DEPARTMENT OF AEROSPACE ENGINEERING, IIT MADRAS

B.Tech Curriculum (from July 2015)

Semester-wise credit hour distribution

Semester	I	Win.	II	Sum.	III	IV	V	VI	VII	VIII	**Total**
Credits	51	3	56	3	50	56	50*	48*	9*	9*	**434**

***** Indicated credits are only for core programme. In addition, 99 credits of electives have to be taken in sems V-VIII, of which atleast 27 credits should be in Aero. Engg.

L: Lecture, **T**: Tutorial, **E**: extended tutorial, **P**: Lab, **O**: outside class hours, **C**: credits.

Cat: Category (S: Basic sciences, E: Basic Engineering, H: Humanities, P: Professional).

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	
ID1200	Ecology and Environment	0	0	0	0	2	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
EE	Electrical Engineering Elective[$]	3	1	0	0	6	10	E
CY1002	Chemistry Lab	0	0	0	3	0	3	S
	Total	**15**	**4**	**1**	**6**	**30**	**56**	
	NCC/ NSS/ NSO	0	0	0	0	3	0	

[$] **Students to choose between EE1100 and EE1101**

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
AS1020	Fluid Mechanics	3	1	1	0	6	11	P
AS2010	Basic Strength of Materials	3	1	1	0	6	11	P
HS	Humanities I	3	0	0	0	6	9	H
AS2101	Introduction to Aerospace Engg.	1	0	0	2	2	5	P
AS2100	Basic Aerospace Engg. lab.	1	0	0	2	2	5	P
	Total	**14**	**2**	**2**	**4**	**28**	**50**	

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
	Total	**16**	**4**	**2**	**2**	**32**	**56**	

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 Design of Subsonic aircraft, AS5212 Design of Supersonic aircraft, AS5213 Design of UAVs and MAVs.

SEMESTER VII*

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

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	

* Indicated credits are only for core program. In addition, students are required to take 99 elective credits during semesters V-VIII, with atleast 27 of those credits in Aerospace Engg. Remaining 72 can be from any dept. including aerospace engg. 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: An optional B.Tech project can be taken in any department in lieu of 27 elective credits. These 27 credits can be counted against 27 aerospace department elective credits mentioned above only if the project is done in the aerospace dept.

BTech (honours): (Total credit requirement: 434 + 27 = **461)**

- ***Eligibility***: minimum CGPA of 8.5 at the end of 4th sem without U or W grade in any course. They need to maintain these conditions until graduation.
- ***Extra credit requirement***:
    - BTech project (AS4600) worth 13 credits in VII semester + 14 credits in VIII sem over and above the regular BTech requirement.
    - 54 credits (instead of 27 for regular) out of 99 elective credits to be taken in Aero. Dept. at 5000 level or higher.

Dual Degree Curriculum (from July 2015)

Semester-wise credit hour distribution

Sem.	I	Win.	II	Sum.	III	IV	V	VI	VII	VIII	Sum.	IX	X	**Total**
Credits	51	3	56	3	50	56	50*	48*	21*	13*	20	45	38	**553**

***** Indicated credits are only for core programme. In addition, 99 credits of electives have to be taken in sems V-VIII, of which atleast 27 credits should be in Aero. Engg.

Same as BTech until 6th semester.

SEMESTER VII*

No.	**Title**	**L**	**T**	**E**	**P**	**O**	**C**	**Cat**
AS5100	Mini Project	1	2	1	3	5	12	P
	Humanities II	3	0	0	0	6	9	H
	Total	**4**	**2**	**1**	**3**	**11**	**21***	
	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
AS5190&	DD Project Proposal	0	0	0	0	4	**	P
	Total	**3**	**0**	**0**	**0**	**10**	**9***	
	Professional Ethics	2	0	0	0	0	0	

* Indicated credits are only for core program. In addition, students are required to take 99 elective credits during semesters V-VIII, with atleast 27 of those credits in Aerospace Engg. Remaining 72 can be from any dept. including aerospace engg. 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; 36 in VII sem. & 45 in VIII sem.

SUMMER

No.	Title	L	T	E	P	O	C	Cat
AS5190#	DD Project	0	0	0	0	20	**	P
	Total	**0**	**0**	**0**	**0**	**20**		

SEMESTER IX

No.	Title	L	T	E	P	O	C	Cat
AS5190+	DD Project	0	0	0	0	27	**	P
	M.Tech. Electives in Aerospace Engg.	18	0	0	0	0	18	P
	Total	**18**	**0**	**0**	**0**	**27**	**18**	

SEMESTER X

No.	Title	L	T	E	P	O	C	Cat
AS5190	DD Project	0	0	0	0	38	89**	P
	Total	**0**	**0**	**0**	**0**	**38**	**89****	

** Credits and grades for DD Project (AS5190&, AS5190#, AS5190+ and AS5190 together) will be awarded at the end of X semester.

BTech (honours) + MTech program: (Total credit requirement: 553 + 27 = **580)**

- ***Eligibility***: minimum CGPA of 8.5 at the end of 4th sem without U or W grade in any course. They need to maintain these conditions until graduation.
- ***Extra credit requirement***: 27 elective credits over and above regular program. These credits ***have*** to be completed in VI, VII and VIII semesters.
- 54 credits (instead of 27 for regular) out of 99 BTech elective credits to be taken in Aero. Dept. at 5000 level or higher.