

**An Autonomous Institute**

Shree Warana Vibhag Shikshan Mandal's

**Tatyasaheb Kore Institute of  
Engineering And Technology,  
Warananagar**

NBA Accredited Institute



# Department of Chemical Engineering



**B. Tech. In Chemical Engineering  
Proposed Structure and Syllabus under Autonomy as per  
the NEP Policy 2020**

**Tatyasaheb Kore Institute of Engineering and Technology,  
Warananagar**

**An Autonomous Institute  
Department of Chemical Engineering**

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❖ **Vision of the Department–**

To be a recognized program of chemical engineering with quality education, innovation and skill sets for meeting the needs of Industry and Society.

❖ **Mission of the Department –**

**M1.** To uphold the Chemical Engineering professional standards, with sound skills and ethical values.

**M2.** To facilitate all round development for boosting the abilities in internship, service sector, higher studies and entrepreneurship.

**M3.** To establish strong linkage and partnership with industry as well as research institutes of National repute to promote research activities.

**M4.** To provide technical education through innovative applications to rural fields.

**M5.** To enhance lifelong learning in chemical engineering with due respect to safety, environment and society.



**Tatyasaheb Kore Institute of Engineering and Technology,  
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**Department of Chemical Engineering**

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❖ **PROGRAM EDUCATIONAL OBJECTIVES**

**Graduates will be able to,**

1. Model and simulate the chemical processes by using advanced software.
2. Do Economic design and demonstrate safety and environmental aspects in chemical processes.
3. Understand the impact of Chemical Engineering solutions within realistic constraints in global and societal context.

❖ **PROGRAM OUTCOMES**

**After completion of the Program, graduates will,**

1. Apply knowledge of science, mathematics and engineering fundamentals to the solution of problems of chemical engineering.
2. Identify and integrate the major elements to formulate and solve chemical engineering problems.
3. Design a system, component or process to meet desired objectives within realistic constraints such as economic, environmental, social, political, ethical, manufacturability, sustainability, health and safety aspect
4. Conduct experiments using research based knowledge and research method safely to analyze and interpret data to provide valid conclusions.
5. Create and use the appropriate techniques, resources, modern engineering tools and advanced software's necessary for model prediction and simulation of chemical engineering processes.
6. Apply reasoning in formed by contextual knowledge to assess impact of contemporary issues as societal, health, safety, legal, cultural and consequent responsibilities relevant to chemical engineering practices.
7. Understand the impact of engineering solution in a global, economic, environmental, societal context and need for sustainable development.
8. Understand professional ethics, responsibilities and norms of chemical engineering practices.
9. Work effectively as a member in multidisciplinary teams to have better understanding of leadership.
10. Communicate effectively and comprehensively in oral and written form
11. Apply knowledge of chemical engineering and understand management principle to manage projects in multidisciplinary environment.
12. Recognize the need for and have an ability to engage in life long learning.

❖ **PROGRAM SPECIFIC OUTCOMES**

1. Graduates will be able to Model and simulate the chemical processes by using advanced software.
2. Graduates will be able to do Economic design and demonstrate safety and environmental aspects in chemical processes.
3. Graduates will be able to understand the impact of Chemical Engineering solutions within realistic constraints in global and societal context.



SWVSM'S

Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

An Autonomous Institute

### Abbreviations

Sr. No.	Acronym	Definition
1	ISE	In-Semester Examination
2	ISE-I	In-Semester Examination-I
3	ISE-II	In-Semester Examination-II
4	ESE	End Semester Examination
5	ISA	In-Semester Assessment(Term Work)
6	L	Lecture
7	T	Tutorial
8	P	Practical
9	CH	Contact Hours
10	C	Credit

