Draft Report of the Core Curriculum Committee

First Semester of the Year 2025-26

1. Guidelines for Drawing Instructors and Tutors from Various Departments (As per the New Guidelines 2024 for preparation of CCC report).

Table 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					
	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
TA111(Engineering Graphics)	AE	AE	CE	CE	ME	ME
ESO201(Thermodynamics)	CHE	CHE	AE	CHE	CHE	ME
ESO202(Solid Mechanics)	CE	CE	ME	ME	AE	AE
ESO204(Fluid Mechanics)	ME	CHE	CHE	AE	CHE	CHE

Table 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
CE	ESO208, CE212
CHM	CHM111, CHM112M, CHM113M,
CSE	ESC111M, ESC112M, ESO207
DMS	DMS201
EE	ESC201
ES	ESO213, ES208
ECO	HSO201, ECO111
HSS	HSS-1, HSS-2
ME	TA212
MSE	TA211, ESO225
MTH	MTH111M, MTH112M, MSO202M, MSO203M, MSO205
PHY	PHY111, PHY112, PHY113, PHY114, PHY115, PSO201

Table 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
ESC111M	Fundamentals Of Computing - I	CSE
ESC112M	Fundamentals Of Computing - II	CSE
ESC201	Introduction to Electronics	EE
ESO201	Thermodynamics	CHE, ES, ME
ESO202	Mechanics of Solids	AE, CE, MSE
ESO204	Fluid Mechanics and Rate Processes	AE, CHE, ES
ESO206	Principles of Biotechnology	BSBE
ESO207	Data Structures and Algorithms	CSE
ESO208	Computational Methods in Engg.	CE
ESO213	Fundamentals of Earth Sciences	ES
ESO225	Nature and Properties of Materials	MSE
ETH111	Practical Ethics	All dept.
HSO201	Applied Probability And Statistics	CE, ECO
HSS-I	Humanities-I	HSS
HSS-II	Humanities-II	HSS
LIF111	Introduction To Biology	BSBE
MSO202M	Complex Variables	AE, EE, ME, MTH, PHY
MSO203M	Partial Differential Equations	AE, CE, EE, ME, MSE, MTH, PHY
MSO205	Introduction To Probability Theory	MTH
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
PSO201	Quantum Physics	PHY
EME-CE212	Environment And Sustainability	CE
EME-DMS201	Introduction To Management	DMS
EME-ES208	Earth and Environment	ES
EME-ECO111	Economy, Society & Public Policy	ECO
TA111	Engineering Graphics	AE, CE, ME, MSE
TA211	Manufacturing Processes I	MSE
TA212	Manufacturing Processes II	ME

2. Estimate of Number of Students in Core Courses in Second (II) Semester during the Year 2025-26

Table 4: List of core courses and estimate of number of students

Course Group	Course No.	Course Title	L	T	P	Credit	Inst. Unit/ 90 Students	Tutorial Unit per Section	No. of students registered in 2024-25-I	Estimated number of New Students	No. of students having fail backlogs	Final estimate for 2025-26-I
1st Semester IC Courses	CHM111	Chemistry Lab	0	0	3	3	1.5	1.5	605	600	3	603
	CHM112M	General Chemistry: Physical Chemistry	2	1	0	8	1.25	0.25	621	600	32	632
	CHM113M	General Chemistry: Inorganic & Organic Chemistry	2	1	0	8	1.25	0.25	612	600	22	622
	MTH111M	Single Variable Calculus	3	1	0	11	1.75	0.25	1228	1220	138	1358
	MTH112M	Application Of Single Variable Calculus & Several Variable Calculus	3	1	0	11	1.75	0.25	1300	1220	113	1333
	PHY111	Physics Laboratory	0	0	3	3	1.5	1.5	611	620	7	627
	PHY112	Classical Dynamics	3	1	0	11	3.5	0.5	376	368	30	398
	PHY113	Classical Electrodynamics	3	1	0	11	3.5	0.5	388	382	24	406
	PHY114	Quantum Physics	3	1	0	11	3.5	0.5	238	221	42	263
	PHY115	Oscillations And Waves	3	1	0	11	3.5	0.5	243	249	22	271
	ESC111M	Fundamentals Of Computing - I	3	1	3	14	2.5	1	609	600	2	602
	ESC112M	Fundamentals Of Computing - II	3	1	3	14	2.5	1	557	600	1	601

