

First Year ENGINEERING – CBCS PATTERN

SEMESTER - I																						
Sr. No	Course	TEACHING SCHEME										EXAMINATION SCHEME										
		THEORY				TUTORIAL				PRACTICAL			THEORY				PRACTICAL (Term wok)					
		Credits	No. of Lecture	Hours		Credits	No. of Lecture	Hours		Credits		No. of Lecture	Hours	Hours	Mode	Marks	Total Marks	%Min	Hours	Max	%Min	
1	BSC-P-101	3	3	3		-	-	-		1	2	2			CIE	30	100	40%	As per BOS Guidelines	25	40%	
	BSC-C-101															ESE						70
2	BSC-M-I-102	3	3	3		1	1	1		-	-	-			CIE	30	100	40%			25	40%
										ESE	70											
3	ESC-103	3	3	3		-	-	-		1	2	2			CIE	30	100	40%			25	40%
										ESE	70											
4	ESC-104	3	3	3		-	-	-		1	2	2			CIE	30	100	40%			25	40%
										ESE	70											
5	ESC-105	3	3	3		-	-	-		1	2	2			CIE	30	100	40%			25	40%
										ESE	70											
6	HM-I-106	1	1	1		-	-	-		1	2	2			-	-	-	-			25	40%
7	ESC-W-I-107	1	1	1		-	-	-		1	2	2			-	-	-	-		50	40%	
	TOTAL	17	17	17		1	1	1		6	12	12				500				200		
SEMESTER –II																						
1	BSC-P-201	3	3	3		-	-	-		1	2	2			CIE	30	100	40%	As per BOS Guidelines	25	40%	
	BSC-C-201															ESE						70
2	BSC-M-II-202	3	3	3		1	1	1		-	-	-			CIE	30	100	40%			25	40%
										ESE	70											
3	ESC-203	3	3	3		-	-	-		1	2	2			CIE	30	100	40%			25	40%
										ESE	70											
4	ESC-204	3	3	3		-	-	-		1	2	2			CIE	30	100	40%			25	40%
										ESE	70											
5	ESC-205	3	3	3		-	-	-		1	2	2			CIE	30	100	40%			25	40%
										ESE	70											
6	HM-II -206	1	1	1		-	-	-		1	2	2			-	-	-	-			25	40%
7	ESC-W-II-207	1	1	1		-	-	-		1	2	2			-	-	-	-		50	40%	
	TOTAL	17	17	17		1	1	1		6	12	12				500				200		
	TOTAL	34	34	34		2	2	2		12	24	24				1000				400		

CIE – Continuous Internal Evaluation

ESE – End Semester Examination

• Candidate contact hours per week : 30 Hours (Minimum)	• Total Marks for B.E. Sem I & II : 1400
• Theory and Practical Lectures : 60 Minutes Each	• Total Credits for B.E.-I (Semester I & II) : 48
• In theory examination there will be a passing based on separate head of passing for examination of CIE and ESE.	
• There shall be separate passing for theory and practical (term work) courses.	
(A) Non-Credit Self Study Course : Compulsory Civic Courses (CCC) For Sem I: CCC – I : Democracy, Elections and Good Governance (B) Non-Credit Self Study Course : Skill Development Courses (SDC) For Sem II: SDC – I : Any one from following (i) to (v) i) Business Communication & Presentation ii) Event management iii) Personality Development, iv) Yoga & Physical Management v) Resume, Report & proposal writing	

Note :

1. **BSC** : Basic Science Course are compulsory.
2. **HM** : Humanities and Management are compulsory.
3. **ESC** : Engineering Science Course : **ESC – P** courses (subjects) are mandatory for **Physics** group, while **ESC – C** courses (subjects) are mandatory for **Chemistry** group.
4. There will be two groups for Sem I & II Physics and Chemistry. The Candidate's those opting Physics group in Sem I shall appear for Chemistry group in Sem II and Vice-versa.
5. **ESC-W**: Engineering Science Course-Workshop are compulsory.