### Course/Subject Categories

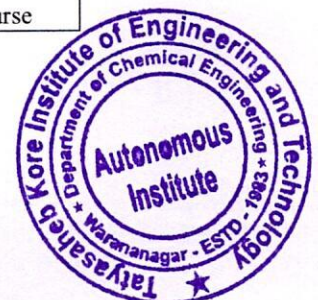
Sr.No.	Acronym	Definition
1	PCC	Professional Core Course
2	MDM	Multidisciplinary Minor
3	OE	Open Electives
4	HSSM	Humanities social science and Mgmt
5	ELC	Experiential Learning Courses
6	VSEC	Vocational and skill Enhancement course
7	AEC	Ability Enhancement Course

### Course/Subject Code

CH	E	3	0	1
Branch Code		Semester	Course Number	

### Course Term work and POE Code

CH	E	3	0	1	T/P/A
Branch Code		Semester	Course Number		T- Term work P-POE A-Audit Course



**Second Year B.Tech. in Chemical Engineering**

**Proposed Structure and Syllabus**

**Under**

**Autonomy as per the NEP Policy 2020**

**Tatyasaheb Kore Institute of Engineering and Technology, Warananagar**

**Second Year B. Tech. (Chemical Engineering)**

**Semester-III**

(To be implemented from 2024 - 25)

Credit Scheme as per [NEP Policy](#)

**S. Y. B. Tech. Chemical Engineering Sem -III**

Sr. No.	Category	Sub Category	Course Code	Name of Course	Teaching Scheme			C	CH	Examination & Evaluation Scheme			
					L	T	P			Component	Marks	Min for Passing	
1	Programme Course	PCC	23UGPCC-CH301	Fluid Mechanics	3*	--	--	2	3	ESE	60	24	40
										ISE	40	16	
2		PCC	23UGPCC-CH302	Mechanical Operations	3*	--	--	2	3	ESE	60	24	40
										ISE	40	16	
3		PCC	23UGPCC-CH303	Engineering Mathematics for Chemical Engineers	3*	--	--	2	3	ESE	60	24	40
									ISE	40	16		
4		PCC	23UGPCC-CH304	Industrial Chemistry	2*	--	--	1	2	ESE	60	24	40
									ISE	40	16		
5		PCC	23UGPCC-CH 305	Computer Techniques in Chemical Engineering	3*	--	--	2	3	ESE	60	24	40
									ISE	40	16		
6	Multi-disciplinary Courses	MDM-1	23UGMD M1-CH306T	Material Science Engg.	1	1	--	2	2	ISA	50	20	20
7	Humanities Social Science and Management	Entrepreneurship/Economics/Management Courses	23UGEEEC1-CH3071L	Leadership & Management	2	--	--	2	2	ISA	25	10	10
8		Value Education Course (VEC)	23UGVEC 1-CH3081T	Personal Values and Ethics	1	1	--	2	2	ISA	25	10	10
9	Experiential Learning Courses	Comm. Engg. Project (CEP)/Field Project (FP)	23UGCCP-CH309T	Community Connected Project	1	1	--	2	2	ISA	25	10	10
10	Programme Course	PCC	23UGPCC-CH301LP	Fluid Mechanics Lab	--	--	2	1	2	ISA	25	10	20
										POE	25	10	
11		PCC	23UGPCC-CH302LP	Mechanical Operation Lab	--	--	2	1	2	ISA	25	10	20
										POE	25	10	
12		PCC	23UGPCC-CH304LP	Advanced Chemistry Lab	--	--	2	1	2	ISA	25	10	20
										POE	25	10	
13		PCC	23UGPCC-CH305T	Computer Techniques in Chemical Engineering Lab	--	--	2	1	2	ISA	25	10	10
					<b>19</b>	<b>3</b>	<b>8</b>	<b>21</b>	<b>30</b>	--	<b>800</b>	<b>320</b>	<b>320</b>

**Note:** In theory examination, there will be separate passing of ESE and ISE.

\* Additional contact hours are provided for the courses without any credit

For material science and engg. course demonstration of the experiments based on course shall be conducted during tutorial hrs.



