

All MSE Dept. Templates as per new UGARC implemented from Y22 onward

MATERIALS SCIENCE AND ENGINEERING

1. B.Tech. Template (BT)

	Semester								
	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	
Courses	SCHEME-1 [9] ELC111/ELC112/ELC113 or ETH111[3]	ETH111[3] or SCHEME-1 [9] ELC111/ELC112/ELC113	SCHEME-2 EME (9-11)	SCHEME-3 HSS-1 (9-11)		SCHEME HSS-II (9)	SCHEME HSS-II (9)	SCHEME HSS-II (9)	
	MTH111[6] / MTH113[6]	MTH113[6] / MTH111[6]	ESO202 (11)	ESC201 (14)	MSE301 (9)	ESO Basket (6-11) ⁺	DE-3 (9)	OE-3 (9)	
	MTH112[6] / MTH114[6]	MTH114[6] / MTH112[6]	ESO225 (8)	MSE202 (11)	MSE302 (9)	MSE 306* (9)	DE-4 (9)	OE-4 (9)	
	PHY114[11]	PHY113[11]	MSE201 (11)	MSE203 (11)	MSE303 (9)	DE-1 (9)	OE-1 (9)	OE-5 (9)	
	PHY111[3] / CHM111[3]	CHM111[3] / PHY111[3]	MSE204 (9)	MSE205 (8)	MSE304 (9)	DE-2 (9)	OE-2 (9)	OE-6 (6-9)	
	TA111[9] / ESC111[7]	ESC111[7] / TA111[9]			MSE305 (9)				
	CHM112[4] / ESC112[7]	ESC112[7] / CHM112[4]							
	CHM113[4] / LIF111[6]	LIF111[6] / CHM113[4]	TA211 (3)		MSE351 (3)	MSE353 (3)			
	PE111[3] / PE112[3]	PE112[3] / PE111[3]	TA212 (3)	MSE251 (3)	MSE352 (3)	MSE360 (6)			
	Credits	55/52	52/55	54-56	56-58	51	51-56	45	42-45

UGP-1 (MSE496) (4 credits) and UGP-4 (MSE499) (4 credits) are optional (over and above the minimum credit requirements)

UGP-2 (MSE497) (9 credits) can be taken in lieu of one DE course

UGP-3 (MSE498) (9 credits) can be taken in lieu of one OE course

⁺ESO Basket: ESO207/ MSO201/ HSO201/ MSO203M (One course required)

▪ **Credit required for graduation**

Course Type	Credits to be earned
Institute Core (IC)	112
SCHEME	54-58
E/SO	31-36
DC + DE	158 (122 DC + 36 DE)
Open Electives (OE)	51-54
Total	406-418

2. B.Tech.-Honours (BTH) template

Courses for Semester-1 and 2 are same as in the template for B.Tech. (Template at entry No. 1)

	semester					
	3 rd	4 th	5 th	6 th	7 th	8 th
Courses	SCHEME-2 (9-11)	SCHEME-3 HSS-1 (9-11)		SCHEME HSS-II (9)	SCHEME HSS-II (9)	SCHEME HSS-II (9)
	ESO202 (11)	ESC201 (14)	MSE301 (9)	ESO Basket (6-11) ⁺	UGP-2* (9)	UGP-3* (9)
	ESO225 (8)	MSE202(11)	MSE302 (9)	MSE 306 (9)	OE-1 (9)	OE-4 (9)
	MSE201 (11)	MSE203 (11)	MSE303 (9)	DE-1 (9)	OE-2 (9)	OE-5 (9)
	MSE204 (9)	MSE205 (8)	MSE304 (9)	DE-2 (9)	OE-3 (6-9)	OE-6 (9)
			MSE305 (9)		DEH-1 (9)	DEH-3 (9)
					DEH-2 (9)	
	TA211 (3)		MSE351 (3)	MSE353 (3)		
	TA212 (3)	MSE251 (3)	MSE352 (3)	MSE360 (6)		
	Credits	54-56	56-58	51	51-56	60-63

CPI Criteria: A student has to earn Minimum CPI of 8.0 for being eligible for B. Tech.-Honours

Remarks:

- Course taken under DEH-1/2/3 must be taken from those DEs which are 600 level or above
- *UGP-2 (MSE497) (9 credits) and UGP-3 (MSE498) (9 credits) are mandatory for BTH program
- UGP-1 (MSE496) (4 credits) and UGP-4 (MSE499) are optional (over and above the minimum credit requirements)
- *ESO Basket: ESO207/ MSO201/ HSO201/ MSO203M (One course required)

