



DEPARTMENT OF CHEMICAL ENGINEERING
SRI VENKATESWARA UNIVERSITY COLLEGE OF ENGINEERING: TIRUPATI-517502
R-20 – Scheme of Instruction effective from the academic year 2020-2021

Course Code	Category	Course Title	Scheme of Instruction, Hrs/Week				Credits	Scheme of Evaluation, Marks		Total Marks
			L	T	P	Total		Internal	End Sem	
MA301 B	BSC	Mathematics - III	3	0	0	3	3	40	60	100
CH302E	ESC	Engineering and Solid Mechanics	3	0	0	3	3	40	60	100
HS303C	HSS	Managerial Economics and Accountancy	3	0	0	3	3	40	60	100
CH304C	PCC	Chemical Process Calculations	3	0	0	3	3	40	60	100
CH305C	PCC	Momentum Transfer	3	0	0	3	3	40	60	100
CH306C	PCC	Chemical Engineering Thermodynamics - I	3	0	0	3	3	40	60	100
CH307L	PCC Lab	Momentum Transfer Lab	0	0	3	3	1.5	40	60	100
CH308L	PCC Lab	Analysis Lab	0	0	3	3	1.5	40	60	100
CH309S	SOC	Computer Skills	1	0	2	3	2	100	--	100
MC310A	MC	Constitution of India	2	0	0	2	0	100	--	100
		TOTAL	21	0	8	29	23	520	480	1000

III Semester (Second Year)

Note: A student is free to enroll and complete online courses from II Semester to VII Semester of his /her B.Tech programme.

Category	CREDITS
Basic Science Course - BSC	03
Engineering Science Course – ESC	03
Humanities and Social Science - HSS	03
Professional Core Course -PCC	12
Skill Oriented Course - SOC	02
TOTAL CREDITS	23



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IV Semester (Second Year)

Course Code	Category	Course Title	Scheme of Instruction, Hrs/Week				Credits	Scheme of Evaluation, Marks		Total Marks	
			L	T	P	Total		Internal	End Sem		
CH401B	BSC	Mathematics - IV	3	0	0	3	3	40	60	100	
CH402C	PCC	Particle and Fluid Processing	3	0	0	3	3	40	60	100	
CH403C	PCC	Chemical Engineering Thermodynamics - II	3	0	0	3	3	40	60	100	
CH404C	PCC	Heat Transfer	3	0	0	3	3	40	60	100	
CH405C	PCC	Mass Transfer Operations - I	3	0	0	3	3	40	60	100	
CH406C	PCC	Chemical Technology	3	0	0	3	3	40	60	100	
CH407L	PCC Lab	Particle and Fluid Processing Lab	0	0	3	3	1.5	40	60	100	
CH408L	PCC Lab	Heat Transfer Lab	0	0	3	3	1.5	40	60	100	
CH409S	SOC	Python Programming	1	0	2	3	2	100	-	100	
CH410		NCC/NSS/NSO	Satisfactory or Unsatisfactory								
		TOTAL	19	0	8	27	23	420	480	900	

Category	CREDITS
Basic Science Course - BSC	03
Professional Core Course - PCC	18
Skill Oriented Course - SOC	02
TOTAL CREDITS	23

Note: Community Service Project (CSP) after second year (To be evaluated during V semester) with duration greater than 45 hours.

All undergraduate students shall register for NCC/NSS/NSO activities in First semester of B. Tech. A student will be required to participate in an activity for two hours in a week during second and third semesters i.e., 60 hours. Grade shall be awarded as Satisfactory or Unsatisfactory in the mark sheet on the basis of participation, attendance, performance and behavior. If a student gets an unsatisfactory Grade, he/she shall repeat the above activity in the subsequent years, in order to complete the degree requirements.



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				L	T	P	Total		Internal	End Sem	
1	CH501C	PCC	Mass Transfer Operations -II	3	0	0	3	3	40	60	100
2	CH502C	PCC	Chemical Reaction Engineering-I	3	0	0	3	3	40	60	100
3	CH503C	PCC	Process Dynamics And Control	3	0	0	3	3	40	60	100
4	CH504C	PCC	Material Science	3	0	0	3	2	40	60	100
5	CH505C	ESC	Industrial Management	3	0	0	3	2	40	60	100
	CH506C	PEC-I	Professional Elective-I	3	-	-	3	3	40	60	100
6	CH507L	PCC Lab	Mass Transfer Operations Lab	-	-	3	3	1.5	40	60	100
7	CH508L	PCC Lab	Process Dynamics & Control Lab	-	-	3	3	1.5	40	60	100
8	CH509S	SOC	Computational Techniques Lab	1	-	2	3	2	100	--	100
10	MC510B	MC	Universal Human Values	2	-	-	2	-	100	--	100
11	CH511I	Community Service Project (CSP) after second year (To be evaluated during V semester) with duration greater than 45 hours.		0	0	0	0	1.5	100	0	100
TOTAL				21	0	8	29	22.5	620	480	1100

V Semester (Third Year)

L – Lecturer hours; Tut. – Tutorials; P/D – Practical or Drawing; T - Total

Category	CREDITS
Professional Core Course-PCC	17
Skill Oriented Course – SOC	02
Internship	1.5
TOTAL CREDITS	22.5



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VI Semester (Third Year)

