B.Tech Curriculum (from July 2015)

Category	Minimum Credit Requirements (CTF)/BOG	AE	CH	CE	CS	EE	ME	MM	OE	PH (EP)
Basic Science (S)	84	93	84	84	84	84	84	84	84	85
Basic Eng. (E)	45	56	48	45	45	48	45	45	48	45
Profession (P)	180	186	200	186	204	180	204	190	205	206
Humanities (H)	27	27	27	27	27	27	27	27	27	27
Unallocated credits	96	72	72	90	72	91	72	86	72	72
Total	**432**	**434**	**431**	**432**	**432**	**430**	**432**	**432**	**436**	**435**

B.Tech – Category wise credit Requirements

Category	AE		CH		CE		CS		EE		ME		MM		OE		PH (EP)	
	Electives	Total	Electives	Total	Electives	Total	Electives	Total	Electives	Total	Electives	Total	Electives	Total	Electives	Total	Electives	Total
Basic Science (S)	9	93	9	84	18	84	0	84	18	84	9	84	9	84	0	84	9	85
Basic Eng. (E)	0	56	0	48	0	45	0	45	10	48	0	45	0	45	0	48	0	45
Profession (P)	39	186	45	200	9	186	84	204	65	180	54	204	27	190	27	205	27	206
Humanities (H)	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
Unallocated credits	72	72	72	72	90	90	72	72	91	91	72	72	86	86	72	72	73	72
Total	**147**	**434**	**153**	**431**	**144**	**432**	**183**	**432**	**211**	**430**	**162**	**432**	**149**	**432**	**126**	**436**	**127**	**435**
Percentage	**33.8%**		**35.4%**		**33.3%**		**42%**		**49%**		**37.5%**		**34.5%**		**29%**		**29%**	

Note:

I. No semester has more than 5 Theory + 2 Lab.
II. Each semester shall not exceed 60 credits.
III. B.Tech project optional:
   i. Credits 18 to 27 (210-315 hours of work) in which case the project can be taken in any Department.
   ii. If unallocated credits are used the project registration three the project can be taken in any department.
   iii. Departments can also permit students to earn these credits (partly or completely) in place of professional electives in which case the project has to be takes in the parent departments.

B.Tech (Honours):

I. Has a CGPA requirement of ≥ 8.5 at the end of 5th sem without U or W grade in any course.
II. 27 additional credits at the 5000 level or above in addition in the B.Tech credit requirements
III. A mandatory 27 credit B.Tech project in the parent departments(s).

L: Lecture; **T**: Tutorial; **E:** Extended Tutorial; **P:** Laboratory; **O**: Outside class hours; **C:** Credits; **Cat**: Category (**S**: Basic Sciences, **E** = Basic Engineering; **H** = Humanities; **P** = Professional)

Department wise Additional notes:

AE	Indicated credits are only for core programme. In addition, 99 credits of electives have to be taken in Semesters V-VIII of which at least 27 should be in Aero Engineering. Electives can be taken in semesters V-VIII, subject to maximum of 60 credits per sem. ***Suggested elective credits***: 9 each in V & VI sem; 45 in VII sem. & 36 in VIII sem. **Project**: 27 credits of project can be counted against 27 aerospace department elective credits mentioned above only if the project is done in the aerospace dept. **BTech (honours)**: Tech project (AS4600) worth 13 credits in VII semester + 14 credits in VIII sem over and above the regular BTech requirement.
CH	Indicated credits are for core programme including departmental electives (5). In addition, 72 credits of free electives (17%) have to be taken from any department including Chemical Engineering in V semester (1), VI semester (2), VII semester (2) and VIII semester (3). The number in the parenthesis indicates suggested number of electives. **B.Tech (honours):** B.Tech project worth 13 credits in VII semester + 14 credits in VIII semester over and above the regular B.Tech requirement.
CE	Indicated credits are only for core curriculum. In addition, 99 credits of electives have to be taken in sems V-VIII, of which at least 9 credits should be in Civil Engg. The remaining credits can be from any department including Civil Engineering. Electives can be taken in semesters V-VIII, limiting to about 60 credits per semester. An optional B.Tech.project can be taken in lieu of 27 elective credits. Please note that such project credits will not be counted against the 18 Civil Engineering credits. Project can be taken in any department including Civil Engineering.
CS	B. Tech. (CSE) students should complete a total of 156 credits of electives out of which a minimum of 84 Credits must be completed through CSE Dept. Electives. Semesters marked with '*': students should take appropriate number of electives after consulting faculty advisor. The students are free to take the elective courses in different semesters, so that the total number of credit hours per semester does not normally exceed 60. B Tech final-year project is optional and may be carried out in the CSE Dept. or in any other Department at IIT Madras. If the project is completed in the CSE Dept, it will be considered as equivalent to 24 Department elective credits. If the project is completed outside the CSE Dept, it will be considered as equivalent to 27 free elective credits. CS1200 is equivalent to MA2060**:** Discrete Mathematics. CSE students are not allowed to credit MA2060 course as a free elective.
EE	Indicated credits are only for core programme. In addition, 184 credits of electives have to be taken in semester III and semesters V-VIII, of which a) at least 10 credits should be from Basic Engineering courses b) at least 9 credits should be from Mathematics and c) at least 9 credits should be from Basic Science courses (Mathematics, Physics, Chemistry or Biological sciences) d) at least 21 credits should be from Electrical Engineering courses (or equivalent). All elective lab courses will also be eligible^ e) at least 44 credits should be taken from courses in the following EE Stream elective basket Odd semester: Communication Systems; Computer Architecture; Analog Circuits; Digital IC design; Power Systems; Engineering Electromagnetics; ID4100 Creative Engineering Project; Even semester: Probability Foundations for Electrical Engineers; Sensing techniques and sensor systems; Solid-State Devices II; EMEC II; Power Electronics; RF and Optical Communication; ID4100 Creative Engineering Project ^Courses in the stream elective basket other than those chosen to satisfy requirement in (e) above can also be taken as general EE electives to satisfy requirement in (d) above. Remaining 91 credits can be from any dept. including Electrical Engineering. Electives can be taken subject to a maximum of 60 credits per semester. Minimum number of credits in each category: S ≥ 84, E ≥ 45, H ≥ 27, P ≥ 180 ***Suggested***: III sem: 9 Maths elective and 10 BE elective credits V sem: 22 Stream elective credits and 18 other elective credits VI sem: 22 Stream elective credits, 9 BS elective credits and 9 other elective credits

