Mechanical Engg. Lab III	0	0	3	2	PML
5	ME3500	Summer Training	0	0	0	2	PIT
6	DPE1	Department Elective 1	3	0	0	3	PMT
7	FRE1	Free Elective 1	3	0	0	3	
8	HSE2	Humanities Elective 2	3	0	0	3	HSS
9	MNS2	Minor Elective 2	3	0	0	3	MNS
Total Credits :						25	

SEMESTER 7

S.No	Course No	Course Name	L	T	P	C	Category
1	HS3050	Professional Ethics	2	0	0	2	HPF
2	IL4020	Industrial Lecture	0	0	0	1	PIL
3	ME4545	Viva voce	0	0	0	2	PMP
4	ME4550	Project I	0	0	0	3	PMP
5	DPE2	Department Elective 2	3	0	0	3	PMT
6	DPE3	Department Elective 3	3	0	0	3	PMT
7	FRE2	Free Elective 2	3	0	0	3	
8	MNS3	Minor Elective 3	3	0	0	3	MNS
9	SSE1	Self-Study Elective 1	3	0	0	3	PSS
Total Credits :						23	

SEMESTER 8

S.No	Course No	Course Name	L	T	P	C	Category
1	ME4560	Project II	0	0	0	6	PMP
2	DPE4	Department Elective 4	3	0	0	3	PMT
3	HSE3	Humanities Elective 3	3	0	0	3	HSS
Total Credits :						12	

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Req. Cr.	24	20+6	22	28	24	25	23	12	184

Category	BES	BET	HPF	HSS	MNS	PIL	PIT	PML	PMP
Req. Cr.	9	17	4	9	9	1	2	13	11

Category	PMT	PPF	PSS	SCY	SMA	SPH	SLS	FRE	EXT
Req. Cr.	67	0	3	7	14	10	2	6	0

Remarks

1. Electives I to IV from Mechanical Elective List or other equivalents from other departments with the consent of the Faculty Adviser.
2. Free Electives I & II category will be indicated in the grade card according to the course chosen by the student from own department or from other departments such as MA, HS & PH.
3. **B.Tech. project**
 - At the end of 6th semester students may opt to do project work or course work
 - Students taking the project option should have satisfactory performance in the mini project in order to continue the major project
 - In lieu of projects, student can do courses for 9 credits (3 credits in 7th semester & 6 credits In 8th semester)
 - Students who fail in mini project shall repeat it or substitute with a course having equivalent credit

4. **B.Tech. Honours:** (Total credit requirement: $184+12 = 196$)

Students having a CGPA of ≥ 8.5 and who have cleared all the courses in the first attempt can opt for B.Tech (Honours) at the end of the fourth semester.

1. Those who opt for B.Tech (Honours) must register for 12 additional PMT credits.
2. Students can register for a maximum of 2 additional PMT courses in a semester from the Honours basket of courses over and above the courses prescribed in the B.Tech curriculum from 5th semester onwards.
3. Project work is a must for B.Tech (Honours) students in B.Tech programme.
4. Those who have registered for B.Tech (Honours) must maintain an average CGPA of 8.5 from 4th semester onwards. Otherwise, they will be awarded only B.Tech Degree.
5. Extra credits earned by the students will be counted for prizes and awards.

MM - B.Tech. Metallurgical and Materials Engineering
2013-Batch

SEMESTER 1

S.No	Course No	Course Name	L	T	P	C	Category
1	CS1100	Computational Engineering	3	0	0	3	BET
2	CY1001	Chemistry: Structure, Bonding & Reactivity	4	0	0	4	SCY
3	ID1100	Concepts in Engineering Design	2	0	0	2	BET
4	MA1010	Calculus I Functions of One Variable	3	1	0	4	SMA
5	MM1010	Introduction to Materials Engineering	2	0	0	2	PMT
6	PH1010	Physics I	3	0	0	3	SPH
7	PH1030	Physics Laboratory I	0	0	3	2	SPH
8	GN1100	Life Skills	2	0	0	2	HPF
		Total Credits :				22	

