

Report of the Core Curriculum Committee

First (I) Semester of the Year 2021-22

1. Guidelines for Drawing Instructors and Tutors from Various Departments

1.1 List of Core Courses and respective Departments handling them as per MA Committee and/or agreements between/among departments when Instructors are drawn from multiple Departments

Course No. and Title	Departments			
	2020-21 & 2021-22	2022-23 & 2023-24	2024-25 & 2025-26	2026-27 & 2027-28
TA101(Engineering Graphics)	ME	CE	AE	CE
ESO201(Thermodynamics)	CHE	ME	CHE	AE
ESO202(Solid Mechanics)	CE	AE	CE	ME
ESO204(Fluid Mechanics)	AE	CHE	ME	CHE
HSS-1	HSS/ECO	HSS/ECO	HSS/ECO	HSS/ECO
HSS-2	HSS/ECO	HSS/ECO	HSS/ECO	HSS/ECO

1.2 List of Core Courses and respective Departments handling them as per MA Committee when Instructors are drawn from a fixed Department

Department	Course(s)
BSBE	LIF101, ESO206
CHM	CHM101, CHM102R
CE	ESO208
CSE	ESC101, ESO207
EE	ESC201, ESO203
ES	ESO213
HSS	ENG112, COM200
ME	TA202, ESO209
MSE	TA201, ESO205
MTH	MTH101, MTH102, MSO201, MSO202a, MSO203b
PHY	PHY101, PHY102, PHY103, PSO201

1.3 List of Core Courses and Respective Departments that will provide Theory and Lab Tutors / Instructors

Course no.	Course Name	Departments That Provide Tutors / Lab Instructors
CHM101	Chemistry Lab	CHM
MTH101	Mathematics-I	MTH
PHY101	Physics Lab	PHY
PHY102	Physics-I	PHY
PHY103	Physics-II	PHY
ESC101	Fundamentals of Computing	CSE
LIF101	Life Science	BSBE
TA101	Engineering Graphics	AE, CE, ME
ENG112	English Language and Communications Skills	HSS
HSS-I (1)	Humanities-I	HSS, ECO
ESC201	Introduction to Electronics	EE
TA201	Manufacturing Processes I	MSE
TA202	Manufacturing Processes II	ME
COM200	Communication Skills: Composition	CE, IME, HSS, ES, ECO
HSS-I (2)	Humanities-I	HSS
HSS-II	Humanities-II	HSS, ECO
ESO201	Thermodynamics	AE, CHE, ME
ESO202	Mechanics of Solids	AE, CE, ME
ESO203	Introduction to Electrical Engineering	EE
ESO204	Fluid Mechanics and Rate Processes	AE, CHE, ME
ESO205	Nature and Properties of Materials	CHE, MSE,
ESO206	Principles of Biotechnology	BSBE
ESO207	Data Structures and Algorithms	CSE
ESO208	Computational Methods in Engg.	CHE, CE, ME
ESO209	Dynamics	AE, ME
ESO213	Fundamentals of Earth Sciences	ES
MSO202a	Complex Variables	ME, MTH, EE, AE
MSO203b	Partial Differential Equations	AE, CE, ME, MSE, MTH, EE
MTH102R	Mathematics-II	MTH

Note: Table is constructed largely using data from previous years.

2. Estimate of Number of Students in Core Courses in First (I) Semester during the Year 2021-22

Course Group	Course No.	Course title	Estimated number of New students	No. of students having fail backlogs	No. of students registered in 2020-21-I	Final estimate for 2021-22-I
First Semester Courses	CHM101	Chemistry Lab	600	00	00	600
	MTH101	Mathematics-I	1200	100	1200	1300
	PHY101	Physics Lab	600	00	00	600
	PHY102	Physics-I	600	00	590	600
	PHY103	Physics-II	600	00	567	600
	ESC101	Fundamentals of Computing	600	00	576	600
	LIF101	Life Sciences	600	00	590	600
	TA101	Engineering Graphics	600	00	594	600
	ENG112	English Language and Communication Skills	160	00	119	160
Third Semester Courses	ESC201	Introduction to Electronics	600	12	598	600
	TA201	Manufacturing Processes I	600	06	945	600
	TA202	Manufacturing Processes II	600	02	963	600
	COM200	Communication Skills: Composition	700	01	580	700
HSS Courses	HSS-I (1st year)	Humanities-I	1050	-	1050	1050
	HSS-I (2nd year)	Humanities-I	600	50	-	650
	HSS -II	Humanities-II	1200	-	-	1200
Engineering Science Options	ESO201	Thermodynamics	357	28	293	400
	ESO202	Mechanics of Solids	280	33	220	300
	ESO203	Introduction to Electrical Engineering	50	00	27	50
	ESO204	Fluid Mechanics and Rate Processes	330	04	316	350
	ESO205	Nature and Properties of Materials	210	01	193	210
	ESO206	Principles of Biotechnology	180	04	154	180
	ESO207	Data Structures and Algorithms	250	05	241	250
	ESO208	Computational Methods in Engg.	350	08	304	350
	ESO209	Dynamics	250	46	252	250
Science Options	ESO213	Fundamentals of Earth Sciences	180	00	307	180
	MSO202a	Complex Variables	410	13	375	425
Repeat	MSO203b	Partial Differential Equations	630	38	671	675
	MTH102A	Mathematics-II	-	-	09	09
	CHM102A	General Chemistry	-	-	05	05