	VII and VIII sem 21 EE elective credits and 64 other elective credits **Project**: An optional B.Tech project can be taken in lieu of 27 elective credits. Project can be taken in any department including Electrical Engineering. If the project is done in Electrical Engineering dept, 21 of the 27 credits may be counted against 21 Electrical Engineering non-stream elective credits mentioned above. **BTech (honours): *Extra credit requirement***: BTech project worth 27 credits over and above the regular BTech requirement. 48 elective credits (instead of 21 for regularBTech) to be taken in Electrical department (or equivalent); 27 of those credits to be at the 5000 level or above.
ME	Project in other department can be taken only in lieu of Free Electives Project in ME Department can be taken in lieu of free or departmental electives It may be noted that any combination of free electives should lead to 72 credits and not necessarily 8 courses
MM	B.Tech Project Phase I is optional for B.Tech programme. B.Tech Project Phase I is pre-requisite for B.Tech Project Phase II which is optional for B.Tech programme. Students can enroll elective credits subject to a maximum of 60 hours of work load per semester. B. Tech students not opting for project need to take 27 credits of elective courses from "P" category and 86 credits of free elective courses. B. Tech students opting for project need to take 86 credits of free elective courses.
OE	Students are required to take 72 FREE elective credits during semesters V-VIII from any department including ocean engineering. Electives can be taken in semesters V-VIII, subject to maximum of 60 credits per semester or as suggested ‡ **Project**: An optional B.Tech project can be taken in lieu of 27 elective credits as mentioned in Sem VII and Sem VIII. These 27 elective credits have to be against ocean engineering elective courses. If the student starts a project in VII Sem and cannot successfully continue then he has to substitute the same with departmental elective credits of 9 credits in the semester VIII.
PH (EP)	

DEPARTMENT OF AEROSPACE ENGINEERING: B.Tech Curriculum (from July 2015)

SEMESTER I

No.	Title	L	T	E	P	O	C	Cat
MA1010	Functions of Several Variables	3	1	0	0	6	10	S
PH1010	Physics I	3	1	0	0	6	10	S
CY1001	Chemistry I	3	1	0	0	6	10	S
AM1100	Engineering Mechanics	3	1	0	0	6	10	E
ME1120	Engineering Drawing	1	0	0	3	3	7	E
PH1030	Physics Lab I	0	0	0	3	1	4	S
	Total	**13**	**4**	**0**	**6**	**28**	**51**	
	NCC/ NSS/ NSO	0	0	0	0	2	0	
	Life Skills	0	0	0	0	3	0	

Winter

No.	Title	L	T	E	P	O	C	Cat
WS1010	Workshop I	0	0	0	3	0	3	E

SEMESTER II

No.	Title	L	T	E	P	O	C	Cat
MA1020	Series and Matrices	3	1	0	0	6	10	S
PH1020	Physics II	3	1	0	0	6	10	S
CS1100	Introduction to Programming	3	0	0	3	6	12	E
AS1300	Thermodynamics for Aerospace engg.	3	1	1	0	6	11	E
HS	Humanities I	3	0	0	0	6	9	H
AS1010	Introduction to Aerospace Engg.	1	0	0	2	2	5	P
	Total	**16**	**3**	**1**	**5**	**32**	**57**	
	NCC/ NSS/ NSO	0	0	0	0	3	0	

Summer

No.	Title	L	T	E	P	O	C	Cat
WS1020	Workshop II	0	0	0	3	0	3	E

SEMESTER III

No.	Title	L	T	E	P	O	C	Cat
MA2010	Complex Variables	3	0	0	0	6	9	S
EE1100	Basic Electrical Engineering	3	1	0	0	6	10	E
AS1020	Fluid Mechanics	3	1	1	0	6	11	P
AS2010	Basic Strength of Materials	3	1	1	0	6	11	P
HS	Humanities II	3	0	0	0	6	9	H
AS2100	Basic Aerospace Engg. lab.	1	0	0	2	2	5	P
	Total	**16**	**3**	**2**	**2**	**32**	**55**	

SEMESTER IV

No.	Title	L	T	E	P	O	C	Cat
MA2020	Differential Equations	3	0	0	0	6	9	S
AS2030	Gas Dynamics	3	1	1	0	6	11	P
AS2050	Aerodynamics	3	1	1	0	6	11	P
AS2070	Aerospace Structural Mechanics	3	1	0	0	6	10	P
AS2080	Vibrations	3	1	0	0	6	10	P
AS2510	Low speed lab.	1	0	0	2	2	5	P
CY1002	Chemistry Lab	0	0	0	3	0	3	S
	Total	**16**	**4**	**2**	**5**	**32**	**59**	

SEMESTER V*

No.	Title	L	T	E	P	O	C	Cat
MA	Math elective	3	0	0	0	6	9	S
AS2040	Flight Dynamics I	4	1	0	0	7	12	P
AS3020	Aerospace Structures	3	1	1	0	6	11	P
AS3270	Propulsion I	3	1	0	0	6	10	P
AS3510	Aero. Lab. I	1	0	0	2	2	5	P
AS2520	Propulsion Lab	0	0	0	3	0	3	P
	Total	**14**	**3**	**1**	**5**	**27**	**50***	