Course Group	Course No.	Course Title	L	T	P	Credit	Inst. Unit/ 90 Students	Tutorial Unit per Section	No. of students registered in 2024-25-I	Estimated number of New Students	No. of students having fail backlogs	Final estimate for 2025-26-I
	LIF111	Introduction To Biology	2	0	0	6	2		620	600	23	623
	TA111	Engineering Graphics	2	0	3	9	3.5	1.5	620	620	19	639
	ETH111	Practical Ethics*	1	0	0	3	1		626	600	17	617
	ELC111/112/113	English Language & Communication							645	620	3	623
	PE111	Morning Exercise							1238	1220	10	1230
Engineering Science Options	ESO201	Thermodynamics	3	1	0	11	3.5	0.5	379	300	18	318
	ESO202	Solid Mechanics	3	1	0	11	3.5	0.5	322	302	37	339
	ESO204	Fluid Mechanics	3	1	0	11	3.5	0.5	262	216	7	223
	ESO206	Principles of Biotechnology	3	0	0	9	3		165	53	2	55
	ESO207	Data Structures and Algorithms	3	0	3	12	4.5		369	273	8	281
	ESO208	Computational Methods in Engg.	3	1	0	11	3.5	0.5	242	148	1	149
	ESO213	Fundamentals of Earth Sciences	3	0	0	9	3		228	43	9	52
	ESO225	Nature and Properties of Materials	2	1	0	8	2.5	0.5	94	85	5	90
	TA211	Manufacturing Processes I	0	0	3	3	1.5	1.5	302	305	1	306
	TA212	Manufacturing Processes II	0	0	3	3	1.5	1.5	291	280	0	280

Course Group	Course No.	Course Title	L	T	P	Credit	Inst. Unit/ 90 Students	Tutorial Unit per Section	No. of students registered in 2024-25-I	Estimated number of New Students	No. of students having fail backlogs	Final estimate for 2025-26-I
Science Options	HSO201	Applied Probability and Statistics	3	1	0	11	3.5	0.5	297	250	0	250
	MSO202M	Complex Variables	3	1	0	11	1.75	0.25	560	483	20	503
	MSO203M	Partial Differential Equations	3	1	0	11	1.75	0.25	661	603	29	632
	MSO205	Introduction To Probability Theory	3	1	0	11	3.5	0.5	195	100	8	108
Third Semester IC/SCHEME Courses	CE212	Environment and Sustainability	3	0	0	9	3		200	200	12	212
	ES208	Earth and Environment	3	0	0	9	3			150		150
	ECO111	Economy, Society and Public Policy	3	1	0	11	3.5	0.5	202	150	3	153
	DMS201	Introduction to Management	3	0	0	9	3		181	150	3	153
	ESC201	Introduction to Electronics	3	1	3	14	5	2	632	602	10	612
	HSS-I	Humanities-I	3	1	0	11	3.5	0.5	763	600	10	610
SCHEME Course	HSS-II	Humanities-II	3	0	0	9	3		1568	1800	54	1854
Backlog Courses	MTH113M	Linear Algebra	3	1	0	11	1.75	0.25			19	19
	MTH114M	Ordinary Differential Equations	3	1	0	11	1.75	0.25			6	6

3. Department/IDP-wise Breakup of Instruction Unit and Tutorial Unit for Core Courses in First (I) Semester during the Year 2025-26