**Tatyasaheb Kore Institute of Engineering and Technology, Warananagar**

**Second Year B. Tech. (Chemical Engineering)**

**Semester-IV**

((To be implemented from 2024 - 25)

Credit Scheme as per [NEP Policy](#)

**S. Y. B. Tech. Chemical Engineering Sem - IV**

Sr. No.	Category	Sub Category	Course Code	Name of Course	Teaching Scheme			C	CH	Examination & Evaluation Scheme			
					L	T	P			Comp onent	Marks	Min for Passing	
1	Programme Course	PCC	23UGPCC-CH401	Heat Transfer	3*	--	--	1	3	ESE	60	24	40
										ISE	40	16	
2		PCC	23UGPCC-CH402	Chemical Process Calculations	3*	--	--	1	3	ESE	60	24	40
										ISE	40	16	
3	PCC	23UGPCC-CH403	Chemical Engineering Thermodynamics –I	3*	--	--	2	3	ESE	60	24	40	
									ISE	40	16		
4	PCC	23UGPCC-CH404	Process Instrumentation and Instrumental Methods of Analysis	2*	--	--	1	2	ESE	60	24	40	
									ISE	40	16		
5	Multidisciplinary Courses	MDM-2	23UGMD M2-CH405T	Corrosion Engineering	1	1	--	2	2	ISA	50	20	20
6		OE -1	23UGOE1-CH4061	Green Technology	3	--	--	3	3	ESE	60	24	40
									ISE	40	16		
7	Skill Courses	Vocational and Skill Enhancement Course (VSEC)	23UGVSEC 1-CH407LP	Fluid Moving Machinery Lab	1	--	2	2	3	ISA	25	10	20
8	Humanities Social Science and Management	Ability Enhancement Course	23UGAEC1-CH4081T	Hindi	1	1	--	2	2	ISA	25	10	10
		Entrepreneurship/Economics/Management Courses	23UGEEC2-CH4091L	Human Resource Management	2	--	--	2	2	ISA	25	10	10
9		Value Education Course (VEC)	23UGVEC2-CH4101L	Ethics and Moral Philosophy	2	--	--	2	2	ISA	25	10	10
10	Programme Course	PCC	23UGPCC-CH401LP	Heat Transfer Lab	--	--	2	1	2	ISA	25	10	20
									POE	25	10		
11		PCC	23UGPCC-CH404LP	Process Instrumentation and Instrumental Methods of Analysis Lab	--	--	2	1	2	POE	25	10	20
12	PCC	23UGPCC-CH402T	Chemical Process Calculations	--	1	--	1	1	ISA	25	10	10	
13	Audit Course	A	23UG-CH411A	Audit Course – (Environmental studies)	--	--	--	--	--	--	--	--	--
					<b>21</b>	<b>3</b>	<b>6</b>	<b>21</b>	<b>30</b>	--	<b>800</b>	<b>320</b>	<b>320</b>

\* Additional contact hours are provided for the courses without any credit



Humanities Social Science and Management (HSSM)			
Course Basket Sem –III			
Entrepreneurship / Economics Course (EEC-1)			
Category	Sub Category	Course Code	Name of Course
Humanities Social Science and Management	EEC - 1	23UGEEC1-CH3071L	Leadership & Management
		23UGEEC1-CH3072L	Entrepreneurship
		23UGEEC1-CH3073L	Project Management
Value Education Course (VEC-1)			
Category	Sub Category	Course Code	Name of Course
Humanities Social Science and Management	VEC-1	23UGVEC1-CH3081T	Personal Values and Ethics
		23UGVEC1-CH3082T	Respect and Empathy
		23UGVEC1-CH3083T	Leadership and Ethical Decision Making