SEMESTER VI*

No.	Title	L	T	E	P	O	C	Cat
BT1010	Life sciences	3	0	0	0	6	9	S
AS3050	Flight Dynamics II	4	1	0	0	7	12	P
AS3271	Propulsion II	3	1	0	0	6	10	P
	Design elective^	2	1	2	3	4	12	P
AS3520	Aero. Lab. II	1	0	0	2	2	5	P
	Total	**13**	**3**	**2**	**5**	**25**	**48***	
	Summer Internship	0	0	0	0	20	0	

^Restricted elective: students choose between AS5211, AS5212, AS5213

SEMESTER VII*

No.	Title	L	T	E	P	O	C	Cat
	Total	**0**	**0**	**0**	**0**	**0**	**0***	
	Ecology and Environment	2	0	0	0	0	0	

SEMESTER VIII*

No.	Title	L	T	E	P	O	C	Cat
HS	Humanities III	3	0	0	0	6	9	H
	Total	**3**	**0**	**0**	**0**	**6**	**9***	
	Professional Ethics	2	0	0	0	0	0	

Department of Chemical Engineering: B.Tech Curriculum

Semester 1

	L	T	E	P	O	C	Cat
Math. 1	3	1	0	0	6	10	S
Physics. 1	3	1	0	0	6	10	S
Chemistry 1	3	1	0	0	6	10	S
Thermodynamics	3	1	0	0	6	10	E
Physics Lab.1	0	0	0	3	1	4	S
Chemistry Lab	0	0	0	3	0	3	S
Ecology and Envt	2	0	0	0	0	0	
Life Skills	0	0	0	0	3	0	
NSS/NSO/NCC	0	0	0	0	2	0	
Total	14	4	0	6	30	**47**	

Winter

	L	T	E	P	O	C	Cat
Workshop	0	0	0	3	0	**3**	E

Semester 2

	L	T	E	P	O	C	Cat
Math. 2	3	1	0	0	6	10	S
Physics. 2	3	1	0	0	6	10	S
Computational Engineering	3	0	0	3	6	12	E
Principles & Calculations in ChE	3	1	0	0	6	10	P
Engineering Mechanics	3	1	0	0	6	10	E
Total	15	4	0	3	30	**52**	

Summer

	L	T	E	P	O	C	Cat
Workshop	0	0	0	3	0	**3**	E

Semester 3

	L	T	E	P	O	C	Cat
Math Elective	3	0	0	0	6	9	S
Chemical Engg. Thermodynamics	3	1	0	0	6	10	P
Continuum Mechanics & TP	3	1	0	0	6	10	P
Computational Techniques	3	1	0	3	8	15	P
Humanities 1	3	0	0	0	6	9	H
Total	15	3	0	3	32	**53**	

Semester 4

	L	T	E	P	O	C	Cat
Mom Transfer & Mechanical Operations	3	1	0	0	6	10	P
Fundamentals of Heat & Mass Tr	3	1	0	0	6	10	P
Thermodynamics Lab	0	0	0	3	2	5	P
Chemistry Elective	3	0	0	0	6	9	S
Basics of EE	3	1	0	0	6	10	E
Humanities 2	3	0	0	0	6	9	H
Total	15	3	0	3	32	**53**	

Semester 5

	L	T	E	P	O	C	Cat
Applications of Mass Transfer	3	1	0	0	6	10	P
CRE	3	1	0	0	6	10	P
Mom Transfer &MOLab	0	0	0	3	2	5	P
Heat and Mass Transfer Lab	0	0	0	3	2	5	P
Dept Elective 1	3	0	0	0	6	9	P
Life Sciences	3	0	0	0	6	9	S
Total	12	2	0	6	28	**48**	

Semester 6

	L	T	E	P	O	C	Cat
Materials Science	3	1	0	0	6	10	P
Process Control	3	1	0	0	6	10	P
Dept Elective 2	3	0	0	0	6	9	P
Dept Elective 3	3	0	0	0	6	9	P
Heat and Mass Transfer Lab 2	0	0	0	3	2	5	P
CRE Lab	0	0	0	3	2	5	P
Total	12	2	0	6	28	**48**	

Semester 7

	L	T	E	P	O	C	Cat
Plant, Process & Product Design	3	1	0	0	6	10	P
Chemical Technology	3	1	0	0	6	10	P
Plant, Process & Product Design Lab	0	0	0	3	2	5	P
Humanities 3	3	0	0	0	6	9	H
Dept Elective 4	3	0	0	0	6	9	P
Total	12	2	0	3	26	**43**	

Semester 8

	L	T	E	P	O	C	Cat
Dept Elective 5	3	0	0	0	6	9	P
Professional Ethics	2	0	0	0	0	0	
Total	5	0	0	0	6	9	

DEPARTMENT OF CIVIL ENGINEERING

Semester - I

Course No.	Title	L	T	E	P	O	C	Cat
MA1010	Calculus I – Functions of One Variable	3	1	0	0	6	10	S
PH1010	Physics. I	3	1	0	0	6	10	S
PH1030	Physics Lab.1	0	0	0	3	1	4	S
CE1010	Introduction to Civil Engg	2	1	1	0	4	8	P
CS1100	Introduction to Programming	3	0	0	3	6	12	E
ME1120	Engg. Drawing	0	1	0	3	3	7	E
ID1200	Ecology and Environment	2	0	0	0	0	0	-
	Total Credits	**13**	**4**	**1**	**9**	**26**	**51**	
	Life Skills	0	0	0	3	0	0	-
	NSS/NCC/NSO	0	0	0	2	0	0	-

