

## Report of the Core Curriculum Committee

Second Semester of the Year 2024-25

### 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
CHM	CHM111, CHM112M, CHM113M
CSE	ESC111M, ESC112M, ESO207
DMS	DMS201
ECO	ECO111
EE	ESC201, ESO203
HSS	HSS-1, HSS-2
ME	TA212
MSE	TA211
MTH	MTH111M, MTH112M, MTH113M, MTH114M, MSO201
PHY	PHY111, PHY112, PHY113, PHY114, PHY115, PSO201
SEE	SEE211

**Table 3: List of Core Courses and Respective Departments that will provide Theory and Lab Tutors / Instructors**

<b>Course no.</b>	<b>Course Name</b>	<b>Departments That Provide Tutors / LabInstructors</b>
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
ESC113M	Computer Methods for Engineers	CHE
ESC201	Introduction to Electronics	EE
ESO201	Thermodynamics	AE
ESO202	Mechanics of Solids	ME
ESO203	Introduction to Electrical Engineering	EE
ESO207	Data Structure & Algorithm	CSE
ETH111	Practical Ethics	All dept.
HSS-I	Humanities-I	HSS
HSS-II	Humanities-II	HSS
LIF111	Introduction to Biology	BSBE
MSO201	Probability and Statistics	EE, PHY
MTH111M	Single Variable Calculus	MTH
MTH112M	Application of Single Variable Calculus & Several Variable Calculus	MTH
MTH113M	Linear Algebra	MTH
MTH114M	Ordinary Differential Equations	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-DMS211	Introduction to Management	DMS
EME-ECO111	Economy, Society & Public Policy	ECO
EME-SEE211	Energy, Climate Change & Sustainability	SEE
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 2024-25

**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	Estimated number of New Students	No. of students having fail backlogs	No. of students registered in 2023- 24-II	Final estimate for 2024- 25-II
<b>2<sup>nd</sup> Semester IC Courses</b>	CHM111	Chemistry Lab	0	0	3	3	1.5	1.5	600	13	613	613
	CHM112M	General Chemistry: Physical Chemistry	2	1	0	8	1.25	0.25	600	71	609	671
	CHM113M	General Chemistry: Inorganic & Organic Chemistry	2	1	0	8	1.25	0.25	600	45	616	645
	MTH113M	Linear Algebra	3	1	0	11	1.75	0.25	600	152	619	752
	MTH114M	Ordinary Differential Equations	3	1	0	11	1.75	0.25	600	144	619	744
	PHY111	Physics Laboratory	0	0	3	3	1.5	1.5	620	9	609	629
	PHY112	Classical Dynamics	3	1	0	11	3.5	0.5	342	39	344	381
	PHY113	Classical Electrodynamics	3	1	0	11	3.5	0.5	367	46	371	413
	PHY114	Quantum Physics	3	1	0	11	3.5	0.5	284	65	357	349

Course Group	Course No.	Course Title	L	T	P	Credit	Inst. Unit/ 90 Students	Tutorial Unit per Section	Estimated number of New Students	No. of students having fail backlogs	No. of students registered in 2023- 24-II	Final estimate for 2024- 25-II
	PHY115	Oscillations and Waves	3	1	0	11	3.5	0.5	217	56	247	273
	ESC111M	Fundamentals of Computing - I	3	1	3	14	2.5	1	600	27	605	627
	ESC112M	Fundamentals of Computing - II	3	1	3	14	2.5	1	500	16	503	516
	ESC113M	Computer Methods for Engineers	3	1	3	14	2.5	1	105	15	104	120
	LIF111	Introduction To Biology	2	0	0	6	2		600	56	634	656
	TA111	Engineering Graphics	2	0	3	9	3.5	1.5	620	57	624	677
	ETH111	Practical Ethics*	1	0	0	3	1		600	25	605	625
	ELC112/113	English Language & Communication							600	2	595	602
	PE112	Morning Exercise							1220	34	1220	1254
<b>Engineering Science Options</b>	ESO201	Thermodynamics	3	1	0	11	3.5	0.5	69	26	98	95
	ESO202	Mechanics of Solids	3	1	0	11	3.5	0.5	149	20	175	169
	ESO203	Introduction to Electrical Engineering	3	1	2	13	4.5	1.5	192		216	192
	ESO207	Data Structures and Algorithms	3	0	3	12	4.5		0	7	151	7
	MSO201	Probability and Statistic	3	1	0	11	3.5	0.5	192	18	321	210
	PSO201	Quantum Physics	2	1	0	8	2.5	0.5	45	2	98	47
	ESC201	Introduction to Electronics	3	1	3	14	5	2	602	6	624	608

Course Group	Course No.	Course Title	L	T	P	Credit	Inst. Unit/ 90 Students	Tutorial Unit per Section	Estimated number of New Students	No. of students having fail backlogs	No. of students registered in 2023- 24-II	Final estimate for 2024- 25-II
	TA211	Manufacturing Processes I	0	0	3	3	1.5	1.5	192	1	189	193
	TA212	Manufacturing Processes II	0	0	3	3	1.5	1.5	217	6	221	223
<b>4<sup>th</sup> Semester IC/SCHEME &amp; HSS I Courses</b>	ECO111	Economy, Society and Public Policy	3	1	0	11	3.5	0.5	200	6	138	206
	DMS211	Introduction to Management	3	0	0	9	3		200	6	195	206
	SEE211	Energy, Climate Change and Sustainability	3	0	0	9	3		200	2	255	202
	HSS-I	Humanities-I	3	1	0	11	3.5	0.5	600	50	430	650
<b>HSS II Courses</b>	HSS-II	Humanities-II	3	0	0	9	3		1800	100	1800	1900
<b>Backlog Courses</b>	MTH111M	Single Variable Calculus	3	1	0	11	1.75	0.25		197	41	197
	MTH112M	Application of Single Variable Calculus & Several Variable	3	1	0	11	1.75	0.25		218	50	218

