SETHU INSTITUTE OF TECHNOLOGY

PULLOOR, KARIAPATTI – 626115

(An Autonomous Institution affiliated to Anna University, Chennai)

Estd 1995

ISO 9001-2008
FS 70973

B.TECH. CHEMICAL ENGINEERING

REGULATION 2015
CHOICE BASED CREDIT SYSTEM

CURRICULUM AND SYLLABUS
Submitted in the Academic Council Meeting on 25.08.2018

CHAIRPERSON
DEPT OF CHEMICAL ENGG.
SETHU INSTITUTE OF TECHNOLOGY
PULLOOR, KARIAPATTI - 626 115.

CHAIRMAN
ACADEMIC COUNCIL
CHAIRMAN
ACADEMIC COUNCIL
Sethu Institute of Technology
Pulloor, Kariapatti - 625 115

SETHU INSTITUTE OF TECHNOLOGY
Pulloor, Kariapatti – 626 115
(An Autonomous Institution)

Estd 1995

ISO 9001-2008
FS 70973

B.TECH. Degree Programme

CHOICE BASED CREDIT SYSTEM

CURRICULUM   (Regulations 2015)

BACHELOR OF TECHNOLOGY IN CHEMICAL ENGINEERING

OVERALL COURSE STRUCTURE

Category	Total No. of Courses	Credits	Percentage
Science & Humanities	4	9	5
Basic Science	9	27	16
Basic Engineering	14	29	17
Professional Subjects – CORE	27	63	37
Professional Subjects – ELECTIVE	6	18	11
Open Elective	3	9	5
Projects (Technical and Major)	2	15	9
TOTAL	65	170	100

COURSE CREDITS – SEMESTER WISE

Branch	I	II	III	IV	V	VI	VII	VIII	TOTAL
CH	22	21	22	23	20	23	19	20	170

Employability Courses
Skill Development Courses
Entrepreneurship Development Courses
Any two or all of the above

WINTER SEMESTER (ODD)

S.No	Course Category	Course Code	Course Name	L	T	P	C
1.	HS	15UEN101	Technical English – I (Common to ALL Branches)	2	0	0	2
2.	BS	15UMA102	Engineering Mathematics – I (Common to ALL Branches)	3	2	0	4
3.	BS	15UPH103	Engineering Physics– I (Common to ALL Branches)	3	0	0	3
4.	BS	15UCY104	Engineering Chemistry (Common to MECH & CHEM)	3	0	0	3
5.	ES	15UCS107	Computer Programming (Common to ALL Branches)	3	0	0	3
6.	ES	15UME108	Engineering Graphics (Common to ALL Branches)	2	0	4	4
7.	ES	15UCS109	Computer Programming Laboratory – 1 (Common to ALL Branches)	0	0	2	1
8.	ES	15UME110	Engineering Practices Laboratory (Common to MECH,CHEM, EEE and CIVIL)	0	0	2	1
9.	BS	15UGS112	Basics Science Laboratory I (Common to ALL Branches)	0	0	2	1
10.	BS	15UMA321	Transforms and Partial Differential Equations (Common to MECH, CIVIL, CHEM, ECE,	3	2	0	4

			EEE & EIE)				
11.	PC	15UCH301	Introduction to Chemical Engineering	3	0	0	3
12.	ES	15UCH302	Organic Chemistry	3	0	0	3
13.	PC	15UCH303	Fluid Mechanics for Chemical Engineering	3	0	0	3
14.	PC	15UCH304	Chemical Process Industries-I	3	0	0	3
15.	ES	15UEE324	Electrical Drives and Control for Chemical Engineering	3	0	0	3
16.	ES	15UEE328	Electrical Drives and Control for Chemical Engineering Laboratory	0	0	2	1
17.	ES	15UCH307	Organic Chemistry Laboratory	0	0	2	1
18.	PC	15UCH308	Chemical Engineering Fluid Mechanics Laboratory	0	0	2	1
19.	PC	15UCH501	Chemical Engineering Thermodynamics – II	3	0	0	3
20.	PC	15UCH502	Mass Transfer- I	3	0	0	3
21.	PC	15UCH503	Heat transfer	3	0	0	3
22.	PC	15UCH504	Instrumental Methods of Analysis	3	0	0	3
23.	PC	15UCH507	Process Equipment Design and Drawing-I	0	0	2	1
24.	PC	15UCH508	Heat Transfer Laboratory	0	0	2	1
25.	PC	15UCH701	Transport Phenomena	3	0	0	3
26.	PC	15UCH702	Chemical Engineering Process Economics and Industrial Management	3	0	0	3
27.	PC	15UCH703	Chemical Reaction Engineering-II	3	2	0	4
28.	PC	15UCH707	Chemical Reaction Engineering	0	0	2	1