Semester - II

Course No.	Title	L	T	E	P	O	C	Cat
MA1020	Calculus II – Functions of Several Variables	3	1	0	0	6	10	S
PH1020	Physics. II	3	1	0	0	6	10	S
AM1100	Engg. Mechanics	3	1	0	0	6	10	E
CY1001	Chemistry I	3	1	0	0	6	10	S
CY1030	Chemistry Lab	0	0	0	3	0	3	S
CE2330	CE Materials and Construction	3	1	0	0	6	10	P
CE2050	Building Drawing Lab	1	0	0	3	3	7	P
	Total Credits	**16**	**5**	**0**	**6**	**33**	**60**	
WS1010	Workshop	0	0	0	3	0	6	E

Semester-III

Course No.	Title	L	T	E	P	O	C	Cat
	Math. 3	3	0	0	0	6	9	S
ME1100	Thermodynamics	3	1	0	0	6	10	E
CE3010	Transportation Engineering - 1	3	1	0	0	6	10	P
CE2040	Hydraulic Engineering	3	1	1	0	6	11	P
CE2310	Mechanics of Materials	3	1	1	0	6	11	P
CE2080	Surveying	2	1	0	3	4	10	P
	Total Credits	**17**	**5**	**2**	**3**	**34**	**61**	

Semester-IV

Course No.	Title	L	T	E	P	O	C	Cat
CE2020	Structural Analysis	3	1	1	0	6	11	P
CE2060	Geotechnical Engineering - 1	3	1	1	0	6	11	P
CE3020	Transportation Engineering - 2	3	1	0	0	6	10	P
CE3040	Environmental Engineering	3	1	0	0	6	10	P
	Science Elective (M/P/C)	3	0	0	0	6	9	S
	Humanities Elec. 1	3	0	0	0	6	9	H
	Total Credits	**18**	**4**	**2**	**0**	**36**	**60**	

Semester-V

Course No.	Title	L	T	E	P	O	C	Cat
BT1010	Life Sciences	3	0	0	0	6	9	S
CE3350	Geotechnical Engineering - 2	3	1	2	0	6	12	P
CE3030	Water Resources Engineering	4	0	0	0	8	12	P
CE3060	Basic RC Design	3	1	1	0	6	11	P
CE4030	Hydraulic & Environ. Engg. Lab	0	0	0	3	1	4	P
CE3410	Construction Material Lab	0	0	0	3	1	4	P
	Total Credits	**13**	**2**	**3**	**6**	**28**	**52**	

Semester-VI

Course No.	Title	L	T	E	P	O	C	Cat
CE3100	Structural Engg. Lab	0	0	0	3	1	4	P
CE3050	Basic Steel Design	3	1	1	0	6	11	P
CE4010	Construction Project Mgmt.	3	1	0	0	6	10	P
	Humanities Elec. 2	3	0	0	0	6	9	H
	Total Credits	**9**	**2**	**1**	**3**	**19**	**34**	

Semester-VII

Course No.	Title	L	T	E	P	O	C	Cat
	Humanities Elec. 3	3	0	0	0	6	9	H
	Total Credits	**3**	**0**	**0**	**0**	**6**	**9**	

Semester-VIII

Course No.	Title	L	T	E	P	O	C	Cat
HS3050	Professional Ethics	2	0	0	0	0	0	H
	Total Credits	**2**	**0**	**0**	**0**	**0**	**0**	

Dept. of Computer Science and Engineering: B.Tech programme

Semester 1	L	T	E	P	O	TH	C	Category
MA1010: Functions of Several Variables	3	1	0	0	6	10	10	S
PH1010: Physics 1	3	1	0	0	6	10	10	S
CY1001: Chemistry 1	3	1	0	0	6	10	10	S
CS1100: Introduction to Programming	3	0	0	3	6	12	12	E
PH1030: Physics Lab 1	0	0	0	3	1	4	4	S
AM1100: Engineering Mechanics	3	1	0	0	6	10	10	E
Life Skills	0	0	0	0	0	3	0	
NSS/NSO/NCC	0	0	0	2	0	2	0	
Semester 1 : Total	15	4	0	8	31	61	56	
Workshop (winter)	0	0	0	3	0	3	3	E
Semester 2								
MA1020: Series and Matrices	3	1	0	0	6	10	10	S
PH1020: Physics 2	3	1	0	0	6	10	10	S
CS1200: Discrete Mathematics for CS	3	1	0	0	6	10	10	P
ME1120: Engineering Drawing	1	0	0	3	3	7	7	E
EE1100: Basic Electrical Engineering	3	1	0	0	6	10	10	E
CY1001: Chemistry Lab	0	0	0	3	0	3	3	S
NSS/NSO/NCC	0	0	0	3	0	3	0	
Semester 2 : Total	13	4	0	9	27	53	50	
Workshop (summer)	0	0	0	3	0	3	3	E

Semester 3*								
MA2130: Basic Graph Theory	3	0	0	0	6	9	9	S
Humanities Elective 1	3	0	0	0	6	9	9	H
CS2700: Programming and Data Structures	3	1	0	0	6	10	10	P
CS2710: Programming and Data Structures Lab	0	0	0	3	3	6	6	P
CS2300: Foundations of Computer Systems Design	3	0	0	0	6	9	9	P
CS2310: Foundations of Computer Systems Design Lab	0	0	0	3	1	4	4	P
Semester 3 : Total	12	1	0	6	28	47	47	
Semester 4*								
CS2200: Languages, Machines, and Computations	3	1	0	0	6	10	10	P
CS2800: Design and Analysis of Algorithms	3	1	0	0	6	10	10	P
CS2600: Computer Organization and Architecture	3	1	0	0	6	10	10	P
CS2610: Computer Organization and Architecture Lab	0	0	0	3	3	6	6	P
CS2810: Object-Oriented Algorithms Implementation and Analysis Lab	0	0	0	3	3	6	6	P
MA 2040: Probability, Stochastic Process and Statistics	3	0	0	0	6	9	9	S