3. Bachelor of Technology and Management (BTM)

Courses for Semester-1 and 2 are same as in the template for B.Tech. (Template at entry No. 1)

	semester					
	3 rd	4 th	5 th	6 th	7 th	8 th
Courses	SCHEME-2 (9-11)	SCHEME-3 HSS-1 (9-11)		SCHEME HSS-II (9)	SCHEME HSS-II (9)	SCHEME HSS-II (9)
	ESO202 (11)	ESC201 (14)	MSE301 (9)	ESO Basket (6-11)*	MTB-1 (9)	OE-3 (9)
	ESO225 (8)	MSE202(11)	MSE302 (9)	MSE 306 (9)	MTB-2 (9)	MTB-4 (9)
	MSE201 (11)	MSE203 (11)	MSE303 (9)	DE-1 (9)	MTB-3 (9)	MTB-5 (9)
	MSE204 (9)	MSE205 (8)	MSE304 (9)	OE-1 (6-9)	OE-2 (9)	MTB-6 (9)
			MSE305 (9)			
	TA211 (3)		MSE351 (3)	MSE353 (3)		
	TA212 (3)	MSE251 (3)	MSE352 (3)	MSE360 (6)		
	Credits	54-56	56-58	51	48-56	45

- MTB-1 to MTB-6 are courses from *Management track basket* worth 54 credits
- UGP-1 (MS496) (4 credits) and UGP-4 (MSE499) are optional (over and above the minimum credit requirements)
- UGP-2 (MSE497) (9 credits) can be taken in lieu of one DE course
- UGP-3 (MSE498) (9 credits) can be taken in lieu of one OE course
- *ESO Basket: ESO207/ MSO201/ HSO201/ MSO203M (One course required)

4. *Double Major* program (For a student from another department who is seeking second major from the MSE Department)

(as per the BT template)

Odd Semester	Even Semester
Pre-Requisite	
ESO225 (8)	
TA211 (3); TA212 (3)	
Department Core Requirements	
MSE201 (11)	MSE202 (11)
MSE204 (9)	MSE203 (11)
MSE301 (9)	MSE205 (8)
MSE302 (9)	MSE306 (9)
MSE303 (9)	
MSE304 (9)	
MSE305 (9)	
Laboratory Courses	
MSE351 (3)	MSE251 (3)
MSE352 (3)	MSE353 (3)
	MSE360 (6)
Total credits 71	Total credits 51

- Total Mandatory credits for second major: 122
- Pre-Requisites: ESO225 (8 credits); TA211 and TA212 (3+3 credits) [a student should have done these courses prior to seeking entry into double major]

5. Dual Degree (B.Tech. + M.Tech.) template

- **Category-A:** for a student from the MSE department

Template for semester 1st to 6th remains same as that for B.Tech. (Template at entry No. 1)

Courses	Semester				
	7 th	8 th	Summer	9 th	10 th
	OE PG-1 (9)	OE PG-3 (9)	MTech Thesis/ DE PG-1/2 (18) (optional)	MTech Thesis (36)	MTech Thesis (36)
	OE PG-2 (9)	OE PG-4 (9)		MSE801 (0)	
DE PG-1 (9)*	DE PG-2 (9)*				
Credits	27	27	18	36	36

- *Students from within Department can use up to 2 DE UG courses for PG part, that is, they can get up to 18 credits of waiver in their PG part in lieu of 2 DE courses taken in their UG part.
- MSE801 is compulsory for all students

- **Category-B:** for a student from the department other than MSE

Template for semester 1st to 6th will be as per the template of the parent department of the student

Courses	semester				
	7 th	8 th	Summer	9 th	10 th
	OE PG-1 (9)	OE PG-3 (9)	MTech Thesis (18)	MTech Thesis (27)	MTech Thesis (27)
	OE PG-2 (9)	OE PG-4 (9)		DE PG-1 (09)	DE PG-2 (09)
			MSE801 (0)		
Credits	18	18	18	36	36

- MSE801 is compulsory for all students

6. Minor

Can be given in any of the three streams if a student completes 18 or more credits in a particular stream (Stream names to be revised later, and courses in individual streams would be revise and communicated later)

- Devices and Bio-Engineering Stream
- Structure-Characterization Stream
- Metals Processing Stream