Humanities Social Science and Management (HSSM)			
Course Basket Sem – IV			
Ability Enhancement Course (AEC-1)			
Category	Sub Category	Course Code	Name of Course
Humanities Social Science and Management	AEC - 1	23UGAEC1-CH4081T	Hindi
		23UGAEC1-CH4082T	Marathi
		23UGAEC1-CH4083T	Gujarati
Entrepreneurship / Economics Course (EEC-2)			
Category	Sub Category	Course Code	Name of Course
Humanities Social Science and Management	EEC - 2	23UGEEC2-CH4091L	Human Resource Management
		23UGEEC2-CH4092L	Event Management
		23UGEEC2-CH4093L	Plumbing and Electrical Skill
Value Education Course (VEC-2)			
Category	Sub Category	Course Code	Name of Course
Humanities Social Science and Management	VEC-2	23UGVEC2-CH4101L	Ethics and Moral Philosophy
		23UGVEC2-CH4102L	Social Responsibility and Citizenship
		23UGVEC2-CH4103L	Values in Education Policies and Practice





**Third Year B.Tech. in Chemical Engineering**

**Proposed Structure and Syllabus**

**Under**

**Autonomy as per the NEP Policy 2020**

## Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

### Third Year B. Tech. (Chemical Engineering)

#### Semester-V

(To be implemented from 2025 - 26)

Credit Scheme as per [NEP Policy](#)

### T. Y. B. Tech. Chemical Engineering Sem -V

Sr. No.	Category	Sub Category	Course Code	Name of Course	Teaching Scheme			C	C H	Examination & Evaluation Scheme			
					L	T	P			Comp onent	Mar ks	Min for Passing	
1	Programme Course	PCC	23UGPCC-CH501	Chemical Reaction Engineering-I	3	--	--	3	3	ESE	60	24	40
										ISE	40	16	
2		PCC	23UGPCC-CH502	Mass Transfer-I	3*	1	--	3	4	ESE	60	24	40
										ISE	40	16	
3		PCC	23UGPCC-CH503	Chemical Engineering Thermodynamics-II	3*	1	--	2	4	ESE	60	24	40
									ISE	40	16		
4		PEC-1	23UGPEC1-CH5041	Chemical Equipment Design	3	--	--	3	3	ESE	60	24	40
									ISE	40	16		
5	Multidisciplinary Courses	MDM-3	23UGMDM3-CH505	Pipe Basic and Revision	4	--	--	4	4	ESE	60	24	40
										ISE	40	16	
6		OE-2	23UGOE2-CH5061	Energy Audit	3	--	--	3	3	ESE	60	24	40
									ISE	40	16		
7	Programme Course	PCC	23UGPCC-CH501LP	Chemical Reaction Engineering-I Lab	--	--	2	1	2	ISA	25	10	20
										POE	25	10	
8		PCC	23UGPCC-CH502LP	Mass Transfer-I Lab	--	--	2	1	2	ISA	25	10	20
									POE	25	10		
9		PCC	23UGPCC-CH504LP	Chemical Equipment Design Lab	--	--	2	1	2	ISA	50	20	40
									POE	50	20		
					<b>19</b>	<b>2</b>	<b>6</b>	<b>21</b>	<b>26</b>	--	<b>800</b>	<b>320</b>	<b>320</b>

Note: In theory examination, there will be separate passing of ESE and ISE.



# Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

## Third Year B. Tech. (Chemical Engineering)

### Semester-V

(To be implemented from 2025 - 26)

Credit Scheme as per [NEP Policy](#)

