Report of Core Curriculum Committee
Semester Second 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 CCC Committee When Instructors are drawn from Multiple Departments

Course No. and Title	Department			
	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

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, CHM112, CHM113,
CE	ESO208,
CHE	ESC113
CSE	ESC111, ESC112, ESO207
EE	ESC201, ESO203
HSS	HSS-I, HSS-II,
ME	TA212,
MSE	TA211,
MTH	MTH113, MTH114, MSO201,MTH111, MTH112
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 Laboratory	CHM
CHM112	General Chemistry: Physical Chemistry	CHM
CHM113	General Chemistry: Inorganic & Organic Chemistry	CHM
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
ESC111	Fundamentals Of Computing – I	CSE
ESC112	Fundamentals Of Computing – Ii	CSE
ESC113	Computer Methods For Engineers	CHE
LIF111	Introduction To Biology	BSBE
TA111	Engineering Graphics	CE, AE, ME
ETH111	Practical Ethics	By All dept.
ELC112	English Language & Communication (Intermediate) (Scheme)	DOAA
ELC113	English Language & Communication (Advanced) (Scheme)	DOAA
ESC201	Electronics	EE
TA211	Manufacturing Lab	MSE
TA212	Mechanical Lab	ME
HSS-I(2)	Humanities-I	HSS
ESO201	Thermodynamics	AE, CHE, ME
ESO202	Mechanics of Solids	AE, CE, ME
ESO203	Intro Electrical Engg.	EE
ESO207	Data Structures and Algorithms	CSE
MSO201	Probability And Statistics	EE, PHY
PSO201	Quantum Physics	PHY

Note:Table constructed using data from previous years.

2.Estimate of Number of Students in Core Courses in Second (II) Semester during the Year 2023-24

Course Group	Course No.	Course Name	Estimated Number of New Students	No. of Students Failed in 2022-23(II)	No. of Students Registered in 2022-23(II)	Final Estimate for 2023-24(II)
Second Semester Courses	CHM111	Chemistry Laboratory	625	-	620	625
	CHM112M	General Chemistry: Physical Chemistry	625	18	598	625
	CHM113M	General Chemistry: Inorganic & Organic Chemistry	625	29	598	625
	MTH111M	Single Variable Calculus	100			100
	MTH112M	Application Of Single Var. Calculus & Sev. Variable Calculus	100			100
	MTH113M	Linear Algebra	1250	108	1218	1350
	MTH114M	Ordinary Differential Equations	1250	72	1218	1350
	PHY111	Physics Laboratory	625	2	598	600
	PHY112	Classical Dynamics	342	18	349	342
	PHY113	Classical Electrodynamics	367	30	374	367
	PHY114	Quantum Physics	284	27	281	284
	PHY115	Oscillations And Waves	217	26	214	217
	ESC111M	Fundamentals Of Computing - I	625	-	620	625
	ESC112M	Fundamentals Of Computing - II	500	2	513	515
	ESC113M	Computer Methods For Engineers	105	9	114	114
	LIF111	Introduction To Biology	600	109	620	600
	TA111	Engineering Graphics	600	03	598	600
	ETH111	Practical Ethics	625	11	623	600
	ELC112	English Language & Communication (Intermediate) (Scheme)			350	350
	ELC113	English Language & Communication (Advanced) (Scheme)			233	233
Fourth Semester Courses	ESC201	Electronics	600	08	575	600
	TA211	Manufacturing Lab	212	-	-	220
	TA212	Mechanical Lab	247	-	-	250
Engineering Science options	ESO201	Thermodynamics	70	35	-	105
	ESO202	Mechanics of Solids	150	60	-	210
	ESO203	Intro Elect. Engineering	192	18	-	210
	ESO207	Data Structures and Algorithms	130			130
Science options	MSO201	Probability And Statistic	235	35	-	270
	PSO201	Quantum Physics Organic	45	15	-	60

3. Teaching Support Requirement

Course No.	Course Name	Units	No. of Students (Estimate)	Student per Section(Appx)	Number of			Total Units (Inst.+tut/lab)
					Theory Tutors	Lab. Tutors	Instruction Units	
CHM111	Chemistry Laboratory	0-0-3[3]	625	32	-	20	1	1+20=21
CHM112M	General Chemistry: Physical	2-1-0[8]	625	100	6	-	3	3+6=9/2
CHM113M	General Chemistry: Inorganic &	2-1-0[8]	625	100	6	-	3	3+6=9/2
MTH111M	Single Variable Calculus	3-1-0[6]	100	100	1			2+1=3/2
MTH112M	Application Of Single Var. Calculus &	3-1-0[6]	100	100	1			2+1=3/2
MTH113M	Linear Algebra	3-1-0[6]	1350	100	12	-	4	4+12=16/2
MTH114M	Ordinary Differential Equations	3-1-0[6]	1350	100	12		4	4+12=16/2
PHY111	Physics Laboratory	0-0-3[3]	625	32		20	1	1+20=21
PHY112	Classical Dynamics	3-1-0[11]	342	100	4	-	2	2+4=6
PHY113	Classical Electrodynamics	3-1-0[11]	367	100	4	-	2	2+4=6
PHY114	Quantum Physics	3-1-0[11]	284	100	3	-	2	2+3=5
PHY115	Oscillations And Waves	3-1-0[11]	217	100	3	-	2	2+3=5
ESC111	Fundamentals Of Computing - I	3-1-3[7]	625	32	20	20	4	4+20+20=44/2
ESC112	Fundamentals Of Computing - II	3-1-3[7]	520	32	17	17	2	2+17+17=36/2
ESC113	Computer Methods For Engineers	3-1-3[7]	105	33	3	3	1.5	1.5+6.0=7.5/2
LIF111	Introduction To Biology	2-0-0[6]	600	-			3.0	03.0
TA111	Engineering Graphics	2-0-3[9]	600	32		20	2.0	2+20=22
ETH111	Practical Ethics	1-0-0[3]	600	32	20		2.0	2+20=22
ELC112	Eng. Lang. & Com.(Intermediate)	2-1-1[9]	350	Instructor for ELC112/113 will be provided by the DOAA office. However, all the departments need to provide TAs to manage this course.				
ELC113	Eng. Lang. & Com. (Advanced)	2-1-1[9]	233					
ESC201	Electronics	3-1-3[14]	600	30	20	20	4	4+20=24
TA211	Manufacturing Lab	0-0-3[3]	220	75	-	3	1	0+3=3
TA212	Mechanical Lab	0-0-3[3]	250	85	-	3	1	0+3=3
ESO201	Thermodynamics	3-1-0[11]	110	35	3	-	2	1.5+3=4.5
ESO202	Mechanics of Solids	3-1-0[11]	210	35	6		2	2+6=8
ESO203	Intro Elect. Engineering	3-1-2[13]	210	35	6	6	2	2+12=14
ESO207	Data Structures and Algorithms	3-0-3-0[12]	150	--	-	-	2	2+0=2
MSO201	Probability and Statist	3-1-0[11]	270	90	3		2	2+3=5

