DEPARTMENT OF ENGINEERING DESIGN, IIT MADRAS

Dual Degree (Biomedical Design) Curriculum

SEMESTER-WISE CREDIT HOUR DISTRIBUTION

Semester	I	Win.	II	Sum.	III	IV	V	VI	VII	VIII	Sum.	IX	X	**Total**
Credits	51	3	52	3	58	51*	40*	53*	39*	31	20	44	9*	454

***** Indicated credits are only for core programme. In addition, 99 credits of electives have to be taken in sems IV-X, of which atleast 27 credits should be from the list of professional elective courses prescribed by the Department of Engineering Design. The remaining 72 credits constitute free electives. The presence of the terms “Free Elective” and “Professional Elective” in the tables is meant to remind the students regarding the same.

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 (July-November)

No.	Title	L	T	E	P	O	C	Cat
MA1101	Functions of Several Variables	3	1	0	0	6	10	S
AM1100	Engineering Mechanics	4	0	0	0	8	12	E
ED1021	Introduction to Computation and Visualization	3	0	0	3	3	9	E
ME1120	Engineering Drawing	1	0	0	3	3	7	E
ED1031	Creative Design	0	0	0	3	0	3	P
PH1010	Physics I	3	1	0	0	6	10	S
	Total	**14**	**2**	**0**	**9**	**26**	**51**	
	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								
WS1010	Workshop I	0	0	0	3	0	3	E

SEMESTER II (January – May)

No.	Title	L	T	E	P	O	C	Cat
MA1102	Series and Matrices	3	1	0	0	6	10	S
PH1030	Physics Laboratory	0	0	0	3	0	3	S
ED1011	Functional and Conceptual Design	2	0	0	3	4	9	P
ED2090	Geometric Modelling and CAD	3	0	0	3	6	12	P
ED1033	Form and Aesthetics in Design I	1	0	0	3	2	6	P
EE1101	Signals and Systems	3	1	0	0	8	12	E
	Total	**12**	**2**	**0**	**12**	**26**	**52**	
	NCC/ NSS/ NSO	0	0	0	0	3	0	
Summer								
WS1020	Workshop II	0	0	0	3	0	3	E

SEMESTER III (July-November)

No.	Title	L	T	E	P	O	C	Cat
ED2141	Physics of Measurement	3	0	0	0	6	9	S
ED2012	Manufacturing Processes	2	0	0	0	4	6	P
ED2011	Design of Mechanical Systems 1	4	0	0	3	8	15	P
MA2020	Differential Equations	3	0	0	0	6	9	S
ED2130	Analog and Digital Electronics	3	1	0	3	6	13	P
ED1034	Form and Aesthetics in Design II	1	0	0	3	2	6	P
	Total	**16**	**1**	**0**	**9**	**32**	**58**	

SEMESTER IV (January- May)

No.	Title	L	T	E	P	O	C	Cat
CY1050	Macromolecules as Engineering Materials	3	0	0	0	6	9	S
ED4040	Design of Thermal and Fluid Systems	4	0	0	3	8	15	P
ED2040	Control Systems	3	0	0	3	6	12	P
ED4060	Design of Mechanical Systems 2	4	0	0	3	8	15	P
	Free Elective							F
	Total	**14**	**0**	**0**	**9**	**28**	**51***	

SEMESTER V* (July-November)

No.	Title	L	T	E	P	O	C	Cat
ED3010	Human Factors in Design	3	0	0	0	6	9	P
ED	Professional Elective I							P
	Free Elective							F
ED5040	Human Anatomy Physiology and Biomechanics	3	0	0	3	6	12	P
ED5052	Electromagnetic Compatibility for Product Design	3	1	0	0	6	10	P
ED5080	Mechatronics System Design	2	0	0	3	4	9	
	Total	**11**	**1**	**0**	**6**	**22**	**40***	

SEMESTER VI* (January-May)

No.	Title	L	T	E	P	O	C	Cat
CY6108	Medicinal Chemistry	3	0	0	0	6	9	S
ED5015	Computational Methods in Design	3	1	0	0	6	10	P
ED5020	Design of Implantable Devices	3	0	0	0	6	9	P
ED5017	Digital Signal Processing for Engineering Design	3	1	0	0	6	10	P
ED5070	Design of Monitoring and Diagnostic Systems	4	0	0	0	8	12	P
ED5060	Medical Equipment Dissection Lab	0	0	0	3	0	3	P
ED	Professional Elective II							P
	Total	**16**	**2**	**0**	**3**	**32**	**53***	

SEMESTER VII* (July-November)

No.	Title	L	T	E	P	O	C	Cat
BT1010	Life Sciences	3	0	0	0	6	9	S
ED	Professional Elective III							P
	Free Elective							F
ED	Medical Image Analysis	3	0	0	3	6	12	P
BT5011	Biomaterials Engg.	3	0	0	0	6	9	P
HS	Humanities I	3	0	0	0	6	9	H
	Total	**12**	**0**	**0**	**3**	**24**	**39***	

SEMESTER VIII (January-May)

No.	Title	L	T	E	P	O	C	Cat
ED	Project I (Industry)	0	0	0	31	0	31	P
	Total	**0**	**0**	**0**	**31**	0	**31**	
Summer								
ED	Project II	**0**	**0**	**0**	**20**	**0**	**20**	P

SEMESTER IX (July-November)

No.	Title	L	T	E	P	O	C	Cat
ED	Project III	0	0	0	35	0	35	P
HS	Humanities II	3	0	0	0	6	9	H
	Total	**3**	**0**	**0**	**35**	**6**	**44**	

SEMESTER X* (January-May)

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

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B. TECH (HONOURS) + M. TECH PROGRAM:

(Total credit requirement: 556 + 27 = 583)

- ***Eligibility:*** minimum CGPA of 8.5 at the end of 5th 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 from the courses prescribed by the Department of Engineering Design. These credits have to be completed in VI, VII and IX semesters.