### 3. Department/IDP-wise Breakup of Instruction Unit and Tutorial Unit for Core Courses in Second (II) Semester during the Year 2024-25

Instruction Unit (IU) for a course with less than or equal to 90 students is defined as follows<sup>1</sup>:

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

where number of 50 minutes lecture, number of 50 minutes tutorial, and number of 50 minutes practical. The number 90 is based on the IPISA model. For a course with students' strength, is defined as follows:

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

where  $\lceil \frac{N}{90} \rceil$  the smallest integer greater than or equal to. for each section of theory tutorial or laboratory instruction is defined as follows **Error! Unknown switch argument.:**

$$TU = 0.5T + 0.5P$$

where and are as defined earlier. For modular courses, the and calculated above will be multiplied by.

**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	10					10														
MTH111M	Single Variable Calculus	5.25																5.25			
MTH112M	Application of Single Variable Calculus & Several Variable	5.25																5.25			
PHY111	Physics Laboratory	10.5																	10.5		
PHY112	Classical Dynamics	17.5																	17.5		
PHY113	Classical Electrodynamics	17.5																	17.5		

<sup>1</sup>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	14																	14		
PHY115	Oscillations and Waves	14																	14		
ESC111M	Fundamentals of Computing – I	17.5							17.5												
ESC112M	Fundamentals of Computing - II	15							15												
ESC113M	Computer Methods for Engineers	5				5															
LIF111	Introduction to Biology	16		16																	
TA111 <sup>2</sup>	Engineering Graphics	28	28																		
ETH111	Practical Ethics	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1
ELC112/113	English Language & Communication	Instructor for ELC112/113 will be provided by the DOAA office. However, all the departments need to provide TAs to manage this course.																			
PE112	Morning Exercise	0																			
ESO201	Thermodynamics	7				7															
ESO202	Mechanics of Solids	7			7																
ESO203	Introduction to Electrical Engineering	13.5											13.5								
ESO207	Data Structures and Algorithms	4.5							4.5												
MSO201	Probability And Statistic	10.5																10.5			

<sup>2</sup>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
PSO201	Quantum Physics	2.5																	2.5		
TA211	Manufacturing Processes I	4.5															4.5				
TA212	Manufacturing Processes II	4.5														4.5					
ESC201	Introduction to Electronics	35											35								
ECO111	Economy, Society and Public Policy	7										7									
DMS211	Introduction to Management	6								6											
SEE211	Energy, Climate Change and Sustainability	6																		6	
HSS-I	Humanities-I	28													28						
HSS-II	Humanities-II	66													66						
MTH113M	Linear Algebra	15.75																	15.75		
MTH114M	Ordinary Differential Equations	15.75																	15.75		
Total Instruction Unit			29	17	08	13	31.5	1	38	07	1	08	49.5	02	95	5.5	5.5	53.5	77	7	1
Approximate Faculty Strength			32	25	45	28	39	5	33	26	8	24	53	16	29	44	28	54	50	9	4
<b>Total Instruction Unit per Faculty</b>			<b>0.91</b>	<b>0.68</b>	<b>0.18</b>	<b>0.46</b>	<b>0.81</b>	<b>0.20</b>	<b>1.15</b>	<b>0.27</b>	<b>0.13</b>	<b>0.33</b>	<b>0.93</b>	<b>0.13</b>	<b>3.28</b>	<b>0.13</b>	<b>0.20</b>	<b>0.99</b>	<b>1.54</b>	<b>0.78</b>	<b>0.25</b>





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																				
ELC112/113	English Language & Communication																				
PE112	Morning Exercise																				
ESO201	Thermodynamics	3	3																		
ESO202	Mechanics of Solid	5														5					
ESO203	Introduction to Electrical Engineering	6											6								
ESO207	Data Structures and Algorithms																				
MSO201	Probability And Statistic	3											2						1		
PSO201	Quantum Physics	1																	1		
TA211	Manufacturing Processes I	2															2				
TA212	Manufacturing Processes II	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
ESC201	Introduction to Electronics	20											20								
ECO111	Economy, Society and Public Policy	2										2									
DMS211	Introduction to Management																				
SEE211	Energy, Climate Change and Sustainability																				
HSS-I	Humanities-I	19													19						
HSS-II	Humanities-II																				
MTH113M	Linear Algebra	9																9			
MTH114M	Ordinary Differential Equations	9																9			





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
SEE211	Energy, Climate Change and Sustainability																				
HSS-I	Humanities-I	9.5													9.5						
HSS-II	Humanities-II																				
MTH113M	Linear Algebra	2.25																2.25			
MTH114M	Ordinary Differential Equations	2.25																2.25			
<b>Total Tutorial Unit</b>			9	0	7.5	3	33.5	0	37	0	0	1	50	0	9.5	14.5	10.5	5.75	39	0	0
<b>Approximate Faculty Strength</b>			32	25	45	28	39	5	33	26	8	24	53	16	29	44	28	54	50	9	4
<b>Total Tutorial Unit per Faculty</b>			<b>0.28</b>	<b>0.00</b>	<b>0.17</b>	<b>0.11</b>	<b>0.86</b>	<b>0.00</b>	<b>1.12</b>	<b>0.00</b>	<b>0.00</b>	<b>0.04</b>	<b>0.94</b>	<b>0.00</b>	<b>0.33</b>	<b>0.33</b>	<b>0.38</b>	<b>0.11</b>	<b>0.78</b>	<b>0.00</b>	<b>0.00</b>

## 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 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, 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. 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.

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**Core Curriculum Committee Members**



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