# **ACADEMIC CURRICULA**

# UNDERGRADUATE INTEGRATED POST GRADUATE DEGREE PROGRAMMES

(With exit option of Diploma)

(Choice Based Flexible Credit System)

Regulations 2021

Volume - 1

(Revised on July 2024)



# SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

(Deemed to be University u/s 3 of UGC Act, 1956)
Kattankulathur, Chengalpattu District 603203,
Tamil Nadu, India



# SRM INSTITUTE OF SCIENCE AND TECHNOLOGY Kattankulathur, Chengalpattu District 603203, Tamil Nadu, India

#### 15. B.Tech. in Chemical Engineering

15. (a) Mission of the Department

IVIISSION SUNI – 1	To facilitate high quality education, well grounded in the fundamental and applied areas of engineering necessary for learners to contribute effectively to chemical and allied industries
Mississ Charl	To educate, prepare, inspire and mentor learners with the technical and professional skill-set necessary to excel as professionals, grow in their careers and contribute to chemical engineering science and technology
Mission Stmt – 3	To inculcate social-responsibility in learners and train them to contribute effectively to science and society

15. (b) Program Educational Objectives (PEO)

PEO – 1	Utilizing their strong fundamental knowledge from the program be able to solve technical problems and contribute to chemical and allied industries
	Pursuing higher studies and/or continuously upgrading their skill-sets with technological advances leading to personal and professional growth and successful careers
	Establishing themselves with successful careers in industry, academia and/or as entrepreneurs that will enable them to address social, economic and environmental challenges and contribute to science and society

15. (c) Mission of the Department to Program Educational Objectives (PEO) Mapping

7.5	Mission S	tmt 1	Mission Stmt 2	Mission Stmt 3
PEO - 1	3		2	1
PEO - 2	2	me band his	3	1
PEO - 3	2	200	多文字 - 5 1、1991年	3

<sup>3 -</sup> High Correlation, 2 - Medium Correlation, 1 - Low Correlation

15. (d) Mapping Program Educational Objectives (PEO) to Program Outcomes (PO)

	7		زاري		Program Outcomes (PO)  Program Sp									gram Spe	eci <mark>fic</mark>		
	1	2	3	4	5	6	7	8	9	10	-11	12	Outo	comes (F	SO)		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern Tool Usage	The engineer and society	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO-1	Z-0Sd	PSO-3		
PEO - 1	3	3	3	3	2	-	1/2%		2	2	2		3	3	2		
PEO - 2	3	3	- 3	3	2		2	2		-	===	2	3	2	2		
PEO - 3	2	2	2	2	v T)	3-	2	2	3	3	3	2	<del></del>	2	3		

<sup>3 –</sup> High Correlation, 2 – Medium Correlation, 1 – Low Correlation

PSO - Program Specific Outcomes (PSO)

	tum eptemic successes (155)
PSO - 1	Ab <mark>ility to understand</mark> and differentiate processes
PSO - 2	Apply the fundamentals to perform computations related to synthesis, design and analysis of chemical processes
PSO - 3	Analyze the process plants from Energy, Environment and Safety related aspects