3. Core Course Teaching Support Requirement in First (I) Semester during the Year 2021-22

Course(s)	Course No.	Course title	Credits	Estimated No. of students	Students per Section (approx.)	No. of sections	Theory tutors	Lab. tutors	Instruction units	Total (Instruction and tutorial/lab) units	
First Semester Courses	CHM101	Chemistry Lab	0-0-3 [03]	600	38	16	--	16	1.0	17.0	
	MTH101	Mathematics-I	3-1-0 [11]	1300	100	12	12	--	4.0	16.0	
	PHY101	Physics Lab	0-0-3 [03]	600	38	16	--	16	1.0	17.0	
	PHY102	Physics-I	3-1-0 [11]	600	100	06	06	--	4.0	10.0	
	PHY103	Physics -II	3-1-0 [11]	600	100	06	06	--	4.0	10.0	
	ESC101	Fund. Of Computing	3-1-3 [14]	600	38	16	16	16	4.0	20.0	
	LIF101	Life Sciences	2-0-0 [06]	600	-	--	--	--	3.0	03.0	
	TA101	Engineering Graphics	2-0-3 [09]	600	38	16	--	16	3.0	19.0	
	ENG112	English Language and Comm. Skills	3-1-0 [11]	160	40	04	04	--	2.0	06.0	
Third Semester Courses	HSS-I (1)	Humanities-I	3-1-0-[11]	1050	41	26	26	--	4.0	30.0	
	ESC201	Introduction to Electronics	3-1-3 [14]	600	30	20	20	20	4.0	24.0	
	TA201	Manufact. Proc. I(MSE)	1-0-3 [06]	600	120	05	--	05	2.0	07.0	
	TA202	Manufact. Proc. II (ME)	1-0-3 [06]	600	120	05	--	05	2.0	07.0	
	COM200	Communication Skills: Composition	1-0-2 [05]	700	35	20	--	20	2.0	22.0	
HSS-I (2)	Humanities-I	3-1-0 [11]	650	41	16	16	--	4.0	20.0		
HSS-2	HSS-II	Humanities-II	3-0-0 [09]	1200	-	-	-	--	4.0	04.0	
Engg. Science Options	ESO201	Thermodynamics	3-1-0 [11]	400	40	10	10	--	2.0	12.0	
	ESO202	Mechanics of Solids	3-1-0 [11]	300	38	08	08	--	2.0	10.0	
	ESO203	Intro. Electrical Engg.	3-1-2 [13]	50	35	02	02	02	1.0	03.0	
	ESO204	Fld. Mech. and Rate Proc.	3-1-0 [11]	350	35	10	10	--	2.0	12.0	
	ESO205	Nat. and Prop. of Mat.	3-1-3 [14]	210	35	06	06	06	2.0	08.0	
	ESO206	Biotechnology	3-0-0 [9]	180	-	-	--	--	2.0	02.0	
	ESO207	Data Structures and Algorithms	3-0-0 [09]	250	-	-	--	--	2.0	02.0	
	ESO208	Computational Methods in Engg.	3-1-0 [11]	350	40	10	10	--	2.0	12.0	
	ESO209	Dynamics	2-1-0 [08]	250	42	06	06	--	1.5	07.5	
ESO213	Fundamentals of Earth Sciences	3-0-0 [09]	180		--	--	--	2.0	02.0		
Science Options	MSO202a	Complex Variables	3-1-0 [6]	425	100	04	04/2=2.0	--	1.0	03.0	
	MSO203b	Partial Diff. Equations	3-1-0 [6]	675	100	06	06/2=3	--	2.0	05.0	
Repeat	MTH102R	Mathematics-II	3-1-0 [11]	09	35	01	01	--	1.0	02.0	
	CHM102R	General Chemistry	2-1-0 [08]	05	35	01	01	--	1.0	02.0	
Total Units Required =				Science Units =			Engineering Science Units =			Other Units =	

Note:

1. When a course has tutorials and lab, then the tutor is supposed to take care of both.

2. Instruction Units:

Only lab course: 1.0; Lecture Course (class size < 60): 1.0;

Lecture Course (60 _class size < 150): 1.5; Lecture Course (150 _class size < 600): 2.0 (3 lec/wk), 1.5 (2 lec/wk), 1.0 (1 lec/wk);

Lecture Course (600 _class size): 4.0 (3 lec/wk), 3.0 (2 lec/wk), 2.0 (1 lec/wk); Tutorials: 1.0

3. TA201 lab capacity is 120 and it is split into 4 sections. One instructor handles all the 4 sections simultaneously. In all other courses the section size may be increased by at most 5.