Instruction Unit (IU) for a course with less than or equal to 90 students is defined as follows[1]:

$$IU = 1L + 0.5T + 0.5P$$

where L is the number of 50 minutes lecture, T is the number of 50 minutes tutorial, and P is the number of 50 minutes practical. The number 90 is based on the IPSA

model. For a course with students' strength more than 90, IU is defined as follows:

$$IU = \left\lceil \frac{N}{90} \right\rceil \times (1L + 0.5T + 0.5P)$$

where $\left\lceil \frac{N}{90} \right\rceil$ is the smallest integer greater than or equal to N/90. For each section of theory tutorial or laboratory instruction is defined as follows:

$$TU = 0.5T + 0.5P$$

Where T and P are as defined earlier. For modular courses, the IU and TU calculated above will be multiplied by 0.5.

Table 5: Department/IDP-wise Breakup of Instruction Unit

Course No.	Course Title	Total IU	AE	BSBE	CE	CHE	CHM	CGS	CSE	DMS	DP	ECO	EE	ES	HSS	ME	MSE	MTH	PHY	SEE	SSA
CHM111	Chemistry Lab	10.5					10.5														
CHM112M	General Chemistry: Physical Chemistry	10					10														
CHM113M	General Chemistry: Inorganic & Organic Chemistry	8.75					8.75														
MTH111M	Single Variable Calculus	28																28			
MTH112M	Application of Single Variable Calculus & Several Variable	26.25																26.25			
PHY111	Physics Laboratory	10.5																	10.5		
PHY112	Classical Dynamics	17.5																	17.5		
PHY113	Classical Electrodynamics	17.5																	17.5		

[1]The factor 0.5 for in the equation assumes equal effort from the instructor and tutor to conduct one tutorial.

Course No.	Course Title	Total IU	AE	BSBE	CE	CHE	CHM	CGS	CSE	DMS	DP	ECO	EE	ES	HSS	ME	MSE	MTH	PHY	SEE	SSA
PHY114	Quantum Physics	10.5																	10.5		
PHY115	Oscillations andWaves	14																	14		
ESC111M	Fundamentals of Computing – I	17.5							17.5												
ESC112M	Fundamentals of Computing - II	17.5							17.5												
LIF111	Introduction to Biology	14		14																	
TA111[2]	Engineering Graphics	28	28																		
ETH111	Practical Ethics	20	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1
ELC111/112 /113	English Language & Communication	**Instructor for ELC111/112/113 will be provided by the DOAA office. However, all the departments need to provide TAs to manage this course.**																			
PE111	Morning Exercise	0																			
ESO201	Thermodynamics	14				14															
ESO202	Mechanics of Solids	14			14																
ESO204	Fluid Mechanics	10.5				10.5															
ESO206	Principles of Biotechnology	3		3																	
ESO207	Data Structures and Algorithms	18							18												
ESO208	Computational Methods in Engg.	7			7																
ESO213	Fundamentals of Earth Sciences	3												3							
ESO225	Nature and Properties of Materials	2.5															2.5				

[2]Requires two instructors per semester

Course No.	Course Title	Total IU	AE	BSBE	CE	CHE	CHM	CGS	CSE	DMS	DP	ECO	EE	ES	HSS	ME	MSE	MTH	PHY	SEE	SSA
TA211	Manufacturing Processes I	6															6				
TA212	Manufacturing Processes II	6														6					
HSO201	Applied Probability and Statistics	10.5										10.5									
MSO202M	Complex Variables	10.5																10.5			
MSO203M	Partial Differential Equations	14																14			
MSO205	Introduction To Probability Theory	7																7			
CE212	Environment and Sustainability	9			9																
ES208	Earth and Environment	6																			
ECO111	Economy, Society and Public Policy	7										7									
DMS201	Introduction to Management	6								6											
ESC201	Introduction to Electronics	35											35								
HSS-I	Humanities-I	24.5													24.5						
HSS-II	Humanities-II	63													63						
MTH113M	Linear Algebra	1.75																1.75			
MTH114M	Ordinary Differential Equations	1.75																1.75			
Total Instruction Unit			29	18	31	25	30.25	1	54	7	1	18.5	36	4	88.5	8	9.5	90.25	71	1	1
Approximate Faculty Strength			32	25	45	28	39	5	33	26	8	24	53	16	29	44	28	54	50	9	4
Total Instruction Unit per Faculty			**0.91**	**0.72**	**0.69**	**0.91**	**0.78**	**0.20**	**1.64**	**0.27**	**0.13**	**0.77**	**0.68**	**0.25**	**3.05**	**0.18**	**0.34**	**1.67**	**1.42**	**0.11**	**0.25**