SEMESTER 2

S.No	Course No	Course Name	L	T	P	C	Category
1	CY1002	Chemistry Lab I	1	0	3	3	SCY
2	EE1100	Basic Electrical Engineering	3	0	0	3	BET
3	MA1020	Calculus II Functions of Several Variables	3	1	0	4	SMA
4	ME1100	Thermodynamics	3	0	0	3	BET
5	ME1120	Engineering Drawing	3	0	0	3	BES
6	MM1020	Science and Engineering of Materials	3	0	0	3	PMT
7	PH1020	Physics II	3	0	0	3	SPH
8	PH1040	Physics Laboratory II	0	0	3	2	SPH
		Total Credits :				24	
9	WS1010	Workshop I				4	BES
10	WS1020	Workshop II				2	BES

SEMESTER 3

S.No	Course No	Course Name	L	T	P	C	Category
1	AM1100	Engineering Mechanics	4	0	0	4	BET
2	BT1010	Life Sciences	2	0	0	2	SLS
3	ID1200	Ecology and Environment	2	0	0	2	BET
4	MM2010	Principles of Physical Metallurgy	4	0	0	4	PMT
5	MM2011	Optical Micrography Lab	0	0	3	2	PML
6	MM2030	Metallurgical Thermodynamics	4	0	0	4	PMT
7	HSE1	Humanities Elective 1	3	0	0	3	HSS
8	MAE1	Mathematics Elective 1	3	0	0	3	SMA
		Total Credits :				24	

SEMESTER 4

S.No	Course No	Course Name	L	T	P	C	Category
1	MM2012	Physical Metallurgy & Ceramics Lab	0	0	3	2	PML
2	MM2014	Materials Chemistry & Powder Metallurgy Lab	0	0	3	2	PML
3	MM2020	Mechanical Metallurgy	3	0	0	3	PMT
4	MM2040	Introduction to Transport Phenomena	3	0	0	3	PMT
5	MM2060	Phase Transformations	3	0	0	3	PMT
6	MM2080	Principles of Extractive Metallurgy	3	0	0	3	PMT
7	HSE2	Humanities Elective 2	3	0	0	3	HSS
8	MAE2	Mathematics Elective 2	3	0	0	3	SMA
		Total Credits :				22	

SEMESTER 5

S.No	Course No	Course Name	L	T	P	C	Category
1	MM3010	Physics of Materials	3	0	0	3	PMT
2	MM3011	Mechanical Metallurgy & Tribology Lab	0	0	3	2	PML
3	MM3012	Joining & NDT Lab	0	0	3	2	PML
4	MM3030	Materials Characterization	4	0	0	4	PMT
5	MM3050	Creep Fatigue and Fracture Mechanics	3	0	0	3	PMT
6	MM3060	Metal Joining Technology	3	0	0	3	PMT
7	MM3090	Environmental Degradation of Materials	3	0	0	3	PMT
8	MNS1	Minor Elective 1	3	0	0	3	MNS
		Total Credits :				23	

SEMESTER 6

S.No	Course No	Course Name	L	T	P	C	Category
1	MM3013	Forming & Casting Lab	0	0	3	2	PML
2	MM3020	Iron Making and Steel Making	4	0	0	4	PMT
3	MM3040	Metal Forming Technology	3	0	0	3	PMT
4	MM3070	Solidification Processing	3	0	0	3	PMT
5	MM3100	Materials Characterisation Lab	0	0	3	2	PML
6	DPE1	Department Elective 1	3	0	0	3	PMT
7	FRE1	Free Elective 1	3	0	0	3	
8	MNS2	Minor Elective 2	3	0	0	3	MNS
		Total Credits :				23	

SEMESTER 7

S.No	Course No	Course Name	L	T	P	C	Category
1	HS3050	Professional Ethics	2	0	0	2	HPF
2	MM4010	P/M Refractories and Ceramics	4	0	0	4	PMT
3	MM4020	Industrial Training	0	0	0	2	PIT
4	MM4105	Viva Voce	0	0	0	2	PMP
5	MM4110	Project I	0	0	0	2	PMP
6	DPE3	Department Elective 3	3	0	0	3	PMT
7	FRE2	Free Elective 2	3	0	0	3	
8	MNS3	Minor Elective 3	3	0	0	3	MNS
9	SSE1	Self-Study Elective 1	3	0	0	3	PSS
		Total Credits :				24	