### T. Y. B. Tech. Chemical Engineering Sem -VI

Sr. No.	Category	Sub Category	Course Code	Name of Course	Teaching Scheme			C	C H	Examination & Evaluation Scheme			
					L	T	P			Component	Marks	Min for Passing	
1	Programme Course	PCC	23UGPCC-CH601	Chemical Reaction Engineering-II	3*	--	--	2	3	ESE	60	24	40
										ISE	40	16	
2		PCC	23UGPCC-CH602	Mass Transfer-II	4*	--	--	3	4	ESE	60	24	40
										ISE	40	16	
3		PCC	23UGPCC-CH603	Process Dynamics and Control	3*	--	--	2	3	ESE	60	24	40
									ISE	40	16		
4	Programme Course	PEC-2	23UGPEC2-CH6041	Process Plant Utilities	3	--	--	3	3	ESE	60	24	40
										ISE	40	16	
5		PEC-3	23UGPEC3-CH6051	Industrial Economics, Management & Entrepreneurship	2	--	--	2	2	ESE	60	24	40
									ISE	40	16		
6	Multidisciplinary Courses	MDM-4	23UGMDM4-CH606L	Piping Material	2	--	--	2	2	ISA	50	20	20
7	Skill Courses	Vocational and Skill Enhancement Course (VSEC)	23UGVSEC-CH6071L	Industrial Practices and Case Studies	1	--	2	2	3	ISA	50	20	20
8	Programme Course	PCC	23UGPCC-CH601LP	Chemical Reaction Engineering-II Lab	--	--	2	1	2	ISA	25	10	20
										POE	25	10	
9		PCC	23UGPCC-CH602LP	Mass Transfer-II Lab	--	--	2	1	2	ISA	25	10	20
										POE	25	10	
10		PCC	23UGPCC-CH603LP	Process Dynamics and Control Lab	--	--	2	1	2	ISA	25	10	20
									POE	25	10		
11	Programme Course	PEC-2	23UGPEC2-CH6041T	Process Plant Utilities	--	1	--	1	1	ISA	25	10	10
12		PEC-3	23UGPEC3-CH6051T	Industrial Economics, Management & Entrepreneurship	--	1	--	1	1	ISA	25	10	10
					<b>19</b>	<b>2</b>	<b>8</b>	<b>21</b>	<b>28</b>	<b>0</b>	<b>800</b>	<b>320</b>	<b>320</b>

Note: In theory examination, there will be separate passing of ESE and ISE.



<b>Multidisciplinary Courses (MDM)</b>			
<b>Course Basket Sem -V</b>			
<b>Open Elective – OE - 2</b>			
<b>Category</b>	<b>Sub Category</b>	<b>Course Code</b>	<b>Name of Course</b>
Multidisciplinary Courses	Open Elective – OE2	23UGOE2-CH5061	Energy Audit
		23UGOE2-CH5062	Waste Management

<b>Skill Courses (SC)</b>			
<b>Course Basket Sem -VI</b>			
<b>Vocational and Skill Enhancement Course (VSEC)</b>			
<b>Category</b>	<b>Sub Category</b>	<b>Course Code</b>	<b>Name of Course</b>
Skill Courses	Vocational and Skill Enhancement Course (VSEC)	23UGVSEC-CH6071L	Teamwork and Collaboration - Industrial Practices and Case Studies
		23UGVSEC-CH6072L	Leadership Skill
		23UGVSEC-CH6073L	Problem Solving & Analytical Skill

### **Program Electives Courses (PEC) Basket**

<b>PEC - 1</b>			
<b>Category</b>	<b>Sub Category</b>	<b>Course Code</b>	<b>Name of Course</b>
Programme Course	PEC - 1	23UGPEC1-CH5041	Chemical Equipment Design
		23UGPEC1-CH5042	Applications of MATLAB
		23UGPEC1-CH5043	Introduction to Polymer Science and Engineering

<b>PEC - 2</b>			
<b>Category</b>	<b>Sub Category</b>	<b>Course Code</b>	<b>Name of Course</b>
Programme Course	PEC - 2	23UGPEC2-CH6041	Process Plant Utilities
		23UGPEC2-CH6042	Process Systems Engineering
		23UGPEC2-CH6043	Chemical and Reactive Systems

<b>PEC - 3</b>			
<b>Category</b>	<b>Sub Category</b>	<b>Course Code</b>	<b>Name of Course</b>
Programme Course	PEC - 3	23UGPEC3-CH6051	Industrial Economics, Management & Entrepreneurship
		23UGPEC3-CH6051	Project Management & Smart Technology
		23UGPEC3-CH6051	Advanced Industrial Software's