Semester 4 : Total	12	3	0	6	30	51	51	
Semester 5*								
CS3100: Paradigms of Programming	3	0	0	0	6	9	9	P
CS3500: Operating Systems	3	0	0	6	6	15	15	P
CS3300: Compiler Design	3	0	0	6	6	15	15	P
Semester 5 : Total	9	0	0	12	18	39	39	
Semester 6*								
BT1010: Life Sciences	3	0	0	0	6	9	9	S
Semester 6 : Total	3	0	0	0	6	9	9	
CS3660: Industrial Training	0	0	0	0	0	0	0	
Semester 7*								
Humanities Elective 2	3	0	0	0	6	9	9	H
ID1200: Ecology and Environment	2	0	0	0	4	6	0	S
Semester 7 : Total	5	0	0	0	10	15	9	
Semester 8*								
HS3050: Professional Ethics	2	0	0	0	0	2	0	H
Humanities Elective 3	3	0	0	0	6	9	9	H
Semester 8 : Total	5	0	0	0	6	11	9	

DEPARTMENT OF ELECTRICAL ENGINEERING: B.Tech Curriculum (from July 2015)

SEMESTER I

No.	Title	L	T	E	P	O	C	Cat
MA1010	Functions of Several Variables	3	1	0	0	6	10	S
PH1010	Physics I	3	1	0	0	6	10	S
CY1001	Chemistry I	3	1	0	0	6	10	S
CS1100	Introduction to Programming	3	0	0	3	6	12	E
PH1030	Physics Lab I	0	0	0	3	1	4	S
CY1002	Chemistry Lab	0	0	0	3	0	3	S
	Total	**12**	**3**	**0**	**9**	**25**	**49**	
	NCC/ NSS/ NSO	0	0	0	0	2	0	
	Life Skills	0	0	0	0	3	0	
	Ecology and Environment	2	0	0	0	0	0	

Winter

No.	Title	L	T	E	P	O	C	Cat
WS1010	Workshop I	0	0	0	3	0	3	E

SEMESTER II

No.	Title	L	T	E	P	O	C	Cat
MA1020	Series and Matrices	3	1	0	0	6	10	S
PH1020	Physics II	3	1	0	0	6	10	S
	Digital Systems & Lab	3	1	1	3	8	16	P
	Signals & Systems	3	1	0	0	6	10	E
HS	Humanities 1	3	0	0	0	6	9	H
	Total	**15**	**4**	**1**	**3**	**32**	**55**	
	NCC/ NSS/ NSO	0	0	0	0	3	0	

Summer

No.	Title	L	T	E	P	O	C	Cat
WS1020	Workshop II	0	0	0	3	0	3	E

SEMESTER III*

No.	Title	L	T	E	P	O	C	Cat
	Electric Circuits & Networks	3	1	1	0	6	11	P
	Microprocessor Theory + Lab	2	0	0	3	7	12	P
HS	Humanities 2	3	0	0	0	6	9	H
	Total	**8**	**1**	**1**	**3**	**19**	**32**	

SEMESTER IV

No.	Title	L	T	E	P	O	C	Cat
	Electrical Machines & Lab	3	1	1	3	7	15	P
	Analog Systems & Lab	3	1	1	3	9	17	P
	Digital Signal Processing & Lab	3	1	1	3	6	14	P
	Solid State Devices	3	1	1	0	6	11	P
	Total	**12**	**4**	**4**	**9**	**28**	**57**	

SEMESTER V*

No.	Title	L	T	E	P	O	C	Cat
	Control Engg	3	1	1	0	6	11	P
	Principles of Measurement	2	0	0	3	3	8	P
	Total	**5**	**1**	**1**	**3**	**9**	**19***	

SEMESTER VI*

No.	Title	L	T	E	P	O	C	Cat
ME	Basic Thermal Engineering	3	1	0	0	6	10	E
	Total	**3**	**1**	**0**	**0**	**6**	**10***	
	Summer Internship	0	0	0	0	20	0	

SEMESTER VII*

No.	Title	L	T	E	P	O	C	Cat
BT1010	Life sciences	3	0	0	0	6	9	S
HS	Humanities 3	3	0	0	0	6	9	H
	Total	**6**	**0**	**0**	**0**	**12**	**18***	

SEMESTER VIII*

No.	Title	L	T	E	P	O	C	Cat
	Total						**0***	
	Professional Ethics	2	0	0	0	0	0	

DEPARTMENT OF MECHANICAL ENGINEERING: BTech programme

Semester 1									
Course #	**Course Name**	**L**	**T**	**E**	**P**	**O**	**TH**	**C**	**Category**
MA1010	Functions of Several Variables	3	1	0	0	6	10	10	S
PH1010	Physics. 1	3	1	0	0	6	10	10	S
ME1100	Thermodynamics	3	1	0	0	6	10	10	P
CS1100	Introduction to Programming	3	0	0	3	6	12	12	E
PH1030	Physics Lab	0	0	0	4	0	4	4	S
CY1002	Chemistry Lab	0	0	0	3	0	3	3	S
	Life Skills	0	0	0	0	3	3	0	
	NSS/NSO/NCC	0	0	0		2	2	0	
	Semester 1 : Total						54	49	
WS1010	Workshop I	0	0	0	3	0	3	3	E
Semester 2									
MA1020	Series and Matrices	3	1	0	0	6	10	10	S
PH 1020	Physics. 2	3	1	0	0	6	10	10	S
CY1001	Chemistry	3	1	0	0	6	10	10	S
AM1100	Engineering Mechanics	3	1	0	0	6	10	10	E
HS	Humanities Elective-1	3	0	0	0	6	9	9	H
ME1120	Engineering Drawing	1	0	0	3	3	7	7	E
	NSS/NSO/NCC	0	0	0	0	3	3	0	
	Semester 2 : Total						59	56	
WS1020	Workshop II	0	0	0	3	0	3	3	E
	Total						60	59	
Semester 3									
MA2020	Differential Equations	3	0	0	0	6	9	9	S
AM2200	Strength of Materials	3	1	0	0	6	10	10	P
AM2530	Foundations of Fluid Mechanics	3	1	0	0	6	10	10	P
EE1100	Basic Electrical Engineering	3	1	0	0	6	10	10	E
AM2540	Applied Mechanics/Fluid Mechanics Lab	0	0	0	3	0	3	3	P
ME2220	Kinematics & Dynamics of Machinery	3	1	0	0	6	10	10	P
	Semester 3 : Total						52	52	
Semester 4									
MA	Maths Elective	3	0	0	0	6	9	9	S
ME2260	Materials & Design	3	1	0	0	6	10	10	P
ME2XXX	Applied Thermal Engineering	3	1	0	0	6	10	10	P
ME2XXX	Manufacturing Processes	3	1	0	0	6	10	10	P
ME2XXX	Measurements and Instrumentation	3	0	0	2	6	11	11	P
HS	Humanities Elective-2	3	0	0	0	6	9	9	H
	Semester 4 : Total						59	59	
Semester 5									
ME3170	Heat Transfer	3	1	0	0	6	10	10	P
ME3XXX	Energy Conversion System	3	1	0	0	6	10	10	P
ME3XXX	Manufacturing Technology	3	1	0	0	6	10	10	P
ME3350	Design of Machine Elements	3	1	0	0	6	10	10	P
	Free Elective 1	3	0	0	0	6	9	9	
ME3XXX	Machine Drawing Practice	1	0	0	3	3	7	7	P
ME3270	ME Lab-1	0	0	0	3	0	3	3	P
	Semester 5 : Total						59	59	