## 15. (e) Program Structure: B.Tech. in Chemical Engineering

	Humanities & Social Sciences						Basic Science Courses (B)				
	including Management Courses (H)					Course	Course		ours		
Course	Course		Hours /			Code	Title	١ ١	Veel		
Code	Title	V	Vee					L	T	Р	C
211 EH101T	Communicative English	2	1	P 0	3	21MAB1011 21CYB101J	Calculus and Linear Algebra	3	1	2	5
21LEH1011 21LEH102T		2	ı	U	3	21CYB101J 21BTB103T		2	0	0	2
21LEH1021							Advanced Calculus and Complex				
21LEH104T							Analysis	3	1	0	4
21LEH105T		2	1	0	3	21PYB101J	Physics: Electromagnetic Theory,	3	1	2	5
21LEH106T	Korean					ZIPTBIUIJ	Quantum Mechanics, Waves and Optics	J	1	2	0
	Spanish					21MAB201T	Transforms and Boundary Value	3	1	0	4
21LEH108T							Problems	-	-		
	Philosophy of Engineering	1	0	2	2	21MAB202T	Numerical Methods	3	1 Cred	0	4
	Social Engineering Behavioral Psychology	2	1	0	3		10	Jiai	Cred	มแร	20
ZIGNH4011		otal					Professional Core Courses (C)				
		otai	Oic	uito	10	Course	Course		ours	-	
	Engineering Science Courses (S)			,		Code	Title	١.	Veel		
Course Course				s /				L	T	Р	C
Code	Title	1	Vee T	к Р	С	21CHC101J		2	0	2	3
21CSS101J	Programming for Problem Solving	3	0	2	4	21CHC202T 21CHC203J		3	0	2	3
21MES101L		0	0	4	2	21CHC203J 21CHC204J			0		3
21MES101L		0	0	4	2	21CHC204J 21CHC205J		3	0	2	4
21EES101T		3	1	0	4	21CHC206T		3	0	0	3
21CHS201T	Introduction to Chemical Engineering	3	0	0	3	21CHC301T		3	1	0	4
21CHS303J	Computational Methods in Chemical	2	0	2	3	21CHC302J		3	0	2	4
21CHS303J	Engineering	2	0	2	3	21CHC304J		3	0	2	4
21DCS201P	0 0,	1	2	0	3		Dragge Dunamica Control and	2	0		3
21CSS303T	Data Science	2	0	0	2	21CHC305J	Instrumentation	2	U	2	3
	T	otal	Cre	dits	23	21CHC306T		3	0	0	3
	Open Elective Courses (O)					21CHC307J		2	0	2	3
	(Any 3 Courses)					21CHC401J	Process Equipment Design and	2	0	2	3
_		Н	ours	s /			Drawing				
Course	Course		Vee			21CHC402T	Process Economics and Project Management	3	0	0	3
Code	Title	L	Τ	Р	С	21CSC206T		2	1	0	3
	Sustainable Energy Engineering	3	0	0	3	210002001			Cre		
	Petroleum Engineering	3	0	0	3						
	Fundamentals of Chemical Engineering	3	0	0	3		Non Credit Courses (M)				
	Process Plant Safety	3	0	0	3	Course	Course		lours		
21CHO1051	Pollution Abatement	3	0	0	3 <b>09</b>	Code	Title	- '	<u>Nee</u>	k P	
		otal	<u>Cre</u>	aits	U9	21PDM101L1	Professional Skills and Practices	0	T 0	2	С
		Н	4				General Aptitude	0	0	2	
Project Wo	rk, Seminar, Internship in Industry / Hig	her 1	Tech	nnic	al		Verbal Reasoning	0	0	2	
	Institutions (P)	Ца	urs /	,			Critical and Creative Thinking Skills	0	0	2	0
Course	Course		urs / eek				Analytical and Logical Thinking Skills	0	0	2	
Code	Title	L I		Р	С		Employability Skills and Practices	0	0	2	
21GNP301L	<sup>1</sup> Community Connect		_	2	1		Environmental Science	1	0	0	0
21CHP302L			_	6			Constitution of India	1	0	0	0
21CHP303T			_	0	3		Universal Human Values – Introduction	1	0	0	0
21CHP401L			) ;	30	15	21LEM201T <sup>1</sup>	Professional Ethics	1	0	0	0
21CHP402L	Major Project	0 (	) [	20	10	041 = 1000 = 1	Universal Human Values-II:	^		_	_
21CHP403L		0 (		10	5	21LEM202T <sup>1</sup>	,	2	1	0	3
	To	tal C	red	lits	19	211 FM301T 1	Human Conduct Indian Art Form	1	0	0	0
							Indian Traditional Knowledge	1	0	0	0
							Physical and Mental Health using Yoga		U	U	0
							National Service Scheme				
							National Cadet Corps	0	0	2	0
							National Sports Organization				
								otal	Cre	dits	03
						l .					

	Professional Elective Courses (E) (Any 6 Courses)						Professional Elective Courses (E)				
Course Code	Course Title		lours Neel		С	Course Code	Course Title		ours Veel		С
21CHE351T	Renewable Energy Engineering	3	0	0	3	21CHE362T	Air Pollution Control Engineering	3	0	0	3
21CHE352T	Introduction to Biochemical Principles	3	0	0	3	21CHE363T	Wastewater Treatment	3	0	0	3
21CHE353T	Energy Engineering and Technology	3	0	0	3	21CHE364T	Chemical Process Optimization	3	0	0	3
21CHE354T	Polymer Technology	3	0	0	3	21CHE365T	Equilibrium Stage Operations	3	0	0	3
1 / 10/04/3001	Industrial Pollution Prevention and Control	3	0	0	3		Computational Fluid Dynamics Biochemical Process Design	3	0	0	3
21CHE356T	Enzyme Engineering	3	0	0	3		Micro Chemical Systems	3	0	0	3
21CHE357T	Fertilizer Technology	3	0	0	3	21CHE369T	Electrochemical Engineering	3	0	0	3
21CHE358T	Petroleum Technology	3	0	0	3	21CHE370T	Petrochemical Technology	3	0	0	3
21CHE359T	Principles of Membrane Separation	3	0	0	3	21CHE371T	Food Technology	3	0	0	3
1 / IU. HE 30III	Safety and Hazard Analysis in Process Industries	3	0	0	3	21CHE372T	Introduction to Process Plant Simulation	3 otal	0 Cre	0 dits	3 <b>18</b>
21CHE361T	Fundamentals of Desalination	3	0	0	3						



