Report of the Core Curriculum Committee

First (I) Semester of the Year 2023-24

1. Guidelines for Drawing Instructors and Tutors from Various Departments

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

Course No. and Title	Departments			
	2022-23 & 2023-24	**2024-25 & 2025-26**	**2026-27 & 2027-28**	**2028-29 & 2029-30**
TA111(Engineering Graphics)	CE	AE	CE	ME
ESO201(Thermodynamics)	ME	CHE	AE	CHE
ESO202(Solid Mechanics)	AE	CE	ME	CE
ESO204(Fluid Mechanics)	CHE	ME	CHE	AE
HSS-1	HSS	HSS	HSS	HSS
HSS-2	HSS	HSS	HSS	HSS

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

Department	Course(s)
BSBE	LIF111, ESO206
CHM	CHM111, CHM112M, CHM113M, CSO201, CSO202, CSO203
CE	ESO208
CSE	ESC111M, ESC112M, ESO207
EE	ESC201, ESO203
ES	ESO213
ME	TA202
MSE	TA201, ESO225
MTH	MTH111M, MTH112M, MSO201, MSO202M, MSO203M,MSO205
ECO	HSO201
PHY	PHY111, PHY112, PHY113, PHY114, PHY115, 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
CHM111	Chemistry Lab	CHM
CHM112M	General Chemistry: Physical Chemistry	CHM
CHM113M	General Chemistry: Inorganic & Organic Chemistry	CHM
MTH111M	Single Variable Calculus	MTH
MTH112M	Application Of Single Variable Calculus & Several Variable Calculus	MTH
PHY111	Physics Laboratory	PHY
PHY112	Classical Dynamics	PHY
PHY113	Classical Electrodynamics	PHY
PHY114	Quantum Physics	PHY
PHY115	Oscillations And Waves	PHY
ESC111M	Fundamentals Of Computing - I	CSE
ESC112M	Fundamentals Of Computing - II	CSE
LIF111	Introduction To Biology	BSBE
TA111	Engineering Graphics	AE, CE, ME
HSS-I (1)	Humanities-I	HSS
ESC201	Introduction to Electronics	EE
TA201	Manufacturing Processes I	MSE
TA202	Manufacturing Processes II	ME
HSS-I (2nd Year)	Humanities-I	HSS
HSS-II	Humanities-II	HSS,
ESO201	Thermodynamics	AE, CHE, ME, ES
ESO202	Mechanics of Solids	AE, CE, ME
ESO204	Fluid Mechanics and Rate Processes	AE, CHE, ME, ES
ESO225	Nature and Properties of Materials	MSE,
ESO206	Principles of Biotechnology	BSBE
ESO207	Data Structures and Algorithms	CSE
ESO208	Computational Methods in Engg.	CE
ESO213	Fundamentals of Earth Sciences	ES
MSO202M	Complex Variables	ME, MTH, EE, AE, PHY
MSO203M	Partial Differential Equations	AE, CE, ME, MSE, MTH, EE, PHY
HSO201	Applied Probability And Statistics	ECO, CE

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 2023-24

Course Group	Course No.	Course title	Estimated number of New students	No. of students having fail backlogs	No. of students registered in 2022-23-I	Final estimate for 2023-24–I
First Semester Courses	CHM111	Chemistry Lab	600	00	600	600
	CHM112M	General Chemistry: Physical Chemistry	600	10	620	630
	CHM113M	General Chemistry: Inorganic & Organic Chemistry	600	30	620	650
	MTH111M	Single Variable Calculus	1220	208	1220	1428
	MTH112M	Application Of Single Variable Calculus & Several Variable Calculus	1220	198	1220	1418
	PHY111	Physics Lab	620	2	620	622
	PHY112	Classical Dynamics	368	00	368	370
	PHY113	Classical Electrodynamics	382	4	382	386
	PHY114	Quantum Physics	221	75	221	300
	PHY115	Oscillations And Waves	249	20	249	270
	ESC111M	Fundamentals Of Computing - I	600	27	600	627
	ESC112M	Fundamentals Of Computing - II	600	17	600	617
	LIF111	Introduction To Biology	600	16	600	620
	TA111	Engineering Graphics	620	32	620	652
	ETH111	Practical Ethics	600	17	600	620
	ELC111/112/113	English Language & Communication	620	4	620	620
	PE111	Morning Exercise	1220	109	1220	1329
Third Semester Courses	EME	Economics Management & Engg.	600			600
	ESC201	Introduction to Electronics	602			602
	TA201	Manufacturing Processes I	346			346
	TA202	Manufacturing Processes II	277			277
	HSS-I (2nd year)	Humanities-I	600	50	650	650
	HSS -II	Humanities-II	1800	100	1900	1900
Engineering Science Options	ESO201	Thermodynamics	296			
	ESO202	Mechanics of Solids	302			
	ESO204	Fluid Mechanics and Rate Processes	216			
	ESO225	Nature and Properties of Materials	85			
	ESO206	Principles of Biotechnology	53			
	ESO207	Data Structures and Algorithms	273			
	ESO208	Computational Methods in Engg.	148			
	ESO213	Fundamentals of Earth Sciences	43			
Science Options	MSO202M	Complex Variables	483			
	MSO203M	Partial Differential Equations	603			
	MSO205	Introduction To Probability Theory	100	-	100	100
	HSO201	Applied Probability And Statistics	200	-	200	200