SEMESTER 8

S.No	Course No	Course Name	L	T	P	C	Category
1	IL4020	Industrial Lecture	0	0	0	1	PIL
2	MM4120	Project II	0	0	0	9	PMP
3	DPE4	Department Elective 4	3	0	0	3	PMT
4	HSE4	Humanities Elective 4	3	0	0	3	HSS
		Total Credits :				16	

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Req. Cr.	22	24+6	24	22	23	23	24	16	184

Category	BES	BET	HPF	HSS	MNS	PIL	PIT	PML	PMP
Req. Cr.	9	17	4	9	9	1	2	14	13

Category	PMT	PPF	PSS	SCY	SMA	SPH	SLS	FRE	EXT
Req. Cr.	58	6	3	7	14	10	2	6	0

Remarks

1. Electives I to IV from Metallurgical and Materials Engineering Elective List or other equivalents from other departments with the consent of the Faculty Adviser & HoD.
2. Any two PMT electives can be taken as Pass/Fail courses
3. Free Electives I & II category will be indicated in the grade card according to the course chosen by the student from own department or from other departments such as MA, HS & PH.
4. Registering PMT courses in lieu of project for B.Tech. programme as follows

The student who would like to pursue their project must express their interest clearly to the B.Tech. project co-ordinator in the middle of 6th semester.

Option 1: Students who opt for the project work. They will have to undergo an evaluation process for 2 credits at the end of 7th semester as per the existing curriculum.

- Students who get “E” grade and above in 7th semester may continue project work in 8th semester or they may drop the project work and choose to register 9 credits of PMT courses
- Students who get “U” grade will not be allowed to continue project work in 8th semester. They will have to repeat the Project phase I having 2 credits and clear the project.

Option 2: Student who do not opt for the project: They will have to do 11 credits of PMT courses in their 7th & 8th semester.

B.Tech. Honours: (Total credit requirement: 184+12 = 196)

Students having a CGPA of ≥ 8.5 and who have cleared all the courses in the first attempt can opt for B.Tech (Honours) at the end of the fourth semester.

- Those who opt for B.Tech (Honours) must register for 12 additional PMT credits.
- Students can register for a maximum of 2 additional PMT courses in a semester from the Honours basket of courses over and above the courses prescribed in the B.Tech curriculum from 5th semester onwards.
- Project work is a must for B.Tech (Honours) students in B.Tech programme.
- Those who have registered for B.Tech (Honours) must maintain an average CGPA of 8.5 from 4th semester onwards. Otherwise, they will be awarded only B.Tech Degree.
- Extra credits earned by the students will be counted for prizes and awards.

NA - B.Tech. Naval Architecture and Ocean Engineering
2013-Batch

SEMESTER 1

S.No	Course No	Course Name	L	T	P	C	Category
1	CY1002	Chemistry Lab I	1	0	3	3	SCY
2	ID1100	Concepts in Engineering Design	2	0	0	2	BET
3	MA1010	Calculus I Functions of One Variable	3	1	0	4	SMA
4	ME1100	Thermodynamics	3	0	0	3	BET
5	ME1120	Engineering Drawing	3	0	0	3	BES
6	OE1010	Introduction to Ocean Engg & Oceanography	2	0	0	2	PMT
7	PH1010	Physics I	3	0	0	3	SPH
8	PH1030	Physics Laboratory I	0	0	3	2	SPH
9	GN1100	Life Skills	2	0	0	2	HPF
		Total Credits :				24	