## 15. (f) Programme Articulation: B.Tech. in Chemical Engineering

					F	rogra	m Ou	tcome	s (PO	)					PSO	
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Course Code	Course Name	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modern Tool Usage	The engineer and society	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO-1	PSO-2	PSO-3
21CHC101J	Physical and Analytical Chemistry	3	2	1	3	3	-	-		-	-	-	-	2	2	-
	Introduction to Chemical Engineering	3	3	2	_	2		٧.,	-		-	-	-	-	-	-
	Chemical Process Calculations	3	3	-	-	-		-	42 -	-		-	-	3	-	_
	Mechanical operations	3	2	2	3	-	-	-		-,	_	_	-	3	2	_
	Chemical Engineering Fluid Mechanics	3	3	2	-		_	_	_				_	3	-	
	Heat Transfer	3	3	3			4-	-	_					3	_	
	Chemical Process Technology	3	-	-			, T	d						3	2	
		_	3	-											3	
	Chemical Engineering Thermodynamics	3		-	-	-	-	-	-	<i>-</i>	-	4-	-	2		-
21CHC302J	Mass Transfer Applications	2	3	3	-	-	-	-	-	<i>[-</i> ]	-	-	_	3	3	-
21CHS303J	Computational Methods in Chemical	3	2	1		2	_	-	- "	-	9.	-		2	2	-
	Engineering		1		100						_					
21CHC304J	Chemical Reaction Engineering	3	3	17	20		-	-	-	-		<u></u>	-	3	3	-
21CHC305J	Process Dynamics, Control and	3	3	2	3	3	_	_	_		- 3.		_	3	3	_
	Instrumentation	Ľ.	7	257		Ŭ						•			ŭ	
	Transport Phenomena	-	3	10-1	3	Ε.			-	-	-	-	<u> </u>	3		-
	Process Modeling and Simulation	3	2	-	"	2	450	-	•	-	-			3	2	-
2 <mark>1CHC401</mark> J	Process Equipment Design and Drawing	-	3	3	3	2	-		- 1	٠.	-	-		3		-
0401104007	Process Economics and Project	1.0	3				•	- 5	0			0	•	•		
21CHC402T	Management	11-	3	27	2	-	3		2	2		3	2	3	-	- 1
21CHE351T	Renewable Energy Engineering	3	40	2	74:	1.7		3	-	1.		-	-	_ 1	-	1
	Introduction to Biochemical Principles	3	3	2	3	-	411	2		- 21		-	-	2	3	3
	Energy Engineering and Technology	3	-	2	-	77	- 31	3	74	1	-	-	-	1		3
	Polymer Technology	3	1	3	1-	-	-	1	142		_	-	1	2	2	e.
	Industrial Pollution Prevention and Control	2	3	3	TE	1	÷.	3	2			-	3	-	1	3
	Enzyme Engineering	3	3	2				2	-		_	-	-	2	2	-
	Fertilizer Technology	3	3	2	3	â		2		-				2	2	
	Petroleum Technology	2	-	3	_	110	-	2				_	_	2	3	2
		3	3	-		-		_	-	-		- 14	-3	3	-	
21CHE3391	Principles of Membrane Separation	3	3	_	-	-	-	-	-	-		-	_	3		-
21CHE360T	Safety and Hazard Analysis in Process	2	3	3	-	_	_	_	_	-	7-	-	3	- /	2	3
	Industries	_	_	0			•	_				4	7	•		
	Fundamentals of Desalination	2	3	2	-	-	2	3	-			<u> </u>	-	3	-	1
	Air Pollution Control Engineering	3	2	3	77,	2	-	3	-	-	-/	-	1		- 1	3
	Water Treatment Technology	1	3	3		-	-	3	-	-	7	-	3	1	-	3
	Chemical Process Optimization	3	3	Ţ- '	75.0	-	-	-	-	-	-	2	-	3	3	-
	Equilibrium Stage Operations	-	3	3	1-4	- 7	-	-	-	1-1		-		3	-	-
	Computational Fluid Dynamics	-	3	-	3	3	-	-	<u>√-`\</u>	3-7	-	-		-	2	-
	Biochemical Process Design	1	1	2	2	2	-	2	-		7		T- ,	3	3	3
	Microfluidics and Lab-on-a-chip Technology	3	2	3	-	2	1	-	1	-	۲,	7		3	3	-
21CHE369T	Electrochemical Engineering	3	2	3	3	-	-	-	-	-	- 4	-	-	3	3	-
	Petrochemical Technology	2	-	3	-	-	-	-	-	- 1	7 -	, ř <u>.</u>	-	2	3	-
	Food Technology	3	3	2	3	-	-	2			-	-	-	3	2	-
21CHE372T	Introduction to Process Plant Simulation	3	3	-	-	3	-	-		-	-	-	-	2	2	-
21CHP302L		3	2	3	2	2	2	1	2	2	3	3	2	-	-	_
21CHP303T		-	-	-	2	-	2	-	-	-	3	-	2	_	_	_
	Major Project	3	2	3	2	2	2	1	2	2	3	3	2	_	_	_
	Major Project  Major Project	3	2	2	2	2	3	1	2	2	3	3	2	-	-	
21CHP402L	Internship	2	2	2	2	2	2	1	2	2	2	2	2	-	-	
21011F403L								'						-	-	
	Program Average				<u> </u>											