**Final Year B.Tech. in Chemical Engineering**

**Proposed Structure and Syllabus**

**Under**

**Autonomy as per the NEP Policy 2020**

# Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

## Final Year B. Tech. (Chemical Engineering)

### Semester-VII

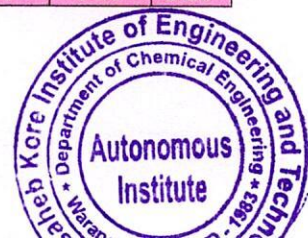
(To be implemented from 2026 - 27)

Credit Scheme as per [NEP Policy](#)

### Final Year B. Tech. Chemical Engineering Sem -VII

Sr. No.	Category	Sub Category	Course Code	Name of Course	Teaching Scheme			C	C H	Examination & Evaluation Scheme			
					L	T	P			Comp onent	Marks	Min for Passing	
1	Programme Course	PCC	23UGPCC-CH701	Chemical Process Design	3	--	--	3	3	ESE	60	24	40
										ISE	40	16	
2		PCC	23UGPCC-CH702	Chemical Process Synthesis	3*	--	--	1	3	ESE	60	24	40
										ISE	40	16	
3		PEC-4	23UGPEC4-CH7031	Mathematical Modeling in Chemical Engineering	3*	--	--	2	2	ESE	60	24	40
									ISE	40	16		
4	PEC-5	23UGPEC5-CH7041	Energy Conservation and Resources	3*	--	--	2	3	ESE	60	24	40	
									ISE	40	16		
5	Multidisciplinary Courses	MDM-5	23UGMDM5-CHE705L	Piping System Design & Lay out	2	--	--	2	2	ISA	50	20	20
6	Experiential Learning Courses	ELC	23UGELC-CH706	Research Methodology	3	--	--	3	3	ESE	60	24	40
									ISE	40	16		
7	Programme Course	PCC	23UGPCC-CH701LP	Chemical Process Design Lab	--	--	2	1	2	ISA	25	10	20
										POE	25	10	
8		PEC-4	23UGPEC4-CH7031LP	Mathematical Modeling in Chemical Engineering Lab	--	--	2	1	2	ISA	25	10	20
										POE	25	10	
9		PEC-5	23UGPEC5-CH7041T	Energy Conservation and Resources	--	1	--	1	1	ISA	25	10	10
10	PCC	23UGPCC-CH702T	Chemical Process Synthesis	--	1	--	1	1	ISA	25	10	10	
11	Experiential Learning Courses	ELC	23UGELC-CH707P	Project Work	--	--	4	4	8	ISA	50	20	20
										POE	50	20	20
					17	2	8	21	30	0	800	320	320

Note: In theory examination, there will be separate passing of ESE and ISE.



# Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

## Final Year B. Tech. (Chemical Engineering)

### Semester-VII

(To be implemented from 2026 - 27)  
Credit Scheme as per NEP Policy

## Final Year B. Tech. Chemical Engineering Sem -VIII

Sr. No.	Category	Sub Category	Course Code	Name of Course	Teaching Scheme			C	C H	Examination & Evaluation Scheme			
					L	T	P			Component	Marks	Min for Passing	
1	Programme Course	PCC	23UGPCC-CH801	Process Economics and Project Engineering	3*	--	--	2	3	ESE	60	24	40
2		PCC	23UGPCC-CH802	Process & Plant Safety	3*	--	--	1	3	ESE	60	24	40
										ISE	40	16	
3	Multidisciplinary Courses	PEC-6	23UGPEC6-CH8031	Chemical Product Design & Process Development	3*	--	--	2	3	ESE	60	24	40
										ISE	40	16	
4	MDM-6	23UGMDM6-CH804 L	Piping Insulation	2	--	--	2	2	ISA	50	20	20	
5	Experiential Learning Courses	Internship/ OJT	23UGELC-CH805 LP	Industrial Internship	--	--	8	8	8	ISA	100	40	40
6	Programme Course	PCC	23UGPCC-CH801T	Process Economics and Project Engineering	--	1	--	1	1	ISA	50	20	20
7		PCC	23UGPCC-CH806LP	Advanced Separations Processes Lab	1	--	2	1	3	ISA	25	10	10
										POE	25	10	10
8	Experiential Learning Courses	ELC	23UGELC-CH807 P	Project Work	--	--	8	4	8	ISA	75	20	20
					<b>12</b>	<b>1</b>	<b>18</b>	<b>21</b>	<b>31</b>	<b>0</b>	<b>800</b>	<b>320</b>	<b>320</b>

Note: In theory examination, there will be separate passing of ESE and ISE.