SEMESTER 2

S.No	Course No	Course Name	L	T	P	C	Category
1	AM1100	Engineering Mechanics	4	0	0	4	BET
2	CS1100	Computational Engineering	3	0	0	3	BET
3	CY1001	Chemistry: Structure, Bonding & Reactivity	4	0	0	4	SCY
4	MA1020	Calculus II Functions of Several Variables	3	1	0	4	SMA
5	OE1020	Materials and Production Processes	4	0	0	4	PMT
6	PH1020	Physics II	3	0	0	3	SPH
7	PH1040	Physics Laboratory II	0	0	3	2	SPH
		Total Credits :				24	
8	WS1010	Workshop I				4	BES
9	WS1020	Workshop II				2	BES

SEMESTER 3

S.No	Course No	Course Name	L	T	P	C	Category
1	AM2200	Strength of Materials	4	0	0	4	PMT
2	BT1010	Life Sciences	2	0	0	2	SLS
3	EE1100	Basic Electrical Engineering	3	0	0	3	BET
4	ID1200	Ecology and Environment	2	0	0	2	BET
5	OE2010	Ship Theory	3	0	0	3	PMT
6	HSE1	Humanities Elective 1	3	0	0	3	HSS
7	MAE1	Mathematics Elective 1	3	0	0	3	SMA
		Total Credits :				20	

SEMESTER 4

S.No	Course No	Course Name	L	T	P	C	Category
1	AM2530	Foundations of Fluid Mechanics	4	0	0	4	PMT
2	AM2540	Applied Mechanics Lab	0	0	3	2	PML
3	OE2020	Analysis of Structures	4	0	0	4	PMT
4	OE2060	Ship Resistance and Propulsion	3	0	0	3	PMT
5	OE2100	CASDD I	1	0	6	5	PML
6	HSE2	Humanities Elective 2	3	0	0	3	HSS
7	MAE2	Mathematics Elective 2	3	0	0	3	SMA
		Total Credits :				24	

SEMESTER 5

S.No	Course No	Course Name	L	T	P	C	Category
1	OE3010	Ship Hydrodynamics	3	0	0	3	PMT
2	OE3050	Ocean Wave Hydrodynamics	3	0	0	3	PMT
3	OE3070	Ship Structure	3	0	0	3	PMT
4	OE3090	CASDD II	0	0	6	4	PML
5	OE3110	Ocean Engg Lab I	0	0	6	4	PML
6	OE3190	Design of Ocean Structures	3	0	0	3	PMT
7	MNS1	Minor Elective 1	3	0	0	3	MNS
8	SSE1	Self- Study Elective 1	3	0	0	3	PSS
Total Credits :						26	

SEMESTER 6

S.No	Course No	Course Name	L	T	P	C	Category
1	OE3020	Ship Design	3	0	0	3	PMT
2	OE3030	Marine Engineering	3	0	0	3	PMT
3	OE3040	Vib of Marine Structures & Acoustics	3	0	0	3	PMT
4	OE3140	Lab II				4	PML
5	OE3160	Industrial Training				2	PIT
6	DPE2	Department Elective 2	3	0	0	3	PMT
7	FRE1	Free Elective 1	3	0	0	3	
8	MNS2	Minor Elective 2	3	0	0	3	MNS
Total Credits :						24	

SEMESTER 7

S.No	Course No	Course Name	L	T	P	C	Category
1	OE4030	Dynamics of Floating Systems and Manoeuvring of Marine Vehicles	3	0	0	3	PMT
2	OE4050	Project I	0	0	0	2	PMP
3	OE4055	Viva voce	0	0	0	2	PMP
4	DPE3	Department Elective 3	3	0	0	3	PMT
5	DPE4	Department Elective 4	3	0	0	3	PMT
6	FRE2	Free Elective 2	3	0	0	3	
7	HSE3	Humanities Elective 3	3	0	0	3	HSS
8	MNS3	Minor Elective 3	3	0	0	3	MNS
Total Credits :						22	

SEMESTER 8

S.No	Course No	Course Name	L	T	P	C	Category
1	HS3050	Professional Ethics	0	0	0	2	HPF
2	OE4020	Industrial Lecture	0	0	0	1	PIL
3	OE4060	Project II	0	0	0	8	PMP
4	DPE5	Department Elective 5	3	0	0	3	PMT
Total Credits :						14	

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Req. Cr.	24	24+6	20	24	26	24	22	14	184