# 15. (g) Implementation Plan: B.Tech. in Chemical Engineering

Course		Semester – I						Semester – II						
Code			Н	our	s/			Hours /						
21LEH1017   Communicative English   Communicative En											k			
21MAB/017   Calculus and Linear Algebra   3   1   4   21LEH/031   French   21   0   3   0   2   2   21   0   3   3   1   2   5   2   21   0   3   3   2   2   21   0   3   3   2   2   21   0   3   3   2   2   21   0   3   3   2   2   3   3   2   2   3   3	Code	Title	L	Т	Р	С	Code	Tille	L	Т	Р	С		
21/PS/1011														
2	21MAB101T		3	1	0	4								
21/26/2017   Electrical and Electronics Engineering   3   1   0   4   2   2   2   2   2   2   2   2   2									4					
21MES012   Engineering Graphics and Design   0   0   4   2   2   2   2   2   2   2   2   2	21PYB101J		3	1	2	5			2	1	0	3		
	0414504001			0		0								
21CPM01011   Environmental Science				_	_									
					_					_		_		
Total Credits   Total Credit				_		_			1	U	2	2		
Semester - III				0		-	21MAB102T		3	1	0	4		
Semester - III	ZILLIWITOTT	,		Cre	·		21CVR101 I		3	1	2	5		
Course		- a	Otai	UIC	Juito	10				0				
Course   C		Semester – III					21CSS101.I				_	_		
Code	Course	Course								<u> </u>				
Transforms and Boundary Value			Ŀ	_		┨╻┃			_	<u> </u>	-			
21MA2011   Introduction   3   1   0   4   21CHC202T   Chemical Process Calculations   3   1   0   4   21CHC203T   Chemical Engineering   2   0   2   3   21CHC203J   Chemical Engineering   2   0   0   2   2   21CHS201T   Introduction to Chemical Engineering   3   0   0   3   21CHC203J   Chemical Engineering   3   0   0   2   0   2   2   2   2   2   2			ᅶ	-	IP	С						_		
	21MAB201T		3	3	1 0	4				Ť				
2   0   2   3   3   2   4   2   3   2   3   2   2   3   2   2   3   2   2	210402027			,	1 0	1			1	_	_			
Course   C							21GNM103L 1	National Cadet Corps	0	0	2	0		
Total Credits   Total Credit														
					_			T	otal	Cre	dits	25		
			2	2 /			- 1	Someotor IV						
Verbal Reasoning			_	_		_			ш	ouro	. 1			
Universal Human Values-II:   Understanding Harmony and Ethical   Human Conduct   Total Credits   22   1   0   3   2   2   2   1   0   3   3   2   2   2   2   2   3   3   2   2							Course							
Understanding Harmony and Ethical   Luman Conduct	ZII DINIZOTE		Ť	Ť	_	Ť	Code	Title	ı	T		С		
Human Conduct	21LEM202T 1		2	2	1 0	3	21MAR202T	Numerical Methods	3	1				
Semester - V   Seme														
Course Code			Total	Cr	edits	22					_			
Course Code		Semester – V						Chemical Process Technology		0		3		
Course Code			Н	our	s /		Ε	Professional Elective – I	3	0	0	3		
Classical Engineering								Design Thinking and Methodology	1	2	0	3		
Chemical Engineering   Themodynamics   Total Credits   20   2   3   3   1   0   4   4   4   21   21   21   21   21	Code	Litle	L			С	21PDM202L <sup>1</sup>		-			•		
Thermodynamics   Ther	0404000473	Chemical Engineering	2	,	^				otal	Cre	dits	20		
21CHC302J	21CHC30112	Thermodynamics	3	I	U	4								
2	21CHC302J	Mace Transfor Applications										l		
Code			3	0	2	4		Semester – VI	ш	ouro	1			
Course   Code   Title   Title   Title   Title   Title   Total Credits   Tota	21CHS3031	Computational Methods in Chemical					Course							
Professional Elective -		Computational Methods in Chemical Engineering	2	0	2	3		Course		Veel	<	С		
Total Credits   2   2   2   3   3   0   0   3   3   2   2   3   3   0   0   3   3   3   0   0   3   3	21CHC304J	Computational Methods in Chemical Engineering Chemical Reaction Engineering	2	0	2	3	Code	Course Title	L	Veel T	P			
21   21   21   22   23   21   23   24   24   24   24   24   24   24	21CHC304J O	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I	2 3 3	0 0 0	2 2 0	3 4 3	Code 21CSS303T	Course Title Data Science	L 2	Veel T 0	P 0	2		