S.No	Course Category	Course Code	Course Name	L	T	P	C
			Laboratory				
29.	PC	15UCH708	Process Equipment Design and Drawing-II	0	0	2	1
30.	PC	15UCH709	Process Control Laboratory for Chemical Engineers	0	0	2	1
TOTAL CREDITS: 71				**55**	**6**	**26**	**71**

SUMMER SEMESTER (EVEN)

S.No	Course Category	Course Code	Course Name	L	T	P	C
1.	HS	15UEN201	Business English and Presentations Skills (Common to ALL Branches)	3	0	0	3
2.	BS	15UMA202	Engineering Mathematics – II (Common to ALL Branches)	3	2	0	4
3.	BS	15UPH203	Material Science (Common to MECH & CHEM)	3	0	0	3
4.	HS	15UCY207	Environmental Science (Common to ALL Branches)	3	0	0	3
5.	ES	15UEE208	Basic Electrical and Electronics Engineering (Common to MECH,, CIVIL & CHEM)	3	0	0	3
6.	ES	15UCH209	Principles of Mechanics	3	0	0	3
7.	BS	15UGS210	Basic Science Laboratory – II (Common to ALL Branches)	0	0	2	1

No.		Code	Course				
8.	ES	15UEE212	Basic Electrical and Electronics Engineering Laboratory	0	0	2	1
9.	BS	15UMA422	Numerical Methods (EEE, EIE, ICE, CIVIL & CHEM)	3	2	0	4
10.	PC	15UCH401	Chemical Engineering Thermodynamics -I	3	0	0	3
11.	PC	15UCH402	Chemical Process Calculations	3	0	0	3
12.	PC	15UCH403	Mechanical Operations	3	0	0	3
13.	ES	15UCH404	Physical Chemistry	3	0	0	3
14.	PC	15UCH405	Chemical Process Industries - II	3	0	0	3
15.	PC	15UGS431	Reasoning and Quantitative Aptitude (Common to ALL Branches)	1	0	0	1
16.	ES	15UCH407	Physical Chemistry Laboratory	0	0	2	1
17.	PC	15UCH408	Mechanical Operations Laboratory	0	0	2	1
18.	ES	15UCH409	Technical Analysis Laboratory	0	0	2	1
19.	PC	15UCH601	Mass Transfer-II	3	0	0	3
20.	PC	15UCH602	Chemical Reaction Engineering-I	3	0	0	3
21.	PC	15UCH603	Process Instrumentation Dynamics and Control	3	0	0	3
22.	PC	15UCH607	Mass Transfer Laboratory	0	0	2	1
23.	HS	15UGS531	Soft Skills and Communication Laboratory Common to MECH, CIVIL, EIE & CHEM)	0	0	2	1
24.	P	15UCH608	Technical Project	0	0	6	3
25.	PC	15UME801	Professional Ethics (Common to ALL Branches)	2	0	0	2

26.	P	15UCH801	Project Work	0	0	24	12
TOTAL CREDITS: 72				48	4	44	72

PROFESSIONAL ELECTIVES

S. No	Course Category	Course Code	Course Title	L	T	P	C
Petroleum and Petrochemical							
1	PE	15UCH903	Petroleum Refinery Engineering	3	0	0	3
2	PE	15UCH906	Polymer Technology	3	0	0	3
3	PE	16UCH907	Fertilizer Technology	3	0	0	3
Energy and Environmental Engineering							
4	PE	15UCH911	Air Pollution and Control	3	0	0	3
5	PE	15UCH917	Waste Water Treatment	3	0	0	3
6	PE	15UCH918	Electrochemical Engineering	3	0	0	3
7	PE	15UCH910	Energy Engineering	3	0	0	3
8	PE	15UCH914	Pinch Technology	3	0	0	3
Process Modeling and Simulation							
9	PE	15UCH904	Process Optimization	3	0	0	3
10	PE	15UCH913	Process Modeling and Simulation	3	0	0	3
11	PE	15UCH916	Pilot Plant and Scale Up	3	0	0	3
12	PE	15UCH912	Modern Separation Process	3	0	0	3
Process Safety and Management							
13	PE	15UCH923	Chemical Process Plant Safety	3	0	0	3
14	PE	15UCH920	Process Plant Utilities	3	0	0	3
15	PE	15UCH919	Entrepreneurial Skills for Chemical Product & Design	3	0	0	3
16	PE	15UCH921	Quality Management for Chemical Engineers	**3**	**0**	**0**	**3**