## Program Electives Courses (PEC) Basket

### PEC - 4

Category	Sub Category	Course Code	Name of Course
Programme Course	PEC - 4	23UGPEC4-CH7031	Mathematical Modeling in Chemical Engineering
		23UGPEC4-CH7032	Petroleum Refinery Engineering
		23UGPEC4-CH7033	Green Processes

### PEC - 5

Category	Sub Category	Course Code	Name of Course
Programme Course	PEC - 5	23UGPEC5-CH7041	Energy Conservation & Resources
		23UGPEC5-CH7042	Nano Technology
		23UGPEC5-CH7043	Down Stream Processing

### PEC - 6

Category	Sub Category	Course Code	Name of Course
Programme Course	PEC - 6	23UGPEC6-CH8031	Chemical Product Design & Process Development
		23UGPEC6-CH8032	Artificial Intelligence in Process Engineering
		23UGPEC6-CH8033	Petro Chemical Technology





**National Education Policy (NEP ) 2020 Structure**  
**Multidisciplinary Courses Basket**  
**Branch: Chemical Engineering**  
**Open Electives Basket offered by Department of Chemical Engineering**

Sr. No.	Semester	Course Code	Category	Name of Course	Teaching Scheme			C	C H	Examination & Evaluation Scheme		
					L	T	P			Component	Marks	Min for Passing
1	IV	23UGO E1-CH 405	OE-1	Green Technology	3	--	--	3	3	ESE	60	24
2				Nano Technology	3	--	--	3	3	ISE	40	16
1	V	23UGO E2-CH 506	OE-2	Energy Audit	3	--	--	3	3	ESE	60	24
2				Waste Management	3	--	--	3	3	ISE	40	16
					<b>12</b>	<b>0</b>	<b>--</b>	<b>12</b>	<b>12</b>		<b>400</b>	<b>160</b>



## National Education Policy (NEP ) 2020 Structure

### Multidisciplinary Minor (MDM) Courses Basket Branch: Chemical Engineering

### Piping Engineering

Sr. No.	Semester	Course Code	Category	Name of Course	Teaching Scheme			C	C H	Examination & Evaluation Scheme			
					L	T	P			Component	Marks	Min for Passing	
1.	III	23UGM DM1- CH306T	MDM - 1	Material Science Engg.	1	1	--	2	2	ISA	50	20	20
2.	IV	23UGM DM2- CH405T	MDM - 2	Corrosion Engg.	1	1	--	2	2	ISA	50	20	20
3.	V	23UGM DM3- CH 505	MDM - 3	Pipe Basic & Revision	4	--		4	4	ESE	60	24	24
										ISE	40	16	16
4.	VI	23UGM DM4- CH 606T	MDM - 4	Piping Material	2	--	--	2	2	ISA	50	20	20
5.	VII	23UGM DM5- CH 705T	MDM - 5	Piping System Design & Layout	2	--	--	2	2	ISA	50	20	20
6.	VIII	23UGM DM6- CH 804T	MDM - 6	Piping Insulation	2	--	--	2	2	ISA	50	20	20
					<b>12</b>	<b>2</b>	<b>--</b>	<b>14</b>	<b>14</b>		<b>350</b>	<b>150</b>	<b>150</b>