S. No	Course Code	Category	Course Title	Scheme of Instruction, Hrs/Week				Credits	Scheme of Evaluation, Marks		Total Marks
				L	T	P	Total		Internal	End Sem	
1	CH601C	PCC	Chemical Reaction Engineering -II	3	-	-	3	3	40	60	100
2	CH602C	PCC	Transport Phenomena	3	-	-	3	3	40	60	100
3	CH603C	PCC	Plant Design & Process Economics	3	-	-	3	3	40	60	100
4	CH604C	PEC-II	Professional Elective-II	3	-	-	3	3	40	60	100
5	CH605C	OEC-I	MOOCs-I	-	-	-	-	3	-	100	100
6	CH606C	OEC-II	MOOCs-II	3	-	3	-	3	-	100	100
7	CH607L	PCC Lab	Reaction Engineering Lab	-	-	-	3	1.5	40	60	100
8	CH608S	SOC	Simulation Lab	1	-	2	3	2	-	100	100
9	MC609C	MC	Professional Ethics in Engineering	2	-	-	2	-	-	100	100
10		Summer Internship with duration of 4 to 6 weeks (To be evaluated during VII semester)									
			TOTAL	18	0	8	26	21.5	280	620	1000

L – Lecturer hours; Tut. – Tutorials; P/D – Practical or Drawing; T - Total

Category	CREDITS
Professional Core Course-PCC	13.5
MOOCs	6
Skill Oriented Course - SOC	2
TOTAL CREDITS	21.5



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VII Semester (Fourth Year)

S. No.	Course Code	Category	Course title	Scheme of Instruction, Hr/Week				Credits	Scheme of Evaluation, Marks		Total Marks
				L	T	P	Total		Internal	External	
1	CH701C	PCC	Bio Process Engineering	3	0	0	3	3	40	60	100
2	CH702C	PCC	Optimization Techniques	3	0	0	3	3	40	60	100
3	CH703C	PEC-III	Professional Elective-III	3	0	0	3	3	40	60	100
4	CH704C	PEC-IV	Professional Elective - IV	3	0	0	3	3	40	60	100
5	CH705C	PEC-V	Professional Elective - V	3	0	0	3	3	40	60	100
6	CH706C	OEC-III	MOOCs - III	-	-	-	-	3	0	100	100
7	CH707C	OEC-IV	MOOCs - IV	-	-	-	-	3	0	100	100
8	CH708S	SOC	Computer Aided Process Equipment Design & Drawing	1	0	2	3	2	100	-	100
9	CH708I	Summer Internship with duration of 4 to 6 weeks (To be evaluated during VII semester)		0	0	-	-	3	100	-	100
TOTAL				14	0	0	14	26	400	500	900

L – Lecturer hours; Tut. – Tutorials; P/D – Practical or Drawing; T - Total

Category	CREDITS
Professional Core Course-PCC	13.5
Open Elective – MOOCs	06
Skill Oriented Course – SOC	02
Internship	03
TOTAL CREDITS	26



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VIII Semester (Fourth Year)

S.No	Category	Course Code	Course title	Scheme of Instruction, Hr/Week				Credits	Scheme of Evaluation, Marks		Total Marks
				L	T	P	Total		Internal	External	
1	Major Project	CHP801	Project-Work and Internship	0	0	0	0	12	40	60	100
			<i>TOTAL</i>	0	0	0	0	12	40	60	100

Total:

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Credits	19	18	23	23	22.5	21.5	24.5	12	163.5

Professional Elective- List of Subjects:

Professional Elective-I:	Industrial Safety & Hazard Analysis
	Energy Engineering
	Industrial Effluent Treatment
Professional Elective-II:	Process Instrumentation
	Polymer Science & Engineering
	Fundamentals of Nanotechnology
Professional Elective-III	Petroleum Refining Processes
	CO ₂ Capture and Utilization
	Water Conservation & Management
Professional Elective-IV	Fluidization Engineering
	Fuel Cell Systems
	Fundamentals of Microelectronic Material Processing
Professional Elective-V	Process Modelling & Simulation
	Computational Fluid Dynamics
	Membrane separations



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B. Tech. Minor Requirements in Chemical Engineering

Total Credit requirement: 20

Student shall register for any 4 subjects ($4 \times 4 = 16$ credits) from the following listed subjects, by selecting one subject for each IV, V, VI and VII semester. Further, they shall require 4 credits through two MOOCs (each of 2 credits), which shall be discipline-specific.

All courses – 40 marks (Internal) + 60 marks (End Semester)

The courses that are offered for B. Tech.(Minor)in Chemical Engineering are

Course Code	Subject	L-T-P	Credits
CHMN01	Basic Process Calculations	3-1-0	4
CHMN02	Fluid and Particle Mechanics	3-1-0	4
CHMN03	Heat and Mass Transfer	3-1-0	4
CHMN04	Elementary Reaction engineering	3-1-0	4
CHMN05	Process Industrial Technology	3-1-0	4
CHMNO6	Fundamentals of Nanotechnology	3-1-0	4
CHMN07	MOOCS	0	4



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B.Tech. Honors requirements in Chemical Engineering

Total Credit requirement: 20

Student shall register for any 4 subjects ($4 \times 4 = 16$ credits) from the following listed subjects, by selecting one subject for each IV, V, VI and VII semester. Further, they shall require 4 credits through two MOOCs (each of 2 credits), which shall be discipline-specific.

All courses – 40 marks (Internal) + 60 marks (End Semester)

The courses that are offered for B. Tech.(Honors) in Chemical Engineering are

Course Code	Course Title	L-T-P	Credits
CHHN01	Sustainable process Engineering	3-1-0	4
CHHN02	Separation Processes	3-1-0	4
CHHN03	Chemical Reactor Theory	3-1-0	4
CHHN04	Applications of Nano Technology in Chemical Engineering	3-1-0	4
CHHN05	Advanced Heat Transfer	3-1-0	4
CHHN06	Process Plant Simulation	3-1-0	4
CHHN07	MOOCS	0	4