Semester 6									
ME	Professional Elective -1	3	0	0	0	6	9	9	P
	Free Elective 2	3	0	0	0	6	9	9	
	Free Elective 3	3	0	0	0	6	9	9	
BT1010	Life Sciences	3	0	0	0	6	9	9	S
ME3XXX	Automation in Manufacturing	3	1	0	0	6	10	10	P
ME3280	ME Lab-2	0	0	0	3	0	3	3	P
ME3300	ME Lab-3	0	0	0	3	0	3	3	P
	Honours Elective 1	3	0	0	0	6	9	9	
	Semester 6 : Total						52	52	
Semester 7									
	Professional Elective -2	3	0	0	0	6	9	9	P
	Professional Elective -3	3	0	0	0	6	9	9	P
	Professional Elective -4/Free Elective 4	3	0	0	0	6	9	9	P
	Professional Elective -5/Free Elective 5	3	0	0	0	6	9	9	P
	Professional Elective -6/Free Elective 6	3	0	0	0	6	9	9	P
HS	Humanities Elective-3	3	0	0	0	6	9	9	H
	Professional Ethics	0	0	0	0	2	2	0	
	Honours Elective 2	3	0	0	0	6	9	9	
	Semester 7 : Total						56	54	
Semester 8									
	Free Elective 4/Professional Elective - 4/Project	3	0	0	0	6	9	9	
	Free Elective 5/Professional Elective - 5/Project	3	0	0	0	6	9	9	
	Free Elective 6/Professional Elective - 6/Project	3	0	0	0	6	9	9	
	Free Elective 7	3	0	0	0	6	9	9	
	Free Elective 8	3	0	0	0	6	9	9	
	Ecology & Environment	0	0	0	0	2	2	0	
	Honours Elective 3	3	0	0	0	6	9	9	
	Semester 8 : Total						47	45	

Department of Metallurgical and Materials Engineering: BTech programme

Semester – 1								
No.	**Name**	**L**	**T**	**P**	**E**	**O**	**C**	**Category**
PH1010	Physics I	3	1	0	0	6	10	S
ME1100	Engineering Thermodynamics	3	1	0	0	6	10	E
MA1010	Functions of several variables	3	1	0	0	6	10	S
CS1100	Introduction to programming	3	0	3	0	6	12	E
PH1030	Physics Lab I	0	0	3	0	1	4	S
-	NCC/NSS/NSO	0	0	0	0	2	0	-
-	Life Skills	0	0	0	0	3	0	-
	Total						46	

Winter – 1								
No.	**Name**	**L**	**T**	**P**	**E**	**O**	**C**	**Category**
WS1010	Workshop I	0	0	3	0	0	3	E
	Total						3	

Semester - 2								
No.	**Name**	**L**	**T**	**P**	**E**	**O**	**C**	**Category**
PH1020	Physics II	3	1	0	0	6	10	S
MA1020	Series and Matrices	3	1	0	0	6	10	S
CY1001	Chemistry I	3	1	0	0	6	10	S
AM1100	Engineering Mechanics	3	1	0	0	6	10	E
ME1120	Engineering Drawing	0	1	3	0	3	7	E
MM****	Introduction to Metallurgical and Materials Engineering	1	0	2	0	2	5	P
-	NCC/NSS/NSO	0	0	0	0	3	0	-
	Total						52*	

Summer - 1								
No.	**Name**	**L**	**T**	**P**	**E**	**O**	**C**	**Category**
WS1020	Workshop II	0	0	3	0	0	3	E
	Total						3	

