



**WEST BENGAL STATE COUNCIL OF TECHNICAL & VOCATIONAL EDUCATION
AND SKILL DEVELOPMENT**

(A Statutory Body under Government of West Bengal Act XXVI of 2013)

Department of Technical Education, Training & Skill Development, Government of West Bengal
Karigari Bhawan, 4th & 5th Floor, Plot No. B/7, Action Area-III, Newtown, Rajarhat, Kolkata-700160

WBSCTVESD Curriculum for Diploma Courses in Engineering and Technology

Semester - I

Sl. No.	Category of Course	Course Title	Hours per week			Total contact hrs/ week	Credits	Marks
			L	T	P			
Theory Subjects								
1.	Basic Science	Mathematics-I	2	1	0	3	3	100
2.	Basic Science	Applied Physics-I	2	1	0	3	3	100
3.	Basic Science	Applied Chemistry	2	1	0	3	3	100
4.	Humanities & Social Science	Communication Skills in English	2	0	0	2	2	100
Practical Subjects								
5.	Engineering Science	Engineering Graphics	0	0	3	3	1.5	100
6.	Engineering Science	Engineering Workshop Practice	0	0	3	3	1.5	100
7.	Basic Science	Applied Physics-I Lab	0	0	2	2	1	100
8.	Basic Science	Applied Chemistry Lab	0	0	2	2	1	100
9.	Humanities & Social Science	Sports and Yoga	0	0	2	2	1	100
10.	Humanities & Social Science	Communication Skills in English Lab	0	0	2	2	1	100
Total			8	3	14	25	18	1000

Semester - II

Sl. No.	Category of Course	Course Title	Hours per week			Total contact hrs/ week	Credits	Marks
			L	T	P			
Theory Subjects								
1.	Basic Science	Mathematics-II	3	1	0	4	4	100
2.	Basic Science	Applied Physics-II	2	1	0	3	3	100
3.	Engineering Science	Introduction to IT Systems	2	0	0	2	2	100
4.	Engineering Science	Fundamentals of Electrical & Electronics Engineering	2	1	0	3	3	100
5.	Engineering Science	Engineering Mechanics	2	1	0	3	3	100
Practical Subjects								
6.	Basic Science	Applied Physics-II Lab	0	0	2	2	1	100
7.	Engineering Science	Introduction to IT Systems Lab	0	0	4	4	2	100
8.	Engineering Science	Fundamentals of Electrical & Electronics Engineering Lab	0	0	2	2	1	100
9.	Engineering Science	Engineering Mechanics Lab	0	0	2	2	1	100
AUDIT COURSES-Mandatory non-credit courses								
10.	Audit	Indian Constitution	2	0	0	2	0	100
Total			13	4	10	27	20	1000

**CURRICULAR STRUCTURE FOR PART-II (SEMESTER 3) OF THE
FULL-TIME DIPLOMA COURSES IN CHEMICAL ENGINEERING**

Discipline: Chemical Engineering					Semester 3					
SL No	Category	Code No	Name of subject	L	P	Total Class per week	Credit	Full marks	Internal Marks	ESE Marks
1	Program core	CHEPC201	Outlines of Chemical Engineering	3	-	3	3	100	40	60
2	Program core	CHEPC203	Momentum Transfer	3	-	3	3	100	40	60
3	Program core	CHEPC205	Engineering Thermodynamics	3	-	3	3	100	40	60
4	Program core	CHEPC207	Mechanical Operations	3	-	3	3	100	40	60
5	Program core	CHEPC209	Energy Engineering	3	-	3	3	100	40	60
6	Program core	CHEPC211	Chemical Technology-I	3	-	3	3	100	40	60
7	Program core	CHEPC213	Momentum Transfer Lab	-	3	2	1	100	60	40
8	Program core	CHEPC215	Mechanical Operations Lab	-	3	2	1	100	60	40
9	Internship	SI201	Internship-I	-	-	0	1	100	60	40
Total				18	06	24	21	900	420	480
STUDENT CONTACT HOURS PER WEEK: 24 hours (Lecture-18 hours; Practical-6 hours) Theory and Practical Period of 60 minutes each. FULL MARKS-900 (Internal Marks- 420; ESE Marks-480) L-Lecture, P-Practical, ESE- End Semester Examination										

Credit Distribution	Credit
Program Core	20
Internship 1	1
Total	21

Pass Criterion: Students have to obtain at least 40% marks (pass marks) in both internal assessment and end semester examination separately in each subject.