Total Credits   22   1	21CHC304J 0 E	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II	2 3 3 3	0 0 0 0	2 2 0 0	3 4 3 3	21CSS303T	Course Title  Data Science Process Dynamics, Control and	L 2	Veel T 0	P 0	2		
Course   Course   Code   Title   Code   Title   Course   Code   Title   Code   Code	21CHC304J O E 21PDM301L <sup>1</sup>	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills	2 3 3 3 0	0 0 0 0	2 2 0 0 2	3 4 3 3 0	21CSS303T 21CHC305J	Course Title  Data Science Process Dynamics, Control and Instrumentation	L 2 2	Veel T 0	P 0 2	3		
Semester - VII   Seme	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup>	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form	2 3 3 3 0 1	0 0 0 0 0	2 2 0 0 2 2	3 4 3 3 0	Code 21CSS303T 21CHC305J 21CHC306T 2	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena	L 2 2 3	Veel T 0 0	P 0 2 0	3 3		
Course Code	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup>	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect	2 3 3 0 1	0 0 0 0 0	2 2 0 0 2 0 2	3 4 3 3 0 0	Code  21CSS303T  21CHC305J  21CHC306T <sup>2</sup> 21CHC307J  E	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena Process Modeling and Simulation	L 2 2 3 2 2	Veel- T 0 0 0 0 0	P 0 2 0 2	2 3 3 3		
Course Code	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup>	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect	2 3 3 0 1	0 0 0 0 0	2 2 0 0 2 0 2	3 4 3 3 0 0	Code  21CSS303T  21CHC305J  21CHC306T <sup>2</sup> 21CHC307J  E	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena Process Modeling and Simulation Professional Elective – III	L 2 2 3 3 3 3	Veel- T 0 0 0 0 0 0 0	P 0 2 0 2 0 0	2 3 3 3 3		
Code	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup>	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect	2 3 3 0 1 0	0 0 0 0 0 0 0 Cree	2 0 0 2 0 2 0 2	3 4 3 3 0 0	Code  21CSS303T  21CHC305J  21CHC306T 2  21CHC307J  E  E  21CHP303T 1	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena Process Modeling and Simulation Professional Elective – III Professional Elective – IV	L 2 2 3 3 3 3	Veel- T 0 0 0 0 0 0 0 0 0 0	P 0 2 0 2 0 0 0	2 3 3 3 3 3		
2	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup> 21GNP301L <sup>1</sup>	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Semester – VII	2 3 3 0 1 0 Total	0 0 0 0 0 0 0 Cre	2 2 0 0 2 0 2 edits	3 4 3 3 0 0	Code  21CSS303T  21CHC305J  21CHC306T 2  21CHC307J  E  E  21CHP303T 1	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena Process Modeling and Simulation Professional Elective – III Professional Elective – IV MOOC Project	L 2 2 3 3 3 3 0 0	Veel- T 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 0 0 0 0 0	2 3 3 3 3 3 3		
21CHC401J²   Process Equipment Design and Drawing   2   0   2   3   3   2   0   3   3   3   3   3   3   3   3   3	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup> 21GNP301L <sup>1</sup>	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Semester – VII Course	2 3 3 0 1 0 Total	0 0 0 0 0 0 0 Cre	2 0 0 2 0 2 edits	3 4 3 3 0 0 1 22	Code  21CSS303T  21CHC305J  21CHC306T 2  21CHC307J  E  E  21CHP303T 1  21CHP302L 1  O	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena Process Modeling and Simulation Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II	L 2 2 3 3 3 3 0 0 3	Veek T 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 0 0 0 0 0 6 0 0	2 3 3 3 3 3 3		
Process Economics and Project   Management   3   0   0   3	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup> 21GNP301L <sup>1</sup> Course Code	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Semester – VII  Course Title	2 3 3 0 1 0 Total	0 0 0 0 0 0 0 Cree	2	3 4 3 0 0 1 22	Code  21CSS303T  21CHC305J  21CHC306T <sup>2</sup> 21CHC307J  E  21CHP303T <sup>1</sup> 21CHP302L <sup>1</sup> O  21PDM302L <sup>1</sup>	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena Process Modeling and Simulation Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices	L 2 2 3 3 3 3 0 0 3	Veek T 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 0 0 0 0 0 6 0 2	2 3 3 3 3 3 3 3 0		