			Bio Process Engineering				
17	PE	15UCH909	Bio Chemical Engineering	3	0	0	3
18	PE	15UCH901	Food Science and Technology	3	0	0	3
19	PE	15UCH908	Fermentation Technology	3	0	0	3
20	PE	15UCH922	Drugs and Pharmaceutical Technology	3	0	0	3
			Modern Chemical Technology				
21	PE	15UCH902	Fluidization Technology	3	0	0	3
22	PE	15UCH905	Pulp and Paper Technology	3	0	0	3
23	PE	15UCH915	Nano Science and Engineering	3	0	0	3
24	PE	15UCH924	Ceramic Technology	3	0	0	3

OPEN ELECTIVES

S.No	Course Category	Course Code	Course Title	Credits	Offering Department
1.	OE	15UCH951	Corrosion Science and Engineering	3	CHEMICAL
2	OE	15UCH952	Bio Sensor's	3	
3.	OE	15UCH953	Energy Storage Systems	3	
4.	OE	15UCH954	Alternate Energy Sources	3	
5.	OE	15UCH955	Industrial Solid Waste Management	3	

ONE CREDIT COURSES

S.No	COURSE CODE	COURSE NAME	CREDITS
1.	15UCH861	MATLAB for Chemical Engineering	1
2.	15UCH862	Simulation on Process Fundamentals	1
3.	15UCH863	Sugarcane Processing and its Products	1

4.	15UCH864	Dry Cement Manufacturing Process	1
5.	15UCH865	Reclamation of Waste Lubricating Oils and its Products.	1
6.	15UCH866	Pollution Control Engineering	1
7.	15UCH867	Enzymes for Environmental Applications	1
8.	15UCH868	Reclamation of Press Mud Wax	1
9.	15UCH869	Sensors for Air Pollution	1
10.	15UCH870	Waste Recycling from Pulp and Textile Mills	1
11.	15UCH871	Membrane Technology	1
12.	15UCH872	Pyrotechnics	1

SEMESTER I

Course Code	Course Title	L	T	P	C
THEORY					
15UEN101	Technical English – I (Common to ALL Branches)	2	0	0	2
15UMA102	Engineering Mathematics – I (Common to ALL Branches)	3	2	0	4
15UPH103	Engineering Physics– I (Common to ALL Branches)	3	0	0	3
15UCY104	Engineering Chemistry (Common to MECH & CHEM)	3	0	0	3
15UCS107	Computer Programming (Common to ALL Branches)	3	0	0	3
15UME108	Engineering Graphics (Common to ALL Branches)	2	0	4	4
PRACTICAL					
15UCS109	Computer Programming Laboratory – 1 (Common to ALL Branches)	0	0	2	1
15UME110	Engineering Practices Laboratory (Common to MECH,CHEM, EEE, EIE and CIVIL)	0	0	2	1
15UGS112	Basics Science Laboratory I (Common to ALL Branches)	0	0	2	1
	TOTAL	**16**	**2**	**10**	**22**
Total No. of Credits - 22					

SEMESTER II

Course Code	Course Title	L	T	P	C
THEORY					
15UEN201	Business English and Presentations Skills (Common to ALL Branches)	3	0	0	3
15UMA202	Engineering Mathematics – II (Common to ALL Branches)	3	2	0	4
15UPH203	Material Science (Common to MECH & CHEM)	3	0	0	3
15UCY207	Environmental Science (Common to ALL Branches)	3	0	0	3
15UEE208	Basic Electrical and Electronics Engineering (Common to MECH,CIVIL & CHEM)	3	0	0	3
15UCH209	Principles of Mechanics	3	0	0	3
PRACTICAL					
15UGS210	Basic Science Laboratory – II (Common to ALL Branches)	0	0	2	1
15UEE212	Basic Electrical and Electronics Engineering Laboratory	0	0	2	1
	TOTAL	18	2	4	21
	Total No. of Credits - 21				