**CURRICULAR STRUCTURE FOR PART-II (SEMESTER 4) OF THE
FULL-TIME DIPLOMA COURSES IN CHEMICAL ENGINEERING**

Discipline: Chemical Engineering					Semester 4					
SL No	Category	Code No	Name of subject	L	P	Total Class per week	Credit	Full marks	Internal Marks	ESE Marks
1	Program Core	CHEPC202	Process Heat Transfer	3	0	3	3	100	40	60
2	Program Core	CHEPC204	Mass Transfer – I	3	0	3	3	100	40	60
3	Program Core	CHEPC206	Chemical Engineering Thermodynamics	3	0	3	3	100	40	60
4	Program Core	CHEPC208	Chemical Technology-II	3	0	3	3	100	40	60
5	Program Core	CHEPC210	Industrial Chemistry	3	0	3	3	100	40	60
6	Program Elective	CHEPE202	Material Science/Food Technology	3	0	3	3	100	40	60
7	Program Core	CHEPC212	Heat Transfer Lab	0	3	3	1	100	60	40
8	Minor Project	PR202	Minor Project	0	3	3	1	100	60	40
Total				18	06	24	20	800	360	440
<p>STUDENT CONTACT HOURS PER WEEK: 24 hours (Lecture-18 hours; Practical-06 hours) Theory and Practical Period of 60 minutes each. FULL MARKS-800 (Internal Marks-360; ESE Marks-440) L-Lecture, P-Practical, ESE- End Semester Examination</p>										

Credit Distribution	Credit
Program Elective	3
Program Core	16
Project	1
Total	20

Pass Criterion: Students have to obtain at least 40% marks (pass marks) in both internal assessment and end semester examination separately in each subject.

Program Elective(Without Lab)		Total Credit
Material Science[Sub Code: CHEPE202/1]	Any one	3
Food Technology[Sub Code: CHEPE202/2]		

**CURRICULAR STRUCTURE FOR PART-III (SEMESTER 5) OF THE
FULL-TIME DIPLOMA COURSES IN CHEMICAL ENGINEERING**

Discipline: Chemical Engineering					Semester5						
SL No	Category	Code No	Name of subject	L	P	Total Class per week	Credit	Full marks	Internal Marks	ESE Marks	
1	Program Core	CHEPC301	Mass Transfer - II	3	-	3	3	100	40	60	
2	Program Core	CHEPC303	Chemical Reaction Engineering	3	-	3	3	100	40	60	
3	Program Core	CHEPC305	Process Control	3	-	3	3	100	40	60	
4	Program Core	CHEPC307	Instrumentation	3	-	3	3	100	40	60	
5	Program Elective	CHEPE301	Plant Utilities/Ceramic Technology	3	-	3	3	100	40	60	
6	Program Elective	CHEPE303	Petroleum Refinery Engineering/Safety in Chemical Process Industries	3	-	3	3	100	40	60	
7	Program Core	CHEPC309	Mass Transfer Lab	-	3	3	1	100	60	40	
8	Program Core	CHEPC311	Chemical Reaction Engineering Lab	-	3	3	1	100	60	40	
9	Major Project	PR301	Major Project	-	3	3	1	100	60	40	
10	Internship	SI301	Internship - II	-	-	-	1	100	60	40	
Total				18	9	27	22	1000	480	520	
STUDENT CONTACT HOURS PER WEEK: 27 hours (Lecture-18 hours; Practical-9hours) Theory and Practical Period of 60 minutes each. FULL MARKS-1000 (Internal Marks-480; ESE Marks-520) L-Lecture, P-Practical, ESE- End Semester Examination											

Credit Distribution	Credit
Program Core	14
Program Elective	6
Project	1
Internship 2	1
Total	22

Pass Criterion: Students have to obtain at least 40% marks (pass marks) in both internal assessment and end semester examination separately in each subject.

Program Elective (without Lab)		Credit
1. Plant Utilities (Sub code: CHEPE301/1)	Any one	3
2. Ceramic Technology (Sub code: CHEPE301/2)		
3. Petroleum Refinery Engineering (Sub code: CHEPE303/1)	Any one	3
4. Safety in Chemical Process Industries (Sub code: CHEPE303/2)		