3. Core Course Teaching Support Requirement in First (I) Semester during the Year 2023-24

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	CHM111	Chemistry Lab	0-0-3 [03]	600	30	20	--	20	1.0	20+1=21
	CHM112M	General Chemistry: Physical Chemistry	2-1-0 [04]	600	100	6	6	--	3.0	3+6=9/2
	CHM113M	Gen. Chemistry: Inorganic & Org. Chemistry	2-1-0 [04]	600	100	6	6	--	3.0	3+6=9/2
	MTH111M	Mathematics-I	3-1-0 [11]	1400	100	14	14	--	4.0	14+4=18/2
	MTH112M	App. Of Single Variable Calculus & Several Variable Calculus	3-1-0 [11]	1400	100	14	14		4.0	14+4=18/2
	PHY111	Physics Lab	0-0-3 [03]	622	31	20		20	1.0	20+1=21
	PHY112	Classical Dynamics	3-1-0 [11]	370	100	04	04	--	2.0	4+2=6
	PHY113	Classical Electrodynamics	3-1-0 [11]	386	100	04	04	--	2.0	4+2=6
	PHY114	Quantum Physics	3-1-0 [11]	300	100	03	03	--	2.0	3+2=5
	PHY115	Oscillations And Waves	3-1-0 [11]	270	100	03	03	--	2.0	3+2=5
	ESC111M	Fund. Of Computing-I	3-1-3 [7]	627	31	20	20	20	4.0	20+20+4=44/2
	ESC112M	Fundamentals Of Computing - II	3-1-3 [7]	617	31	20	20	20	4.0	20+20+4=44/2
	LIF111	Life Sciences	2-0-0 [06]	600	-	--	--	--	3.0	03.0
	TA111	Engineering Graphics	2-0-3 [09]	652	33	20	--	20	3.0	20+3=23
	ETH111	Practical Ethics	1-0-0-2[03]	620	30	20				2+20=22[†]
	ELC111	English Language & Communication (Basic) (Scheme)	2-1-0-0[09]	300	Instructor for ELC111/112/113 will be provided by the DOAA office. However, all the departments need to provide TAs to manage this course.					
	ELC112	English Language & Communication (Intermediate) (Scheme)	2-1-0-0[09]	150						
	ELC113	English Language & Communication (Advanced) (Scheme)	2-1-0-0[09]	150						
Third Semester Courses	EME (Basket)	Economics Management & Engg. (Three courses)	3-0-0-0[09]	600					6.0	6.0 (2.0 per course)
	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
	HSS-I	Humanities-I	3-1-0 [11]	650	41	16	16	--	4.0	20.0
HSS-2	HSS-II	Humanities-II	3-0-0 [09]	1800	-	-	-	--	4.0	04.0
	ESO201	Thermodynamics	3-1-0 [11]	300	38	08	08	--	2.0	08+2.0
	ESO202	Mechanics of Solids	3-1-0 [11]	300	38	08	08	--	2.0	08+2.0
	ESO204	Fld. Mech. and Rate Proc.	3-1-0 [11]	225	38	06	06	--	2.0	06+2.0
	ESO225	Nat. and Prop. of Mat.	2-1-0 [08]	90	35	03	03	--	1.0	03+01
	ESO206	Biotechnology	3-0-0 [09]	60	-	-	--	--	1.0	01.0
	ESO207	Data Structures and Algorithms	3-0-0 [12]	300	-	-	--	--	2.0	02.0
	ESO208	Computational Methods in Engg.	3-1-0 [11]	350	40	09	09	--	2.0	09+02
	ESO213	Fundamentals of Earth Sciences	3-0-0 [09]	50		--	--	--	1.0	01.0
Science Options	MSO202M	Complex Variables	3-1-0 [06]	483	100	05	05/2=2.5	--	2.0	2.5+02
	MSO203M	Partial Diff. Equations	3-1-0 [06]	650	100	07	07/2=3.5	--	2.0	3.5+02
	MSO205	Introduction To Probability Theory	3-1-0 [11]	100	100	01	1	-	1.0	01+01
	HSO201	Applied Probability And Statistics	3-1-0 [11]	200	100	02	2	-	1.0	03.0
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. “M” indicates modular courses.
5. ELC111/ELC112/ELC113 will be managed by DOAA but TAs will be provided by all the departments.
6. Based on the number of students and offering of the repeat courses, the report will be updated accordingly.