PSO201	**Quantum Mechanics**	**2-1-0[8]**	**60**	**60**	**1**		**1**	**1+1=2**
HSS-I	**Humanities-I**	**3-1-0[11]**	**700**	**40**	**18**		**4**	**4+18=22**
HSS-II	**Humanities -II**	**3-0-0[9]**	**1900**	**-**			**4**	**4+0=4**

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.

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

Course Number	Course Name	Unit Req	AE	BSBE	CHE	CE	CSE	EE	IME	ME	MSE	CHM	MTH	PHY	HSS	ES	ECO	SEE	DP	CGS	SSA	TOTAL
CHM111	Chemistry Laboratory	1+20=21										1+20										1+20=21
CHM112 (M)	General Chemistry; Physical Chemistry	3+6=9/2										3+6										3+6=9/2
CHM113 (M)	General Chemistry : Inorg. & Org. Chem	3+6=9/2										3+6										3+6=9/2
MTH111M	Single Variable Calculus	2+1=3/2											2+1									2+1=3/2
MTH112M	App. Of Single Var. Cal. & Sev. Var. Cal.	2+1=3/2											2+1									2+1=3/2
MTH113 (M)	Linear Algebra	4+12 =16/2											4+12									4+12 =16/2
MTH114 (M)	Ordinary Differential Equations	4+12 =16/2											4+12									4+12 =16/2
PHY111	Physics Laboratory	1+20=21												1+20								1+20=21
PHY112	Classical Dynamics	2+4=6												2+4								2+4=6
PHY113	Classical Electrodynamics	2+4=6												2+4								2+4=6
PHY114	Quantum Physics	2+3=5												2+3								2+3=5
PHY115	Oscillations And Waves	2+3=5												2+3								2+3=5
ESC111(M)	Fundamentals Of Computing – I	4+20+20 =44/2					4+20															4+20+20 =44/2
ESC112(M)	Fundamentals Of Computing – II	2+17+17 =36/2					2+17															2+17+17 =36/2
ESC113(M)	Computer Methods For Engineers	1.5+3+3 =7.5/2			1.5+3																	1.5+3+3 =7.5/2
LIF111	Introduction To Biology	3+0=3		3+0																		3
TA111	Engineering Graphics	3+20	0+5			3+6				0+9												3+20
ETH111	Practical Ethics	20	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	20
ELC112	Eng. Lang. & Com.(Intermediate)																					
ELC113	Eng. Lang. & Com. (Advanced)																					
ESC201	Electronics	4+20=24						4+20														4+20=24
TA211	Manufact. Proc. (MSE)	0+3=3									0+3											0+3=3
TA212	Manufact. Proc. (ME)	0+3=3								0+3												0+3=3
ESO201	Thermodynamics	1.5+3=4.5	0+2		0+1					1.5+0												1.5+3
ESO202	Mechanics of Solids	2+6=8	2+0			0+2				0+4												2+6=8
ESO203	Intro. Electrical Engg.	2+6=8						2+6														2+6=8

ESO207	**Data Structures and Algorithms**	**2+0**					**2+0**															**2+0+2**
MSO201	**Probability & Statistics**	**2+3=5**						**0+2**					**2+0**	**0+1**								**2+3=5**
PSO201	**Quantum Mechanics**	**1+1=2**												**1+1**								**1+1=2**
HSS-I	**Humanities-I**	**4+18**													**4+18**							**4+18=22**
HSS- II	**Humanities -II**	**4+0**													**4+0**							**4+0= 4**
Total Load Assigned		**269**	**10**	**04**	**7**	**12**	**43**	**36**	**1**	**19**	**4**	**31**	**22**	**47**	**27**	**01**	**01**	**01**	**01**	**01**	**01**	**269**
Approximate Faculty Strength		**541**	**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		**0.50**	**0.32**	**0.17**	**0.27**	**0.27**	**1.3**	**0.67**	**0.04**	**0.43**	**0.14**	**0.79**	**0.40**	**0.98**	**0.84**	**0.06**	**0.05**	**0.11**	**0.17**	**0.20**	**0.33**	**0.50**

- 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./ Sustainable Energy Engineering, Economic Sciences and Industrial Management & Engineering departments will offer one EME courses in each semester.

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 TA201 and TA202 labs.
4. Tutors assigned for ESC111M, ESC112M, ESC113M 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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