Table 6: Department/IDP-wise Breakup of Tutor requirements

Course No.	Course Title	Total Sections	AE	BSBE	CE	CHE	CHM	CGS	CSE	DMS	DP	ECO	EE	ES	HSS	ME	MSE	MTH	PHY	SEE	SSA
CHM111	Chemistry Lab	21					21														
CHM112M	General Chemistry: Physical Chemistry	7					7														
CHM113M	General Chemistry: Inorganic & Organic Chemistry	7					7														
MTH111M	Single Variable Calculus	14																14			
MTH112M	Application of Single Variable Calculus & Several Variable	14																14			
PHY111	Physics Laboratory	20																	20		
PHY112	Classical Dynamics	4																	4		
PHY113	Classical Electrodynamics	5																	5		
PHY114	Quantum Physics	3																	3		
PHY115	Oscillations and Waves	3																	3		
ESC111M	Fundamentals of Computing - I	20							20												
ESC112M	Fundamentals of Computing - II	21							21												
LIF111	Introduction To Biology																				

Course No.	Course Title	Total Sections	AE	BSBE	CE	CHE	CHM	CGS	CSE	DMS	DP	ECO	EE	ES	HSS	ME	MSE	MTH	PHY	SEE	SSA
TA111	Engineering Graphics	20	5		5											5	5				
ETH111	Practical Ethics																				
ELC111/112/113	English Language & Communication																				
PE111	Morning Exercise																				
ESO201	Thermodynamics	10				4								1		5					
ESO202	Mechanics of Solid	10	3		4												3				
ESO204	Fluid Mechanics	7	2			4								1							
ESO206	Principles of Biotechnology																				
ESO207	Data Structures and Algorithms																				
ESO208	Computational Methods in Engg.	5			5																
ESO213	Fundamentals of Earth Sciences																				
ESO225	Nature and Properties of Materials	3															3				

Course No.	Course Title	Total Sections	AE	BSBE	CE	CHE	CHM	CGS	CSE	DMS	DP	ECO	EE	ES	HSS	ME	MSE	MTH	PHY	SEE	SSA
TA211	Manufacturing Processes I	3															3				
TA212	Manufacturing Processes II	3														3					
HSO201	Applied Probability and Statistics	3			2							1									
MSO202M	Complex Variables	6	1										2			2			1		
MSO203M	Partial Differential Equations	7	1		2								2			1			1		
MSO205	Introduction To Probability Theory	1																1			
CE212	Environment and Sustainability																				
ES208	Earth and Environment																				
ECO111	Economy, Society and Public Policy	2										2									
DMS201	Introduction to Management																				
ESC201	Introduction to Electronics	20											20								
HSS-I	Humanities-I	18													18						
HSS-II	Humanities-II																				
MTH113M	Linear Algebra	1																1			
MTH114M	Ordinary Differential Equations	1																1			