SEMESTER III

Course Code	Course Title	L	T	P	C
THEORY					
15UMA321	Transforms and Partial Differential Equations (Common to MECH, ECE, EEE, CIVIL, CHEMICAL, AGRI, BIO MEDICAL)	3	2	0	4
15UCH301	Introduction to Chemical Engineering	3	0	0	3
15UCH302	Organic Chemistry	3	0	0	3
15UCH303	Fluid Mechanics for Chemical Engineering	3	0	0	3
15UCH304	Chemical Process Industries-I	3	0	0	3
15UEE324	Electrical Drives and Control for Chemical Engineering	3	0	0	3
PRACTICALS					
15UEE328	Electrical Drives and Control for Chemical Engineering Laboratory	0	0	2	1
15UCH307	Organic Chemistry Laboratory	0	0	2	1
15UCH308	Chemical Engineering Fluid Mechanics Laboratory	0	0	2	1
	TOTAL	18	2	6	22
	Total No. of Credits – 22				

SEMESTER IV

Course Code	Course Title	L	T	P	C
THEORY					
15UMA422	Numerical Methods (EEE, CIVIL & CHEM)	3	2	0	4
15UCH401	Chemical Engineering Thermodynamics -I	3	0	0	3
15UCH402	Chemical Process Calculations	3	0	0	3
15UCH403	Mechanical Operations	3	0	0	3
15UCH404	Physical Chemistry	3	0	0	3
15UCH405	Chemical Process Industries - II	3	0	0	3
15UGS431	Reasoning and Quantitative Aptitude (Common to ALL Branches)	1	0	0	1
PRACTICAL					
15UCH407	Physical Chemistry Laboratory	0	0	2	1
15UCH408	Mechanical Operations Laboratory	0	0	2	1
15UCH409	Technical Analysis Laboratory	0	0	2	1
	TOTAL	19	2	6	23
Total No. of Credits – 23					

SEMESTER V

Course Code	Course Title	L	T	P	C
THEORY					
15UCH501	Chemical Engineering Thermodynamics - II	3	0	0	3
15UCH502	Mass Transfer- I	3	0	0	3
15UCH503	Heat transfer	3	0	0	3
15UCH504	Instrumental Methods of Analysis	3	0	0	3
	Elective - I	3	0	0	3
	Elective - II	3	0	0	3
PRACTICAL					
15UCH507	Process Equipment Design and Drawing-I	0	0	2	1
15UCH508	Heat Transfer Laboratory	0	0	2	1
	TOTAL	18	0	4	20
Total No. of Credits – 20					

SEMESTER VI

Course Code	Course Title	L	T	P	C
THEORY					
15UCH601	Mass Transfer-II	3	0	0	3
15UCH602	Chemical Reaction Engineering-I	3	0	0	3
15UCH603	Process Instrumentation Dynamics and Control	3	0	0	3
	Elective-III	3	0	0	3
	Elective-IV	3	0	0	3
	Open Elective- I	3	0	0	3
PRACTICAL					
15UCH607	Mass Transfer Laboratory	0	0	2	1
15UGS531	Soft Skills and Communication Laboratory (Common to MECH, CIVIL, EIE & CHEM)	0	0	2	1
15UCH608	Technical Project	0	0	6	3
	TOTAL	**18**	**0**	**10**	**23**
Total No. of Credits – 23					

SEMESTER VII

Course Code	Course Title	L	T	P	C
THEORY					
15UCH701	Transport Phenomena	3	0	0	3
15UCH702	Chemical Engineering Process Economics and Industrial Management	3	0	0	3
15UCH703	Chemical Reaction Engineering-II	3	2	0	4
	Elective – V	3	0	0	3
	Open Elective-II	3	0	0	3
PRACTICAL					
15UCH707	Chemical Reaction Engineering Laboratory	0	0	2	1
15UCH708	Process Equipment Design and Drawing-II	0	0	2	1
15UCH709	Process Control Laboratory for Chemical Engineers	0	0	2	1
	Total	**15**	2	**6**	19
Total No. of Credits - 19					

SEMESTER VIII

Course Code	Course Title	L	T	P	C
THEORY					
15UME801	Professional Ethics (Common to ALL Branches)	2	0	0	2
	Elective –VI	3	0	0	3
	Open Elective- III	3	0	0	3
PRACTICAL					
15UCH801	Project Work	0	0	24	12
	Total	**8**	**0**	**24**	**20**
Total No. of Credits – 20					