Category	BES	BET	HPF	HSS	MNS	PIL	PIT	PML	PMP
Req. Cr.	9	17	4	9	9	1	2	19	12

Category	PMT	PPF	PSS	SCY	SMA	SPH	SLS	FRE	EXT
Req. Cr.	60	0	3	7	14	10	2	6	0

Remarks

1. Electives I to IV from Ocean Engineering Elective List or other equivalents from other departments with the consent of the Faculty Adviser & HoD.
2. Free Electives I & II category will be indicated in the grade card according to the course chosen by the student from own department or from other departments such as MA, HS & PH.
3. **B.Tech. Honours:** (Total credit requirement: $184+12 = 196$)
Students having a CGPA of ≥ 8.5 and who have cleared all the courses in the first attempt can opt for B.Tech (Honours) at the end of the fourth semester.
 - Those who opt for B.Tech (Honours) must register for 12 additional PMT credits.
 - Students can register for a maximum of 2 additional PMT courses in a semester from the Honours basket of courses over and above the courses prescribed in the B.Tech curriculum from 5th semester onwards.
 - Project work is a must for B.Tech (Honours) students in B.Tech programme.
 - Those who have registered for B.Tech (Honours) must maintain an average CGPA of 8.5 from 4th semester onwards. Otherwise, they will be awarded only B.Tech Degree.
 - Extra credits earned by the students will be counted for prizes and awards.

**EP - B.Tech. Engineering Physics
2013-Batch**

SEMESTER 1

S.No	Course No	Course Name	L	T	P	C	Category
1	CS1100	Computational Engineering	3	0	0	3	BET
2	EP1010	Introduction to Engg Physics	2	0	0	2	PMT
3	ID1100	Concepts in Engineering Design	2	0	0	2	BET
4	MA1010	Calculus I Functions of One Variable	3	1	0	4	SMA
5	CY1001	Chemistry: Structure, Bonding & Reactivity	4	0	0	4	SCY
6	PH1010	Physics I	3	0	0	3	SPH
7	PH1030	Physics Laboratory I	0	0	3	2	SPH
8	GN1100	Life Skills	2	0	0	2	HPF
		Total Credits :				22	

SEMESTER 2

S.No	Course No	Course Name	L	T	P	C	Category
1	CY1002	Chemistry Lab I	1	0	3	3	SCY
2	EC1010	Electrical and Magnetic Circuits	4	0	0	4	PMT
3	MA1020	Calculus II Functions of Several Variables	3	1	0	4	SMA
4	ME1100	Thermodynamics	3	0	0	3	BET
5	ME1120	Engineering Drawing	3	0	0	3	BES
6	PH1020	Physics II	3	0	0	3	SPH
7	PH1040	Physics Laboratory II	0	0	3	2	SPH
		Total Credits :				22	
	WS1010	Workshop I	0	0	6	4	BES
	WS1020	Workshop II	0	0	3	2	BES

SEMESTER 3

S.No	Course No	Course Name	L	T	P	C	Category
1	BT1010	Life Sciences	2	0	0	2	SLS
2	EE2001	Digital Systems	4	0	0	4	PMT
3	EE2002	Networks & Systems	4	0	0	4	PMT
4	EP2010	Elements of Classical Dynamics	3	0	0	3	PMT
5	EP2090	Engineering Physics Lab I	0	0	6	4	PML
6	ID1200	Ecology and Environment	2	0	0	2	BET
7	HSE1	Humanities Elective 1	3	0	0	3	HSS
8	MAE1	Mathematics Elective 1	3	0	0	3	SMA
		Total Credits :				25	

SEMESTER 4

S.No	Course No	Course Name	L	T	P	C	Category
1	AM1100	Engineering Mechanics	4	0	0	4	BET
2	EE2004	Digital Signal Processing	4	0	0	4	PMT
3	EE2702	Digital Circuits Lab	0	0	3	2	PML
4	EP2110	Introduction to Mathematical Physics	3	0	0	3	PMT
5	EP3110	Electromagnetics and Applications	3	0	0	3	PMT
6	EP3190	Engineering Physics Lab II	0	0	3	2	PML
7	HSE2	Humanities Elective 2	3	0	0	3	HSS
8	MAE2	Mathematics Elective 2	3	0	0	3	SMA
		Total Credits :				24	