Semester - 3								
No.	**Name**	**L**	**T**	**P**	**E**	**O**	**C**	**Category**
MA2020	Differential Equations	3	0	0	0	6	9	S
HS****	Humanities Elective I	3	0	0	0	6	9	H
MM2***	Structure of Materials	3	0	0	0	6	9	P
MM2010	Principles of Physical Metallurgy	3	0	1	0	8	12	P
MM2***	Thermodynamics of Materials	3	1	0	0	6	10	P
CY1002	Chemistry Lab	0	0	3	0	0	3	S
	Total						52*	
Semester - 4								
No.	**Name**	**L**	**T**	**P**	**E**	**O**	**C**	**Category**
-	Elective under ‘S’ category	3	0	0	0	6	9	S
HS****	Humanities Elective II	3	0	0	0	6	9	H
MM2060	Phase Transformations	3	0	0	0	6	9	P
MM2***	Transport Phenomena in Materials	3	1	0	0	8	12	P
MM2***	Deformation of Materials	3	0	1	0	8	12	P
	Total						51*	
Semester - 5								
No.	**Name**	**L**	**T**	**P**	**E**	**O**	**C**	**Category**
MM3***	Materials Characterization	3	0	0	0	6	9	P
MM3090	Environmental Degradation of Materials	3	0	1	0	8	12	P
MM2080	Principles of Extractive Metallurgy	4	0	0	0	8	12	P
MM3010	Physics of Materials	3	0	0	0	6	9	P
HS****	Humanities Elective III	3	0	0	0	6	9	H
MM3***	Computational Materials Engg Lab	1	0	2	0	2	5	P
	Total						56*	
Semester – 6								
No.	**Name**	**L**	**T**	**P**	**E**	**O**	**C**	**Category**
MM3020	Ironmaking and Steelmaking	4	0	0	0	8	12	P
MM3070	Solidification Processing and Casting	3	0	0	0	6	9	P
MM3***	Deformation Processing and Forming	3	0	0	0	6	9	P
BT1010	Life Sciences	3	0	0	0	6	9	S
MM3***	Processing Lab	1	0	2	0	2	5	P
MM3***	Characterization Lab	1	0	2	0	2	5	P
	Total						49*	

Semester - 7								
No.	**Name**	**L**	**T**	**P**	**E**	**O**	**C**	**Category**
-	Ecology and Environment	2	0	0	0	0	0	-
MM3***	Nonmetallic Materials	3	0	0	0	6	9	P
MM4***	B.Tech Project Phase I#	0	0	3	0	6	9	P
	Total						18*	
Semester - 8								
No.	**Name**	**L**	**T**	**P**	**E**	**O**	**C**	**Category**
-	Professional Ethics	2	0	0	0	0	0	-
MM4***	B.Tech Project Phase II@	0	0	6	0	12	18	P
	Total						18*	

Department of Ocean Engineering, IIT Madras
B.Tech (NA&OE) Curriculum (from July 2015 Admission)

SEMESTER I

Course No.	Course Title	L	T	ExT	Lab	Home	Cr	Cat
MA1010	Functions of Several Variables	3	1	0	0	6	10	S
PH1010	Physics I	3	1	0	0	6	10	S
AM1100	Engineering Mechanics	3	1	0	0	6	10	E
CS1100	Introduction to Programming	3	0	0	3	6	12	E
MExxxx	Thermodynamics	3	1	0	0	6	10	E
OExxxx	Introduction to Ocean Engineering	2	0	0	0	4	6	P
	Total	**17**	**4**	**0**	**3**	**34**	**58**	
	NCC/NSS	0	0	0	0	2	0	
	LIFE SKILLS	0	0	0	0	3	0	

WINTER

Course No.	Course Title	L	T	ExT	Lab	Home	Cr	Cat
WS1010	Workshop I	0	0	0	3	0	3	E

SEMESTER II

Course No.	Course Title	L	T	ExT	Lab	Home	Cr	Cat
MA1020	Series and Matrices	3	1	0	0	6	10	S
PH1020	Physics II	3	1	0	0	6	10	S
PH1030	Physics Lab	0	0	0	3	1	4	S
CY1001	Chemistry I	3	1	0	0	6	10	S
CY1002	Chemistry Lab	0	0	0	3	0	3	S
HSxxxx	Humanities I	3	0	0	0	6	9	H
OE2010	Ship Theory	3	1	1	0	6	11	P
	Total	**15**	**4**	**1**	**6**	**31**	**57**	
	NCC/NSS	0	0	0	0	3	0	

SUMMER

Course No.	Course Title	L	T	ExT	Lab	Home	Cr	Cat
WS1010	Workshop I	0	0	0	3	0	3	E

SEMESTER III

Course No.	Course Title	L	T	ExT	Lab	Home	Cr	Cat
MA2010	Complex Variables	3	0	0	0	6	9	S
EE1100	Basic Electrical Engg.	3	1	0	0	6	10	E
HSxxxx	Humanities II	3	0	0	0	6	9	H
AM2530	Foundation of Fluid Mechanics	4	1	0	0	8	13	P
AM2200	Strength of Materials	4	1	0	0	8	13	P
OExxxx	Ship Drawing and Calculations	1	4	0	0	2	7	P
	Total	**18**	**7**	**0**	**0**	**36**	**61**	
	Ecology & Environment	2	0	0	0	0	0	

SEMESTER IV

Course No.	Course Title	L	T	ExT	Lab	Home	Cr	Cat
MA2030	Differential Equations	3	0	0	0	6	9	S
OE3030	Marine Engineering	3	1	0	0	6	10	P
OE2020	Analysis of Structures	3	1	0	0	6	10	P
OE2060	Ship Resistance and Propulsion	3	1	0	1	6	11	P
OE3020	Ship Hydrodynamics	3	1	0	0	6	10	P
	Total	**17**	**8**	**0**	**1**	**34**	**60**	

SEMESTER V

Course No.	Course Title	L	T	ExT	Lab	Home	Cr	Cat
OE3070	Ship Structures	3	1	0	0	6	10	P
OE3050	Ocean Wave Hydrodynamics	3	1	0	1	6	11	P
OExxxx	Ship Controllability	3	0	0	0	6	9	P
OExxxx	Sea-keeping of Ships and Floating Systems	3	1	0	0	6	10	P
BT1010	Life Sciences	3	0	0	0	6	9	S
	Total	**15**	**3**	**0**	**1**	**30**	**49**	

SEMESTER VI

Course No.	Course Title	L	T	ExT	Lab	Home	Cr	Cat
OE3190	Design of Ocean Structures	3	1	0	0	6	10	P
OE3040	Vibration of Marine Structures & Acoustics	3	0	0	1	6	10	P
OE3020	Ship Design	3	1	1	0	6	11	P
	Total	**9**	**3**	**1**	**0**	**18**	**31**	