Second Year CHEMICAL ENGINEERING – CBCS PATTERN

SEMESTER - III																									
Sr. No	Course (Subject Title)	TEACHING SCHEME									EXAMINATION SCHEME														
		THEORY				TUTORIAL		PRACTICAL			THEORY					PRACTICAL			TERM WORK						
		Credits	No. of Lecture	Hours		Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Hours	Mode	Marks	Total Marks	Min	Hours	Max	Min	Hours	Max	Min			
1	BSC-CH301	3	3	3		1	1	1		-	-	-			CIE	30	100	40	As per BOS Guidelines	-	-	2	25	10	
2	BSC-CH302	4	4	4		-	-	-		1	2	2			ESE	70						50	20	2	50
3	PCC-CH303	3	3	3		-	-	-		1	2	2			CIE	30	100	40		-	-	2	25	10	
4	PCC-CH304	3	3	3		1	1	1		1	2	2			ESE	70						25	10	2	25
5	PCC-CH305	4	4	4		-	-	-		1	2	2			CIE	30	100	40		25	10	2	25	10	
6	PCC-CH306	1	1	1		-	-	-		1	2	2			ESE	70						25	10	2	25
						-	-	-		1	2	2			CIE	30	100	40		-	-	2	50	20	
						-	-	-		1	2	2			ESE	70						-	-	2	50
	TOTAL	18	18	18		2	2	2		5	10	10					500				100		200		
SEMESTER -IV																									
1	BSC-CH401	3	3	3		-	-	-		-	-	-			CIE	30	100	40		As per BOS Guidelines	-	-		-	-
2	BSC-CH402	3	3	3		-	-	-		1	2	2			ESE	70							50	20	2
3	PCC-CH403	3	3	3		1	1	1		-	-	-			CIE	30	100	40	-		-	2	25	10	
4	PCC-CH404	3	3	3		1	1	1		1	2	2			ESE	70						25	10	2	25
5	PCC-CH405	3	3	3		-	-	-		-	-	-			CIE	30	100	40	-		-	2	25	10	
6	PCC-CH406	1	1	1		-	-	-		1	2	2			ESE	70						25	10	2	25
7	PCC-CH407	-	2	2		-	-	-		1	2	2			CIE	30	100	40	-		-	2	25	10	
8	MC-CH408	2	2	2		-	-	-		1	-	-			ESE	70						-	-		-
	TOTAL	18	19	19		2	2	2		5	8	8					600				100		200		
	TOTAL	36	37	37		4	4	4		10	18	18					1100				200		400		

CIE- Continuous Internal Evaluation

ESE – End Semester Examination

• Candidate contact hours per week : 30 Hours (Minimum)	• Total Marks for S.E. Sem III & IV : 1700
• Theory and Practical Lectures : 60 Minutes Each	• Total Credits for S.E. Sem III & IV : 50
• In theory examination there will be a passing based on separate head of passing for examination of CIE and ESE.	
• There shall be separate passing for theory and practical (term work) courses.	

Note :

1. **BSC-CH** : Basic Science Course- Chemical Engineering are compulsory.
2. **PCC-CH** : Professional Core course –Chemical Engineering are compulsory.
3. **MC-CH** : Mandatory Course : Environmental Studies which is compulsory for theory 70 marks and project work 30 marks.