†It should be counted as 20 units only though calculation also includes 2 instruction units as per the formula.

Third semester courses are tentative. There may be slight changes in certain courses.

4. Department/IDP-wise Breakup of Instructor's and/or Tutors for Core Courses in First (I) Semester during the Year 2023-24

Course No.	Course Name	Units Req.	AE	BSBE	CHE	CE	CSE	EE	IME	ME	MSE	CHM	MTH	PHY	HSS	ES	ECO	SEE	DP	CGS	SSA	TOTAL
ETH111	Ethics	20.0	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	20+0
CHM111	Chemistry Lab	20+1=21										1+20										1+20
CHM112M	General Chemistry: Physical Chemistry	3+6=9/2										3+6										3+6
CHM113M	General Chemistry: Inorganic & Organic Chemistry	3+6=9/2										3+6										3+6
MTH111M	Single Variable Calculus	14+4=18/2											4+14									4+14
MTH112M	Application Of Single Variable Calculus & Several Variable Calculus	14+4=18/2											4+14									4+14
PHY111	Physics Laboratory	20+1=21												1+20								1+20
PHY112	Classical Dynamics	4+2=6												2+4								2+4
PHY113	Classical Electrodynamics	4+2=6												2+4								2+4
PHY114	Quantum Physics	3+2=5												3+2								3+2
PHY115	Oscillations And Waves	3+2=5												3+2								3+2
ESC111M	Fund. Of Computing – I	20+20+4=44/2					4+20															4+20
ESC112M	Fund. Of Computing – II	20+20+4=44/2					4+20															4+20
LIF111	Introduction To Biology	3.0		3+0																		3+0
TA111	Engineering Graphics	20+3=23	0+5			3+6				0+9												3+20
ELC111	English Language																					
ELC112	English Language																					
ELC113	English Language																					
HSS-I	Humanities-I	20.0													4+16							4+16
HSS-II	Humanities-II	04.0													04							04
EME	Economics Management & Engg.	06				2+0			2+0								2+0					6+0
ESC201	Introduction to 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
ESO201	Thermodynamics	10.0			0+4					2+3						0+1						2+8
ESO202	Mechanics of Solids	10.0	2+0			0+5					0+3											2+8
ESO204	Fld. Mech. and Rate	08.0	0+3		2+2											0+1						2+6
ESO225	Nat. and Prop. of Mat.	04.0									1+3											1+3
ESO206	Biotechnology	01.0		1+0																		1+0
ESO207	Data Structures	02.0					2+0															2+0
ESO208	Computational Methods in Engg.	11.0			0+3	2+4				0+2												2+9
ESO213	Fundamentals of ES	01.0														1+0						1+0
MSO202M	Complex Variables	4.5	0+1 (0.5)					0+2 (1.0)		0+1 (0.5)			2+0	0+1 (0.5)								2+2.5

MSO203M	**Partial Diff. Equations**	**5.5**	**0+1 (0.5)**			**0+2 (1.0)**		**0+2 (1.0)**		**0+1 (0.5)**			**2+0**	**0+1 (0.5)**								**2+3.5**
MSO205	**Introduction To Probability Theory**	**2.0**											**1+1**									**1+1**
HSO201	**Applied Probability And Statistics**	**3.0**				**0+1**											**1+1**					**1+2**
Total Load Assigned			**12**	**5**	**12**	**25**	**47**	**27**	**3**	**26**	**15**	**31**	**25**	**45**	**21**	**4**	**5**	**1**	**1**	**1**	**1**	
Approximate Faculty Strength		-	**31**	**23**	**26**	**44**	**33**	**54**	**26**	**44**	**28**	**39**	**54**	**48**	**32**	**16**	**20**	**9**	**6**	**5**	**3**	**541**
Ratio of Load Assigned: Faculty			**0.38**	**0.21**	**0.46**	**0.56**	**1.42**	**0.5**	**0.11**	**0.59**	**0.53**	**0.79**	**0.46**	**0.93**	**0.65**	**0.25**	**0.25**	**0.1**	**0.16**	**0.20**	**0.33**	

- Units are assigned as 'm + n', where 'm' indicate instructor units and 'n' indicates tutor units.
- M: The unit assigned is halved for half semester courses
- Civil Engineering. Economic Sciences and Industrial Management & Engineering departments will offer one EME courses in 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 PHY111 and CHM111 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 ESC111M, ESC111M and ESC201 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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