

Report of the Core Curriculum Committee

First (I) Semester of the Year 2022-23

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, CHM102, CHM103, CSO201, CSO202, CSO203
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, PHY104, PHY105, 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
CHM102	TBD	CHM
CHM103	TBD	CHM
MTH101	Mathematics-I	MTH
PHY101	Physics Lab	PHY
PHY102	Mechanics and Oscillations	PHY
PHY103	Classical & Quantum phenomena and Relativity	PHY
PHY104	Electricity & Magnetism and Electromagnetic Waves	PHY
PHY105	Maxwell's equations and Wave phenomena	PHY
ESC101	Fundamentals of Computing	CSE
LIF101	Life Science	BSBE
TA101	Engineering Graphics	AE, CE, ME
ENG112/ELC101*/ELC10X ^{##}	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 Engineering	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. ^{##} Details of ELC not yet available.

2. Estimate of Number of Students in Core Courses in First (I) Semester during the Year 2022-23

Course Group	Course No.	Course title	Estimated number of New students	No. of students having fail backlogs	No. of students registered in 2021-22-I	Final estimate for 2022-23-I
First Semester Courses	CHM101	Chemistry Lab	600	00	00	600
	CHM102 [#]	TBD	600	00	00	600
	CHM103 [#]	TBD	600	00	00	600
	MTH101	Mathematics-I	1200	100	1200	1300
	PHY101	Physics Lab	600	00	00	600
	PHY102/103/104/105	Physics-I	600	00	590	600
	PHY102/103/104/105	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	800	00	791	800
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	300	25	306	350
	ESO202	Mechanics of Solids	280	25	286	300
	ESO203	Introduction to Electrical Engineering	50	00	64	50
	ESO204	Fluid Mechanics and Rate Processes	330	35	734	350
	ESO205	Nature and Properties of Materials	210	05	234	210
	ESO206	Principles of Biotechnology	180	10	255	180
	ESO207	Data Structures and Algorithms	250	05	241	250
	ESO208	Computational Methods in Engg.	350	15	354	350
	ESO209	Dynamics	250	30	252	250
	ESO213	Fundamentals of Earth Sciences	150	00	109	125

Science Options	MSO202a	Complex Variables	425	15	443	425
	MSO203b	Partial Differential Equations	650	25	675	710
Repeat	MTH102A	Mathematics-II	-	-		10

#: CHM102 and CHM103 will run as modular courses twice in each semester. Both courses are IC courses.

3. Core Course Teaching Support Requirement in First (I) Semester during the Year 2022-23

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
	CHM102	TBD	2-1-0 [04]	600	40	15	15	-	3.0	18.0
	CHM103	TBD	2-1-0 [04]	600	40	15	15	-	3.0	18.0
	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
	PHY102/103/104/105	Physics-I	3-1-0 [11]	600	100	06	06	--	4.0	10.0
	PHY102/103/104/105	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
	ELC101*/10X	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
HSS-I (1)	Humanities-I	3-1-0-[11]	1050	41	26	26	--	4.0	30.0	
Third Semester Courses	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]	800	40	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]	350	35	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]	150		--	--	--	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]	650	100	06	06/2=3	--	2.0	05.0
Repeat	MTH102R	Mathematics-II	3-1-0 [11]	10	35	01	01	--	1.0	02.0

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
CHM102	TBD	18.0										3+15						3+15
CHM103	TBD	18.0										3+15						3+15
MTH 101	Mathematics-I	16.0											4+12					4+12
PHY101	Physics Lab	17.0												1+16				1+16
PHY102/103/104/105	Physics-I	10.0												4+6				4+6
PHY102/103/104/105	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			3+6				0+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		0+5					2+2								2+10
ESO202	Mechanics of Solids	10.0	2+2			0+4				0+2								2+8
ESO203	Intro. Electrical Engg.	03.0						1+2										1+2
ESO204	Fld. Mech. and Rate	12.0	0+5		2+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
Total Load Assigned		348.5	18	5	15	19.5	22	29	15	30.5	14.5	53	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	0.49	0.69	0.63	0.88	0.75	0.56	1.43	0.45	0.9	2.0	0.3	0.61	
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- 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.
9. Some details are subject to change as per the new UGARC implementation.
10. Ethics course: no data on which department will teach.

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