SEMESTER 5

S.No	Course No	Course Name	L	T	P	C	Category
1	EE3001	Solid State Devices	4	0	0	4	PMT
2	EE3002	Analog Circuits	4	0	0	4	PMT
3	EP2100	Introduction to Engineering Optics	3	0	0	3	PMT
4	EP2210	Principles of Quantum Mechanics	3	0	0	3	PMT
5	EP3120	Statistical Physics and Applications	3	0	0	3	PMT
6	EP3220	Solid State Physics	4	0	0	4	PMT
7	EP3290	Engg Physics Lab III	0	0	3	2	PML
	MNS1	Minor Elective 1	3	0	0	3	MNS
		Total Credits :				26	

SEMESTER 6

S.No	Course No	Course Name	L	T	P	C	Category
1	EE3006	Principles of Measurement	4	0	0	4	PMT
2	EE3703	Analog Circuits Laboratory	0	0	3	2	PML
3	EP3100	Atomic & Molecular Spectroscopy	3	0	0	3	PMT
4	EP3291	Engineering Physics Lab IV	0	0	3	2	PML
5	EP3610	Industrial Training	0	0	0	2	PIT
6	DPE1	Department Elective 1	3	0	0	3	PMT
7	DPE2	Department Elective 2	3	0	0	3	PMT
8	FRE1	Free Elective 1	3	0	0	3	
9	MNS2	Minor Elective 2	3	0	0	3	MNS
		Total Credits :				25	

SEMESTER 7

S.No	Course No	Course Name	L	T	P	C	Category
1	EP4140	Project	0	0	0	1	PMP
2	DPE3	Department Elective 3	3	0	0	3	PMT
3	FRE2	Free Elective 2	3	0	0	3	
4	HSE3	Humanities Elective 3	3	0	0	3	HPF
5	MNS3	Minor Elective 3	3	0	0	3	MNS
6	EP4500	Self- Study Elective	3	0	0	3	PSS
		Total Credits :				16	

SEMESTER 8

S.No	Course No	Course Name	L	T	P	C	Category
1	EP3180	Industrial Lecture	0	0	0	1	PIL
2	EP4040	Seminar	0	0	0	1	PMT
3	EP4160*	Project II	0	0	0	11	PMP
4	HS3050	Professional Ethics	2	0	0	2	HPF
5	DPE4	Department Elective 4	3	0	0	3	PMT
		Total Credits :				18	

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Req. Cr.	22	22+6	25	24	26	25	16	18	184

Category	BES	BET	HPF	HSS	MNS	PIL	PIT	PML	PMP
Req. Cr.	9	14	4	9	9	1	2	14	12

Category	PMT	PPF	PSS	SCY	SMA	SPH	SLS	FRE	EXT
Req. Cr.	68	0	3	7	14	10	2	6	0

Remarks

1. Electives I to IV from Physics / Electrical Elective List or other equivalents from other departments with the consent of the Faculty Adviser.
2. Free Electives I & II category will be indicated in the grade card according to the course chosen by the student from own department or from other departments such as MA, HS & PH.
3. **B.Tech. Honours:** (Total credit requirement: $184+12 = 196$)

Students having a CGPA of ≥ 8.5 and who have cleared all the courses in the first attempt can opt for B.Tech (Honours) at the end of the fourth semester.

- Those who opt for B.Tech (Honours) must register for 12 additional PMT credits.
- Students can register for a maximum of 2 additional PMT courses in a semester from the Honours basket of courses over and above the courses prescribed in the B.Tech curriculum from 5th semester onwards.
- Project work is a must for B.Tech (Honours) students in B.Tech programme.
- Those who have registered for B.Tech (Honours) must maintain an average CGPA of 8.5 from 4th semester onwards. Otherwise, they will be awarded only B.Tech Degree.
- Extra credits earned by the students will be counted for prizes and awards.