SUMMER

Course No.	Course Title	L	T	ExT	Lab	Home	Cr	Cat
OE3160	Industrial Training (Summer)	0	0	0	0	6	6	P

SEMESTER VII

Course No.	Course Title	L	T	ExT	Lab	Home	Cr	Cat
OExxxx	Shipbuilding Material & Production Processes	3	1	0	0	6	10	P
	Total	**3**	**1**	**0**	**0**	**6**	**10**	
	Professional Ethics	2	0	0	0	0	0	

SEMESTER VIII

Course No.	Course Title	L	T	ExT	Lab	Home	Cr	Cat
HSxxxx	Humanities III	3	0	0	0	6	9	H
	Total	**3**	**0**	**0**	**0**	**6**	**9**	

Department of Physics: B.Tech. (Engineering Physics) curriculum (from July 2015)

Semester I

No.	Title	Le	T	E	La	O	C	CW	Cat
MA1010	Math –I	3	1	0	0	6	10		S
PH1010	Physics-I	3	1	0	0	6	10		S
CY1010	Chemistry-I	3	1	0	0	6	10		S
PH1030	Physics Lab.	0	0	0	3	1	4		S
CS1100	Introduction to Programming	3	0	0	3	6	12		E
PH1080	Thermodynamics	3	1	0	0	6	10		E
	Total	**15**	**4**	**0**	**6**	**31**	**56**		
	Life Skills	0	0	0	0	0	0	3	
	NSS/NSO/NCC	0	0	0	0	0	0	2	

Winter

No.	Title	Le	T	E	La	O	C	CW	Cat
WS1010	Workshop–I	0	0	0	3	0	3		E

Semester II

No.	Title	Le	T	E	La	O	C	CW	Cat
MA1020	Math –II	3	1	0	0	6	10		S
PH1020	Physics-II	3	1	0	0	6	10		S
CY1020	Chemistry-II	3	1	0	0	6	10		S
CY	Chemistry Lab	0	0	0	3	0	3		S
EE	Signals & systems	3	3	0	0	6	10		E
EE	Digital systems	3	1	1	3	6+2	16		P
	Total	**15**	**5**	**1**	**6**	**32**	**59**		
	NSS/NSO/NCC	0	0	0	0	0	0	3	

Summer

No.	Title	Le	T	E	La	O	C	CW	Cat
WS1020	Workshop–II	0	0	0	3	0	3		E

Semester III

No.	Title	Le	T	E	La	O	C	CW	Cat
MA	Math. 3-Elective	3	0	0	0	6	9		S
EE	Electrical Circuits & Networks	3	1	1	0	6	11		P
EP2110	Intro Math Phys.	3	1	0	0	6	10		P
EP3110	Electromagnetism	3	0	0	0	6	9		P
EP	EP Lab 1	0	0	0	6	3	9		P
HS	H Elec. 1	3	0	0	0	6	9		H
	Total	**15**	**2**	**1**	**6**	**33**	**57**		

Semester IV

No.	Title	Le	T	E	La	O	C	CW	Cat
EE	Solid State Devices	3	1	1	0	6	11		P
EE	Digital Signal Proc. & Lab	3	1	1	3	6	14		P
EE	Analog Systems & Lab	3	1	1	3	6+3	17		P
EP	EP Lab 2	0	0	0	3	1	4		P
ID	Engg. Drawing	0	1	0	3	3	7		E
	Total	**9**	**4**	**3**	**12**	**25**	**53**		
	Ecology and Environment	2	0	0	0	0	0	2	

Semester V

No.	Title	Le	T	E	La	O	C	CW	Cat
EP2102	Classical Dynamics	3	1	0	0	6	10		P
EP2210	Quantum Mechanics	3	0	0	0	6	9		P
EP2100	Engineering Optics	3	0	0	0	6	9		P
EP	EP Lab 3	0	0	0	3	1	4		P
EE	Principles of Measurement	2	1	1	3	4+2	13		P
HS	H. Elec. 2	3	0	0	0	6	9		H
	Total	**14**	**2**	**1**	**6**	**31**	**54**		

Semester VI

No.	Title	Le	T	E	La	O	C	CW	Cat
BT1010	Life Sciences	3	0	0	0	6	9		S
EP3120	Statistical Physics	3	0	0	0	6	9		P
EP3220	Solid State Physics	3	1	0	0	6	10		P
EP	EP Lab 4	0	0	0	3	1	4		P
EP/EE	P Elec. 1	3	0	0	0	6	9		P
	F. Elec 1	3	0	0	0	6	9		F
	F Elec. 2	3	0	0	0	6	9		F
	Total	**20**	**1**	**0**	**3**	**37**	**59**		
	Professional Ethics	2	0	0	0	0		2	

Semester VII

No.	Title	Le	T	E	La	O	C	CW	Cat
EP	Atomic and Molecular Physics	3	0	0	0	6	9		P
EP/EE	P Elec. 2	3	0	0	0	6	9		P
EP/EE	P Elec. 3	3	0	0	0	6	9		P
EP	Seminar	0	0	0	0	1	1		P
HS	H Elec. 3	3	0	0	0	6	9		H
	F Elec. 3	3	0	0	0	6	9		F
	F Elec. 4	3	0	0	0	6	9		F
	Total	**18**	**0**	**0**	**0**	**37**	**55**		

Semester VIII

No.	Title	Le	T	E	La	O	C	CW	Cat
	F Elec. 5	3	0	0	0	6	9		F
	F Elec. 6	3	0	0	0	6	9		F
	F Elec. 7	3	0	0	0	6	9		F
	F Elec. 8	3	0	0	0	6	9		F
	Total	**12**	**0**	**0**	**0**	**24**	**36**		