Total =6

**CURRICULAR STRUCTURE FOR PART-III (SEMESTER 6) OF THE
FULL-TIME DIPLOMA COURSES IN CHEMICAL ENGINEERING**

Discipline: Chemical Engineering					Semester 6					
SL No	Category	Code No	Course Title	L	P	Total Class per week	Credit	Full marks	Internal Marks	ESE Marks
1	Program Core	CHEPC302	Process Equipment Design and Drawing	3	-	3	3	100	40	60
2	Program Elective	CHEPE302	Petrochemicals/Waste Management	3	-	3	3	100	40	60
3	Humanities and Social Science	HS302	Entrepreneurship and start-ups	3	-	3	3	100	40	60
4	Open Elective	CHEOE302	Open Elective (Compulsory)	3	-	3	3	100	40	60
5	Open Elective	CHEOE304	Open Elective	3	-	3	3	100	40	60
6	Major Project	PR302	Major Project	-	6	6	3	100	60	40
7	Seminar	SE302	Seminar	-	3	3	1	100	60	40
Total				15	9	24	19	700	320	380
<p align="center">STUDENT CONTACT HOURS PER WEEK: 24 hours (Lecture-15 hours; Practical-9 hours) Theory and Practical Period of 60 minutes each. FULL MARKS-700 (Internal Marks-320; ESE Marks-380) L-Lecture, P-Practical, ESE- End Semester Examination</p>										

Credit Distribution	Credit
Program Core	3
Program Elective	3
Open Elective	6
Project + Seminar	4
Humanities and Social Science	3
Total	19

Pass Criterion: Students have to obtain at least 40% marks (pass marks) in both internal assessment and end semester examination separately in each subject.

Sl. No.	Program Elective	Credit
1.	Petrochemicals	3
2.	Waste Management	

Sl. No.	Open Elective	Credit
1.	Engineering Economics & Project Management (<i>Compulsory for all Disciplines</i>) [Sub code: CHEOE302]	3
2.	Environmental Science & Engineering [Sub Code: CHEOE304/1]	3
3.	Industrial Management [Sub Code: CHEOE304/2]	
4.	Renewable Energy [Sub Code: CHEOE304/3]	

Total = 6

FULL-TIME DIPLOMA COURSES IN CHEMICAL ENGINEERING

List of Program Core Subjects for Different Semesters				
Sl.No.	Category	Semester	Name of subject	Credit
1	Program Core	Sem 3	Outlines of Chemical Engineering	3
2	Program Core	Sem 3	Momentum Transfer	3
3	Program Core	Sem 3	Engineering Thermodynamics	3
4	Program Core	Sem 3	Mechanical Operations	3
5	Program Core	Sem 3	Energy Engineering	3
6	Program Core	Sem 3	Chemical Technology-I	3
7	Program Core	Sem 3	Momentum Transfer Lab	1
8	Program Core	Sem 3	Mechanical Operations Lab	1
9	Program Core	Sem 4	Process Heat Transfer	3
10	Program Core	Sem 4	Mass Transfer – I	3
11	Program Core	Sem 4	Chemical Engineering Thermodynamics	3
12	Program Core	Sem 4	Chemical Technology-II	3
13	Program Core	Sem 4	Industrial Chemistry	3
14	Program Core	Sem 4	Heat Transfer Lab	1
15	Program Core	Sem 5	Mass Transfer - II	3
16	Program Core	Sem 5	Chemical Reaction Engineering	3
17	Program Core	Sem 5	Process Control	3
18	Program Core	Sem 5	Instrumentation	3
19	Program Core	Sem5	Mass Transfer Lab	1
20	Program Core	Sem 5	Chemical Reaction Engineering Lab	1
21	Program Core	Sem 6	Process Equipment Design and Drawing	3
Total:				53

FULL-TIME DIPLOMA COURSES IN CHEMICAL ENGINEERING

List of Program Elective (PE) Subjects		Semester	Choice	Credit
Material Science	4	Any One	3	
Food Technology	4			
Plant Utilities	5	Any One	3	
Ceramic Technology	5			
Petroleum Refinery Engineering	5	Any One	3	
Safety in Chemical Process Industries	5			
Petrochemicals	6	Any One	3	
Waste Management	6			

Total: 12

List of Open Elective (OE) Subjects			Credit
Any one for Semester 6	Environmental Science & Engineering	Any one	3
	Industrial Management		
	Renewable Energy		
Compulsory for Semester 6	Engineering Economics & Project Management		3

Total: 6

Semester wise and subject category wise credit distribution					
	S3	S4	S5	S6	Total
Program Core	20	16	14	3	53
Program Elective	0	3	6	3	12
Open Elective	0	0	0	6	6
Project + Internship + Seminar	1	1	2	4	8
Humanities and Social Science	0	0	0	3	3
Semester wise Total	21	20	22	19	82
Total credit allotted in S3, S4, S5 & S6:					82
Total credit allotted in SEM 1 & 2:					38
Grand Total:					120

Semester wise marks distribution:

Semester wise Marks Distribution	
Semester 3	900
Semester 4	800
Semester 5	1000
Semester 6	700

Total: 3400