Third Year CHEMICAL ENGINEERING – CBCS PATTERN

SEMESTER – V																						
Sr. No	Course (Subject Title)	TEACHING SCHEME										EXAMINATION SCHEME										
		THEORY			TUTORIAL			PRACTICAL				THEORY					PRACTICAL			TERM WORK		
		Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours		Hours	Mode	Marks	Total Marks	Min	Hours	Max	Min	Hours	Max	Min
1	PCC-CH501	3	3	3	-	-	-	1	2	2			CIE	30	100	40	As per BOS Guidelines	25	10	2	25	10
2	PCC-CH502	4	4	4	1	1	1	1	2	2			ESE	70				25	10	2	25	10
3	PCC-CH503	3	3	3	1	1	1	-	-	-			CIE	30	100	40		-	-	2	25	10
4	PCC-CH504	4	4	4	-	-	-	1	2	2			ESE	70				50	20	2	50	20
5	OEC-CH505	4	4	4	-	-	-	-	-	-			CIE	30	100	40		-	-	-	-	-
6	MP-CH506	1	1	1	-	-	-	1	2	2			ESE	70				-	-	-	-	-
													CIE	30	100	40		-	-	2	75	30
													ESE	70				-	-	2	75	30
	TOTAL	19	19	19	2	2	2	4	8	8					500			100		200		
SEMESTER –VI																						
1	PCC-CH601	3	3	3	-	-	-	-	-	-			CIE	30	100	40	As per BOS Guidelines	-	-	2	25	10
2	PCC-CH602	3	3	3	1	1	1	1	2	2			ESE	70				25	10	2	25	10
3	PCC-CH603	4	4	4	-	-	-	1	2	2			CIE	30	100	40		25	10	2	25	10
4	PCC-CH604	3	3	3	1	1	1	1	2	2			ESE	70				25	10	2	25	10
5	OEC-CH605	3	3	3	-	-	-	-	-	-			CIE	30	100	40		-	-	2	25	10
6	PCC-CH606	1	2	2	-	-	-	1	2	2			ESE	70				-	-	2	50	20
7	PCC-CH607	1	1	1	-	-	-	1	2	2			CIE	30	100	40		-	-	2	50	20
													ESE	70				-	-	2	50	20
	TOTAL	18	19	19	2	2	2	5	10	10					500			75		225		
	TOTAL	37	38	38	4	4	4	9	18	18					1000			175		425		

CIE- Continuous Internal Evaluation

ESE – End Semester Examination

• Candidate contact hours per week : 30 Hours (Minimum)	• Total Marks for T.E. Sem V & VI : 1600
• Theory and Practical Lectures : 60 Minutes Each	• Total Credits for T.E. Sem V & VI : 50
• In theory examination there will be a passing based on separate head of passing for examination of CIE and ESE.	
• There shall be separate passing for theory and practical (term work) courses.	
(A) Non-Credit Self Study Course : Compulsory Civic Courses (CCC) For Sem V: CCC – II : Constitution of India and Local Self Government (B) Non-Credit Self Study Course : Skill Development Courses (SDC) For Sem VI: SDC – II: Any one from following (vi) to (x) vi) Interview & Personal Presentation Skill, vii) Entrepreneurship Development Skill, viii) Travel & Tourism, ix) E-Banking & Financial Services, x) RTI & Human Right Education (HRE), IPR & Patents	

Note :

1. **PCC-CH :** Professional Core course –Chemical Engineering are compulsory.
2. **OCE-CH :** Open Elective Course – Chemical Engineering :

Final Year CHEMICAL ENGINEERING – CBCS PATTERN

SEMESTER –VII																										
Sr. No	Course (Subject Title)	TEACHING SCHEME									EXAMINATION SCHEME															
		THEORY				TUTORIAL				PRACTICAL				THEORY				PRACTICAL			TERM WORK					
		Credits	No. of Lecture	Hours		Credits	No. of Lecture	Hours		Credits	No. of Lecture	Hours		Hours	Mode	Marks	Total Marks	Min	Hours	Max	Min	Hours	Max	Min		
1	PCC-CH701	4	4	4		-	-	-		1	2	2			CIE	30	100	40	As per BOS Guidelines		25	10	2	25	10	
2	PCC-CH702	3	3	3		-	-	-		-	-	-			ESE	70							-	-		-
3	PCC-CH703	4	4	4		-	-	-		1	2	2			CIE	30	100	40				25	10	2	25	10
4	PCC-CH704	4	4	4		-	-	-		1	2	2			ESE	70							25	10	2	25
5	PCE-CH705	3	3	3		-	-	-							CIE	30	100	40				25	10	2	25	10
6	MC-CH706	-	-	-		-	-	-		1	2	2			ESE	70							25	10	2	25
7	MC-CH707	-	-	-		-	-	-		1	2	2			CIE	30	100	40				-	-	2	25	10
8	SI-CH708	-	-	-		-	-	-		-	-	-			ESE	70							-	-	2	25
9	PW-CH709	-	-	-		-	-	-		2	4	4				-	-				-	-	2	25	10	
	TOTAL	18	18	18		-	-	-		7	14	14		500							100			200		
SEMESTER –VIII																										
1	PCC-CH801	3	3	3		-	-	-		1	2	2			CIE	30	100	40	As per BOS Guidelines		25	10	2	25	10	
2	PCC-CH802	3	3	3		1	1	1		-	-	-			ESE	70							-	-		-
3	PCC-CH803	4	4	4		-	-	-		-	-	-			CIE	30	100	40				-	-	2	25	10
4	PCE-CH804	4	4	4		-	-	-		-	-	-			ESE	70							-	-	2	25
5	PCE-CH805	4	4	4		-	-	-		-	-	-			CIE	30	100	40				-	-		-	-
6	PCC-CH806	1	1	1		-	-	-		1	2	2			ESE	70							25	10	2	25
7	PW-CH807	-	-	-		-	-	-		3	6	6			CIE	30	100	40				75	30	2	75	10
	TOTAL	19	19	19		1	1	1		5	10	10		500									125			175