Table 7: Department/IDP-wise Breakup of Tutorial Unit

Course No.	Course Title	Total TU	AE	BSBE	CE	CHE	CHM	CGS	CSE	DMS	DP	ECO	EE	ES	HSS	ME	MSE	MTH	PHY	SEE	SSA
CHM111	Chemistry Lab	31.5					31.5														
CHM112M	General Chemistry: Physical Chemistry	1.75					1.75														
CHM113M	General Chemistry: Inorganic & Organic Chemistry	1.75					1.75														
MTH111M	Single Variable Calculus	3.5																3.5			
MTH112M	Application of Single Variable Calculus & Several Variable	3.5																3.5			
PHY111	Physics Laboratory	30																	30		
PHY112	Classical Dynamics	2																	2		
PHY113	Classical Electrodynamics	2.5																	2.5		
PHY114	Quantum Physics	1.5																	1.5		
PHY115	Oscillations andWaves	1.5																	1.5		
ESC111M	Fundamentals of Computing - I	20							20												
ESC112M	Fundamentals of Computing - II	21							21												
LIF111	Introduction To Biology																				

Course No.	Course Title	Total TU	AE	BSBE	CE	CHE	CHM	CGS	CSE	DMS	DP	ECO	EE	ES	HSS	ME	MSE	MTH	PHY	SEE	SSA
TA111	Engineering Graphics	30	7.5		7.5											7.5	7.5				
ETH111	Practical Ethics																				
ELC111/112/113	English Language & Communication																				
PE111	Morning Exercise																				
ESO201	Thermodynamics	5				2								0.5		2.5					
ESO202	Mechanics of Solid	5	1.5		2												1.5				
ESO204	Fluid Mechanics	3.5	1			2								0.5							
ESO206	Principles of Biotechnology																				
ESO207	Data Structures and Algorithms																				
ESO208	Computational Methods in Engg.	2.5			2.5																
ESO213	Fundamentals of Earth Sciences																				
ESO225	Nature and Properties of Materials	1.5															1.5				
TA211	Manufacturing Processes I	4.5															4.5				
TA212	Manufacturing Processes II	4.5														4.5					
HSO201	Applied Probability and Statistics	1.5			1							0.5									

Course No.	Course Title	Total TU	AE	BSBE	CE	CHE	CHM	CGS	CSE	DMS	DP	ECO	EE	ES	HSS	ME	MSE	MTH	PHY	SEE	SSA
MSO202M	Complex Variables	1.5	0.25										0.5			0.5			0.25		
MSO203M	Partial Differential Equations	1.75	0.25		0.5								0.5			0.25			0.25		
MSO205	Introduction To Probability Theory																	0.5			
CE212	Environment and Sustainability																				
ES208	Earth and Environment																				
ECO111	Economy, Society and Public Policy	1										1									
DMS201	Introduction to Management																				
ESC201	Introduction to Electronics	40											40								
HSS-I	Humanities-I	9													9						
HSS-II	Humanities-II																				
MTH113M	Linear Algebra	0.25																0.25			
MTH114M	Ordinary Differential Equations	0.25																0.25			
Total Tutorial Unit			10.5	0	13.5	4	35	0	41	0	0	1.5	41	1	9	15.25	15	8	38	0	0
Approximate Faculty Strength			32	25	45	28	39	5	33	26	8	24	53	16	29	44	28	54	50	9	4
Total Tutorial Unit per Faculty			**0.33**	**0.00**	**0.30**	**0.14**	**0.90**	**0.00**	**1.24**	**0.00**	**0.00**	**0.06**	**0.77**	**0.06**	**0.31**	**0.35**	**0.54**	**0.15**	**0.76**	**0.00**	**0.00**

Appendix

Important Information Regarding Individual Section Sizes for Various Courses and Workload

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 30 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 TA211 and TA212 labs.
4. Tutors assigned for ESC111M, ESC112M 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. The 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 an 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. **ELC111/ELC112/ELC113 will be managed by DOAA but TAs will be provided by all the departments.**
10. **Each department must provide one instructor for the ETH111 course. EE, ME have provided two instructors in the past two semesters based on their TU/faculty load.**

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