Nanagement   Semester - VIII	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup> 21GNP301L <sup>1</sup> Course Code 21GNH401T	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Semester – VII  Course Title Behavioral Psychology	2 3 3 0 1 0 Total	0 0 0 0 0 0 0 Cree	2	3 4 3 0 0 1 22	Code  21CSS303T  21CHC305J  21CHC306T <sup>2</sup> 21CHC307J  E  21CHP303T <sup>1</sup> 21CHP302L <sup>1</sup> O  21PDM302L <sup>1</sup>	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena Process Modeling and Simulation Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge	2 2 3 2 3 3 3 0 0	Veek T 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 0 0 0 0 0 0 0 0 2 0 0 0 0 0 0 0 0	2 3 3 3 3 3 3 0 0		
E	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup> 21GNP301L <sup>1</sup> Course Code 21GNH401T 21CHC401J <sup>2</sup>	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Semester – VII  Course Title Behavioral Psychology Process Equipment Design and Drawing	2 3 3 3 0 1 1 0 Cotal	0 0 0 0 0 0 0 Cre	2 0 0 2 2 edits	3 4 3 3 0 0 1 22	Code  21CSS303T  21CHC305J  21CHC306T <sup>2</sup> 21CHC307J  E  21CHP303T <sup>1</sup> 21CHP302L <sup>1</sup> O  21PDM302L <sup>1</sup>	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena Process Modeling and Simulation Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge	2 2 3 2 3 3 3 0 0	Veek T 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 0 0 0 0 0 0 0 0 2 0 0 0 0 0 0 0 0	2 3 3 3 3 3 3 0 0		
E         Professional Elective − VI         3         0         0         3         Course Code         Code         Title         Hours / Week         L         T         P         C           Total Credits         18           21CHP401L         Major Project         0         0         0         0         10         5           21CHP403L         Internship#         0         0         10         5           Total Credits         15	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup> 21GNP301L <sup>1</sup> Course Code 21GNH401T 21CHC401J <sup>2</sup>	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Semester – VII  Course Title Behavioral Psychology Process Equipment Design and Drawing Process Economics and Project	2 3 3 3 0 1 1 0 Cotal	0 0 0 0 0 0 0 Cre	2 0 0 2 2 edits	3 4 3 3 0 0 1 22	Code  21CSS303T  21CHC305J  21CHC306T <sup>2</sup> 21CHC307J  E  21CHP303T <sup>1</sup> 21CHP302L <sup>1</sup> O  21PDM302L <sup>1</sup>	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena Process Modeling and Simulation Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge	2 2 3 2 3 3 3 0 0	Veek T 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 0 0 0 0 0 0 0 0 2 0 0 0 0 0 0 0 0	2 3 3 3 3 3 3 0 0		
O         Open Elective − III         3         0         0         3         Code         Title         U         T         P         C           21CHP401L         Major Project         0         0         0         30         15           21CHP402L         Major Project         0         0         0         10         5           21CHP403L         Internship#         0         0         10         5           Total Credits         15	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup> 21GNP301L <sup>1</sup> Course Code 21GNH401T 21CHC401J <sup>2</sup> 21CHC402T	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Semester – VII  Course Title Behavioral Psychology