	TOTAL	37	37	37		1	1	1		12	24	24			1000		225		375	
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CIE- Continuous Internal Evaluation

ESE – End Semester Examination

• Candidate contact hours per week : 30 Hours (Minimum)	• Total Marks for B.E. Sem VII & VIII : 1600
• Theory and Practical Lectures : 60 Minutes Each	• Total Credits for B.E. Sem VII & VIII : 50
• In theory examination there will be a passing based on separate head of passing for examination of CIE and ESE.	
• There shall be separate passing for theory and practical (term work) courses.	

Note :

1. **PCC-CH** : Professional Core course –Chemical Engineering are compulsory.
2. **PCE-CH** : Professional Core Elective –Chemical Engineering are compulsory.
3. **SI-CH**: Summer Internship-Chemical Engineering is compulsory.
4. **PW-CH**: Project work- Chemical Engineering is compulsory.
5. **MC-CH**: Mandatory Course- Chemical Engineering is compulsory

COURSE CODE AND DEFINITION

Sr. No.	Course code	Definitions
1	BSC	BASIC SCIENCE COURSES
2	PCC	PROFESSIONAL CORE COURSES
3	MC	MANDATORY COURSE
4	ESC	ENGINEERING SCIENCE COURSES
5	PCE	PROFESSIONAL CORE ELECTIVES
6	SI	SUMMER INTERNSHIP
7	PW	PROJECT Work
8	MP	MINI PROJECT WORK
9	OEC	OPEN ELECTIVE COURSES
10	HM	Humanities and Management

Semester I

Sl. No	Code No.	Subject	Semester	Credits
1.	BSC-P-101	Engineering Physics	1	4
2.	BSC-M-I-102	Engineering Mathematics-I	1	4
3.	ESC-P-103	Basic Electrical Engineering	1	4
4.	ESC-P-104	Basic Civil Engineering	1	4
5.	ESC-P-105	Engineering Graphics	1	4
6.	HM-I-106	Professional Communication-I	1	2
7.	ESC-W-I-107	Workshop Practice-I	1	2
Total				24

Sl. No	Code No.	Subject	Semester	Credits
1.	BSC-C-101	Engineering Chemistry	1	4
2.	BSC-M-I-102	Engineering Mathematics-I	1	4
3.	ESC-C-103	Fundamentals of Electronics and Computer Programming	1	4
4.	ESC-C-104	Applied Mechanics	1	4
5.	ESC-C-105	Basic Mechanical Engineering	1	4
6.	HM-I-106	Professional Communication-I	1	2
7.	ESC-W-I-107	Workshop Practice-I	1	2
Total				24

Semester II

Sl. No	Code No.	Subject	Semester	Credits
1.	BSC-P-201	Engineering Physics	2	4
2.	BSC-M-II-202	Engineering Mathematics-II	2	4
3.	ESC-P-203	Basic Electrical Engineering	2	4
4.	ESC-P-204	Basic Civil Engineering	2	4
5.	ESC-P-205	Engineering Graphics	2	4
6.	HM-II -206	Professional Communication-II	2	2
7.	ESC-W-II-207	Workshop Practice-II	2	2
Total				24