4. Department/IDP-wise Breakup of Instructor's and/or Tutors for Core Courses in First (I) Semester during the Year 2020-21

Course No.	Course Name	Units Req.	AE	BSBE	CHE	CE	CSE	EE	IME	ME	MSE	CHM	MTH	PHY	HSS	ES	ECO	TOTAL
CHM 101	Chemistry Lab	17.0										1+16						1+16
MTH 101	Mathematics-I	16.0											4+12					4+12
PHY101	Physics Lab	17.0												1+16				1+16
PHY102	Physics-I	10.0												4+6				4+6
PHY103	Physics -II	10.0												4+6				4+6
ESC101	Fund. Of Computing	20.0					4+16											4+16
LIF101	Life Sciences	03.0		3+0														3+0
TA101	Engineering Graphics	19.0	0+3			0+6				3+7								3+16
ENG112	English Language	06.0													2+4			2+4
HSS-I (1) [#]	Humanities-I (*)	30.0													3+21		1+5	4+26
HSS-II	Humanities-II (*)	04.0													3+0		1+0	4+0
ESC201	Electronics	24.0						4+20										4+20
TA201	Manufact. Proc. (MSE)	07.0									2+5							2+5
TA202	Manufact. Proc. (ME)	07.0								2+5								2+5
COM200	Communication Skills	22.0							0+15						2+3	0+1	0+1	2+20
HSS-I (2) [#]	Humanities-I	20.0												4+16				4+16
ESO201	Thermodynamics	12.0	0+3		2+5					0+2								2+10
ESO202	Mechanics of Solids	10.0	0+2			2+4				0+2								2+8
ESO203	Intro. Electrical Engg.	03.0						1+2										1+2
ESO204	Fld. Mech. and Rate	12.0	2+5		0+3					0+2								2+10
ESO205	Nat. and Prop. of Mat.	08.0			0+1						2+5							2+6
ESO206	Biotechnology	02.0		2+0														2+0
ESO207	Data Structures	02.0					2+0											2+0
ESO208	Numerical Methods	12.0			0+4	2+4				0+2								2+10
ESO209	Dynamics	07.5	0+2							1.5+4								1.5+6
ESO213	Fundamentals of ES	02.0														2+0		2+0
MSO202a	Complex Variables [§]	3.0	0+1 (0.5)					0+2 (1.0)		0+1 (0.5)			1+0					1+2
MSO203b	Partial Diff. Equations [§]	05.0	0+1 (0.5)			0+1 (0.5)		0+2 (1.0)		0+1 (0.5)	0+1 (0.5)		2+0					2+3
MTH102A	Mathematics-II	02.0											1+1					1+1
CHM102A	General Chemistry	02.0										1+1						1+1
Total Load Assigned		314.5	18	5	15	18.5	22	29	15	31.5	14.5	19	21	37	58	3	8	
Approximate Faculty Strength			28	19	23	40	32	46	17	41	26	37	47	41	28	10	13	448
Ratio of Load Assigned: Faculty			0.64	0.26	0.65	0.46	0.69	0.63	0.88	0.77	0.56	0.51	0.45	0.9	2.0	0.3	0.61	

- Units are assigned as 'm + n', where 'm' indicate instructor units and 'n' indicates tutor units.
- [§] The unit assigned is halved for half semester courses
- Economic Sciences shall offer one HSS I and one HSS II each semester.

Appendix

Important Information Regarding Individual Section Sizes for Various Courses and Work Load

1. Tutorial section sizes have been fixed based on last year's CCC data/report and with inputs from respective HODs.
2. One tutor will be assigned per section (normally 38 students) for PHY101 and CHM101 laboratory sessions.
3. One tutor will be assigned per day (i.e., per four sections, i.e., ~ 120 students) for TA201 and TA202 labs.
4. Tutors assigned for ESC101, ESC201, ESO203 and ESO205 tutorials will also take care of the laboratory sessions of the same sections.
5. Increasing the number of sections in any course is undesirable.
6. Student number in each section may be increased slightly, i.e., up to 40 in sections normally having 35 students and up to 110 in sections normally having 100 students to prevent increase in the number of sections.
7. The total registration in some courses has to be restricted considering seating capacity of the lecture hall assigned for the course.
8. The number of sections in some ESO/SO courses may be reduced in certain cases after registration, in case the number of students registered is less than expected.



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