## National Education Policy (NEP ) 2020 Structure

### Branch: Chemical Engineering

**Exit Option to Qualify Certification after First Year, Diploma after Second Year and B. Tech. Voc. After Third Year**

**Exit Option to Qualify Certification completion of F. Y. B. Tech. : Any Three (03) Skill based Courses**

Sr. No.	Category	Sub Category	Course Code	Name of Course	Teaching Scheme			C	CH	Examination & Evaluation Scheme		
					L	T	P			Component	Marks	Min for Passing
1	Skill Courses	Vocational and Skill Enhancement Course (VSEC)		Analytical Chemistry	2	--	4	3	6	ISA	50	20
2		PCC		Unit Processes in Chemical Engg.	--	--	4	2	4	ISA	50	20
3		PCC		Unit Operations for Chemical Engg.	2	--	2	3	2	ISA	50	20
4	Programme Course	PCC		Advanced Excel Software	2	--	2	3	2	ISA	50	20
					<b>6</b>	<b>0</b>	<b>12</b>	<b>11</b>	<b>14</b>	<b>0</b>	<b>200</b>	<b>80</b>

**Exit Option to Qualify Diploma completion of S. Y. B. Tech. : Any Two (02) Skill based Courses of 8 credits**

Sr. No.	Category	Sub Category	Course Code	Name of Course	Teaching Scheme			C	CH	Examination & Evaluation Scheme		
					L	T	P			Component	Marks	Min for Passing
1	Programme Course	PCC		Plant Utilities	3	--	2	4	5	ISA	50	20
2		PCC		Introduction of Equipment Design	2	--	4	4	10	ISA	50	20



3		PCC		Chemical Process Synthesis	3	--	2	4	5	ISA	50	20
4	Experiential Learning Courses	Project		Mini Project (Compulsory)	--	--	8	4	8	ISA	50	20
					8	0	16	16	28	0	200	80

**Exit Option to Qualify B. Tech. Vocational completion of T. Y. B. Tech. : Any Two (02) Skill based Courses of 8 credits**

Sr. No.	Category	Sub Category	Course Code	Name of Course	Teaching Scheme			C	C H	Examination & Evaluation Scheme		
					L	T	P			Component	Marks	Min for Passing
1	Programme Course	PCC		Plant Design & Project Engg.	3	--	2	4	5	ISA	50	20
2		PCC		Industrial Safety	2	--	4	4	6	ISA	50	20
3	Experiential Learning Courses	Project		Mini Project (Compulsory)	--	--	8	4	8	ISA	50	20
					5	0	14	12	19	0	150	60



## Tatyasaheb Kore Institute of Engineering and Technology, Warananagar

### Honor Degree Course in Modeling and Simulation

#### (Chemical Engineering)

(To be implemented from 2025-26)

**Credit Scheme as per NEP 2020 Policy**

Course Code	Course Title	Semester	Category	Teaching and Credit Scheme					Examination & Evaluation Scheme			
				L	P	T	CH	C	Components	Marks	Min for Passing	
23UGCH-H-501	Process Simulation and control using ASPENPLUS	V	ESC	4	--	--	4	4	ESE	60	24	40
									ISE	40	16	
23UGCH-H-601	Pro Max Software	VI	ESC	4	--	--	4	4	ESE	60	24	40
									ISE	40	16	
23UGCH-H-701	PDMS Aveva (Design Software)	VII	ESC	4	--	--	4	4	ESE	60	24	40
									ISE	40	16	
23UGCH-H-801	Process Simulation using Uni-Sim (Design Software)	VIII	ESC	4	--	--	4	4	ESE	60	24	40
									ISE	40	16	
23UGCH-H-501L	Process Simulation and control using ASPENPLUS Lab	V	ESC	--	--	--	2	1	ISA	25	10	10
23UGCH-H-601L	Pro Max Software Lab	VI	ESC	--	--	--	2	1	ISA	25	10	10
23UGCH-H-701L	PDMS Aveva (Design Software) Lab	VII	ESC	--	--	--	2	1	ISA	25	10	10
23UGCH-H-801L	Process Simulation using Uni-Sim (Design Software) Lab	VIII	ESC	--	--	--	2	1	ISA	25	10	10
				16	--	--	24	20	--	500	--	--

Note: In theory examination, there will be separate passing of ESE and ISE.