Process Equipment Design and Drawing Process Economics and Project Management	2 3 3 3 0 1 0 0 Total	0 0 0 0 0 0 0 Cree	2 2 0 0 0 2 2 0 2 2 0 0 0 2 2 0 0 0 0 0	3 4 3 3 0 0 1 22 C 3 3 3	Code  21CSS303T  21CHC305J  21CHC306T <sup>2</sup> 21CHC307J  E  21CHP303T <sup>1</sup> 21CHP302L <sup>1</sup> O  21PDM302L <sup>1</sup>	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena Process Modeling and Simulation Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge	2 2 3 3 3 3 0 0 1 1 Total	Veek T 0 0 0 0 0 0 0 0 0 Cre	P 0 2 0 0 0 0 0 6 0 0 2 0 0 dits	2 3 3 3 3 3 3 0 0		
Total Credits   18   21CHP401L   Major Project   0   0   30   15	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup> 21GNP301L <sup>1</sup> Course Code 21GNH401T 21CHC401J <sup>2</sup> 21CHC402T E	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Semester – VII  Course Title Behavioral Psychology Process Equipment Design and Drawing Process Economics and Project Management Professional Elective – V	2 3 3 3 3 0 1 0 Total L 2 2 3 3 3 3 3 3 3	0 0 0 0 0 0 0 0 Cree Wee	2 2 0 0 0 2 2 edits  UTS / Peek  T P P 11 0 0 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0	3 4 3 3 0 0 1 22 C 3 3 3	Code  21CSS303T  21CHC305J  21CHC306T <sup>2</sup> 21CHC307J  E  E  21CHP303T <sup>1</sup> 21CHP302L <sup>1</sup> O  21PDM302L <sup>1</sup> 21LEM302T <sup>1</sup>	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena Process Modeling and Simulation Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge  T  Semester - VIII	2 2 3 3 3 3 0 1 Total	Veel T 0 0 0 0 0 0 0 0 0 Cre	P 0 2 0 0 0 0 0 6 0 0 2 0 0 dits	2 3 3 3 3 3 3 0 0		
21CHP401L   Major Project   0   0   30   15	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup> 21GNP301L <sup>1</sup> Course Code 21GNH401T 21CHC401J <sup>2</sup> 21CHC402T E E	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Semester – VII  Course Title Behavioral Psychology Process Equipment Design and Drawing Professional Elective – V Professional Elective – V Professional Elective – VI	2 3 3 3 0 1 0 Total L 2 2 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0 0 0 Cre We	2 2 0 0 0 2 2 0 0 2 2 0 0 0 0 0 0 0 0 0	3 4 3 3 0 0 1 22 C 3 3 3 3 3 3	Code  21CSS303T  21CHC305J  21CHC306T <sup>2</sup> 21CHC307J  E  21CHP303T <sup>1</sup> 21CHP302L <sup>1</sup> 21LEM302T <sup>1</sup> Course	Course Title  Data Science  Process Dynamics, Control and Instrumentation  Transport Phenomena  Process Modeling and Simulation  Professional Elective – III  Professional Elective – IV  MOOC  Project  Open Elective – II  Employability Skills and Practices Indian Traditional Knowledge  T  Semester - VIII  Course	2 2 3 3 3 3 0 1 Total	Veek	P 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 3 3 3 3 3 3 0 0 23		
21CHP403L   Internship#   0   0   10   5	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup> 21GNP301L <sup>1</sup> Course Code 21GNH401T 21CHC401J <sup>2</sup> 21CHC402T E E	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Semester – VII  Course Title Behavioral Psychology Process Equipment Design and Drawing Process Economics and Project Management Professional Elective – V Professional Elective – VI Open Elective – III	2 3 3 3 0 1 0 Total L 2 2 3 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0 0 0 Cree	2 2 0 0 0 2 2 0 2 2 2 2 2 2 2 2 2 2 2 2	3 4 3 3 0 0 1 22 C 3 3 3 3 3 3 3	Code  21CSS303T  21CHC305J  21CHC306T <sup>2</sup> 21CHC307J  E  21CHP303T <sup>1</sup> 21CHP302L <sup>1</sup> O  21PDM302L <sup>1</sup> 21LEM302T <sup>1</sup> Course Code	Course Title  Data Science  Process Dynamics, Control and Instrumentation  Transport Phenomena  Process Modeling and Simulation  Professional Elective – III  Professional Elective – IV  MOOC  Project  Open Elective – II  Employability Skills and Practices Indian Traditional Knowledge	2 2 3 3 3 3 0 0 1 Total	Veek	P 0 2 0 0 0 0 6 0 2 0 0 dits	2 3 3 3 3 3 3 0 0 23		