Sl. No	Code No.	Subject	Semester	Credits
1.	BSC-P-201	Engineering Chemistry	2	4
2.	BSC-M-II-201	Engineering Mathematics-II	2	4
3.	ESC-C203	Fundamentals of Electronics and Computer Programming	2	4
4.	ESC-C204	Applied Mechanics	2	4
5.	ESC-C205	Basic Mechanical Engineering	2	4
6.	HM-II-2076	Professional Communication-II	2	2
7.	ESC-W-II-207	Workshop Practice-II	2	2
Total				24

Semester III

Sr. No	Code No.	Subject	Semester	Credits
1	BSC-CH301	Engineering Mathematics-III	3	4
2	BSC-CH302	Chemistry-I	3	5
3	PCC-CH303	Strength of Materials and Materials of Construction	3	4
4	PCC-CH304	Fluid Mechanics	3	5
5	PCC-CH305	Mechanical Operations	3	5
6	PCC-CH306	Computer Practice-I	3	2
Total				25

Semester IV

Sr. No	Code No.	Subject	Semester	Credits
1.	BCS-CH401	Engineering Mathematics-IV	4	3
2.	BCS-CH402	Chemistry-II	4	4
3.	PCC-CH403	Process Calculations	4	4
4.	PCC-CH404	Heat Transfer	4	5
5.	PCC-CH405	Chemical Engineering Thermodynamics-I	4	3
6.	PCC-CH406	Computer Practice-II	4	2
7.	PCC-CH407	Fluid Moving Machinery	4	1
8.	MC-CH408	Environmental Studies	4	3
Total				25

Semester V

Sr. No	Code No.	Subject	Semester	Credits
1.	PCC-CH501	Process Instrumentation and Instrumental Methods of Analysis	5	4
2.	PCC-CH502	Mass Transfer-I	5	6
3.	PCC-CH503	Chemical Engineering Thermodynamics-II	5	4
4.	PCC-CH504	Chemical Equipment Design-I	5	5
5.	OCE-CH505	Open Elective-I (Computational Techniques in Chemical Engineering)	5	4
6.	MP-CH506	Mini Project Work	5	2
			Total	25

Semester VI

Sr. No	Code No.	Subject	Semester	Credits
1.	PCC-CH601	Plant Utility and Pollution Control	6	3
2.	PCC-CH602	Mass Transfer-II	6	5
3.	PCC-CH603	Process Dynamics & Control	6	5
4.	PCC-CH604	Chemical Reaction Engineering -I	6	5
5.	OCE-CH605	Open Elective-II (Industrial Economics Management and Entrepreneurship)	6	3
6.	PCC-CH606	Process Simulation Laboratory	6	2
7.	PCC-CH607	Industrial Practices & Case Studies	6	2
			Total	25

Semester VII

Sr. No	Code No.	Subject	Semester	Credits
1.	PCC-CH701	Chemical Reaction Engineering -II	7	5
2.	PCC-CH702	Chemical Process & Synthesis	7	3
3.	PCC-CH703	Chemical Process Design	7	5
4.	PCC-CH704	Modeling & Simulation in Chemical Engineering	7	5
5.	MC-CH705	Seminar	7	1
6.	MC-CH706	Comprehensive Tests	7	1
7.	PCE-CH707	Elective – I	7	3
8.	SI-CH708	Industrial Training (At the end of VI Semester)	7	
9.	PW-CH709	Project Work	7	2
Total				25

Semester VIII

Sr. No	Code No.	Subject	Semester	Credits
1.	PCC-CH801	Chemical Process & Green Technology	8	4
2.	PCC-CH802	Transport Phenomena	8	4
3.	PCC-CH803	Process Economics and Project Engineering	8	4
4.	PCC-CH804	Advanced Separation Processes	8	2
5.	PCE-CH805	Elective – II	8	4
6.	PCE-CH806	Elective – III	8	4
7.	PW-CH807	Project Work	8	3
Total				25