Total Credits 15	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup> 21GNP301L <sup>1</sup> Course Code 21GNH401T 21CHC401J <sup>2</sup> 21CHC402T E E	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Semester – VII  Course Title Behavioral Psychology Process Equipment Design and Drawing Process Economics and Project Management Professional Elective – V Professional Elective – VI Open Elective – III	2 3 3 3 0 1 0 Total L 2 2 3 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0 0 0 Cree	2 2 0 0 0 2 2 0 2 2 2 2 2 2 2 2 2 2 2 2	3 4 3 3 0 0 1 22 C 3 3 3 3 3 3 3	Code  21CSS303T  21CHC305J  21CHC306T <sup>2</sup> 21CHC307J  E  21CHP303T <sup>1</sup> 21CHP302L <sup>1</sup> O  21PDM302L <sup>1</sup> 21LEM302T <sup>1</sup> Course Code  21CHP401L	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena Process Modeling and Simulation Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge  Semester - VIII Course Title Major Project	2 2 3 3 3 3 3 0 1 1 Total	Veel- T 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 0 0 0 0 6 0 0 2 0 0 dits	2 3 3 3 3 3 0 0 23		
	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup> 21GNP301L <sup>1</sup> Course Code 21GNH401T 21CHC401J <sup>2</sup> 21CHC402T E E	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Semester – VII  Course Title Behavioral Psychology Process Equipment Design and Drawing Process Economics and Project Management Professional Elective – V Professional Elective – VI Open Elective – III	2 3 3 3 0 1 0 Total L 2 2 3 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0 0 0 Cree	2 2 0 0 0 2 2 0 2 2 2 2 2 2 2 2 2 2 2 2	3 4 3 3 0 0 1 22 C 3 3 3 3 3 3 3	Code  21CSS303T  21CHC305J  21CHC306T <sup>2</sup> 21CHC307J  E  21CHP303T <sup>1</sup> 21CHP302L <sup>1</sup> O  21PDM302L <sup>1</sup> 21LEM302T <sup>1</sup> Course Code  21CHP401L  21CHP402L	Course Title  Data Science  Process Dynamics, Control and Instrumentation  Transport Phenomena  Process Modeling and Simulation  Professional Elective – III  Professional Elective – IV  MOOC  Project  Open Elective – II  Employability Skills and Practices Indian Traditional Knowledge  T  Semester - VIII  Course Title  Major Project  Major Project	2 2 3 3 3 3 0 0 1 Total	Veek	P 0 2 0 0 0 0 6 0 0 2 0 0 dits	2 3 3 3 3 3 0 0 23		
	21CHC304J O E 21PDM301L <sup>1</sup> 21LEM301T <sup>1</sup> 21GNP301L <sup>1</sup> Course Code 21GNH401T 21CHC401J <sup>2</sup> 21CHC402T E E	Computational Methods in Chemical Engineering Chemical Reaction Engineering Open Elective – I Professional Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Semester – VII  Course Title Behavioral Psychology Process Equipment Design and Drawing Process Economics and Project Management Professional Elective – V Professional Elective – VI Open Elective – III	2 3 3 3 0 1 0 Total L 2 2 3 3 3 3 3 3 3 3 3 3 3	0 0 0 0 0 0 0 Cree	2 2 0 0 0 2 2 0 2 2 2 2 2 2 2 2 2 2 2 2	3 4 3 3 0 0 1 22 C 3 3 3 3 3 3 3	Code  21CSS303T  21CHC305J  21CHC306T <sup>2</sup> 21CHC307J  E  21CHP303T <sup>1</sup> 21CHP302L <sup>1</sup> O  21PDM302L <sup>1</sup> 21LEM302T <sup>1</sup> Course Code  21CHP401L  21CHP402L	Course Title  Data Science Process Dynamics, Control and Instrumentation Transport Phenomena Process Modeling and Simulation Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge  T  Semester - VIII  Course Title Major Project Internship#	2 2 3 3 3 3 0 0 1 Total	Veek T 0 0 0 0 0 0 0 0 0 0 Cre	P 0 2 0 0 0 0 6 0 0 2 0 0 dits	2 3 3 3 3 3 0 0 23		



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