

PROGRAM STRUCTURE
AS PER CHOICE BASED CREDIT SYSTEM
(CBCS)

FACULTY OF ENGINEERING B.TECH.
(CHEMICAL ENGINEERING)

F.Y.B.Tech (2018-19 Batch)

and

S.Y.B.Tech (2017-18 Batch)



B. Tech. Chemical Engineering (First Year) (Batch 2018-19)

Trimester – I

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs.			Credits		Assessment Marks **			
				Theory	Tutorial	Lab.	Th.	Lab.	CCA*	LCA*	End Term Test	Total
1	ES 111	Mathematics -I	BS	3	1	--	3	--	100	-	50	150
2	ES112	Physics	BS	3	1	2	3	1	100	50	50	200
3	CE111	Applied Mechanics	ES	3	1	2	3	1	100	50	50	200
4	ME111	Workshop Practices	ES	-	-	2	-	1	-	50	-	50
5	ES113	Effective Communication	HSS	2	-	2	1	1	50	50	-	100
6		Practicing Yoga and Meditation	WP	-		1	-	-	-	-	-	-
Total :				11	03	09	10	04	350	200	150	700

**Assessment Marks are valid only if Attendance criteria are met

* CCA: Class Continuous Assessment

*LCA: Laboratory Continuous Assessment

Weekly Teaching Hours: 23 Hours

Total Credits: First Year B. Tech Trimester-I:14

Prof. (Dr.) L. K. Kshirsagar
Dean



B. Tech. Chemical Engineering (First Year) (Batch 2018-19)

Trimester – II

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs.			Credits		Assessment Marks**			
				Theory	Tutorial	Lab.	Th.	Lab.	CCA*	LCA*	End Term Test	Total
1	ES121	Mathematics II	BS	3	1	-	3	-	100	-	50	150
2	ES122	Chemistry	BS	3	-	2	2	1	50	50	50	150
3	ME121	Material Science for Engineers	BS	3	-	2	2	1	50	50	50	150
4	ME122	Engineering Graphics	ES	2	-	2	1	1	-	50	50	100
5	CS121	Computer Programming	ES	3	-	2	2	1	50	50	50	150
6	WPC 1	Indian Culture and Heritage	WP	3	-	-	2	-	50	-	50	100
7		Rural Immersion Programme	WP	-	-	-	-	-	-	-	-	-
8		Practicing Yoga and Meditation	WP	-	-	1	-	-	-	-	-	-
Total :				17	1	09	12	04	300	150	300	800

****Assessment Marks are valid only if Attendance criteria are met**

Weekly Teaching Hours: 27 Hours

Total Credits: First Year B. Tech. Trimester-II: 16

* CCA: Class Continuous Assessment

*LCA: Laboratory Continuous Assessment

Prof. (Dr.) L. K. Kshirsagar
Dean



B. Tech. Chemical Engineering (First Year) (Batch 2018-19)
Trimester – III

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs.			Credits		Assessment Marks**			
				Theory	Tutorial	Lab.	Th.	Lab.	CCA*	LCA*	End Term Test	Total
1	ES 131	Biology	BS	3	-	-	2	-	50	-	50	100
2	ME131	Engineering Design Principles	ES	3	-	2	2	1	50	50	50	150
3	EL131	Engineering Science Elective Course I*	ES	3	-	2	2	1	50	50	50	150
4	EL132	Engineering Science Elective Course II*	ES	3	-	2	2	1	50	50	50	150
5	WPC 2	Philosophers of Bharat , Great Kings and Dynasties	WP	3	-	-	2	-	50	-	50	100
6		Practicing Yoga and Meditation	WP	-	-	1	-	-	-	-	-	-
Total :				15	0	07	10	03	250	150	250	650

**Assessment Marks are valid only if Attendance criteria are met

* CCA: Class Continuous Assessment

*LCA: Laboratory Continuous Assessment

Weekly Teaching Hours: 22 Hours

Total Credits: First Year B. Tech. Trimester-III:13

Total First Year B. Tech Credits: 14+15+14=43

Prof. (Dr.) L. K. Kshirsagar
 Dean



List of Engineering Science Elective I and II

Sr. No.	Course Code	Name of Course
1		Introduction to Civil Engineering
2		Introduction to Mechanical Engineering
3		Introduction to Computer Science and Engineering
4		Introduction to Electrical Engineering
5		Introduction to Electronics Engineering
6		Introduction to Polymer Engineering
7		Introduction to Petroleum Engineering
8	CH138	Introduction to Chemical Engineering

*** Any two courses other than parent/ home discipline can be chosen from the list given above**

Prof. (Dr.) L. K. Kshirsagar
Dean



B. Tech. Chemical Engineering (Second Year) (Batch 2017-18)

Trimester – IV

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs.			Credits		Assessment Marks**			
				Theory	Tutorial	Lab.	Th.	Lab.	CCA*	LCA*	End Term Test	Total
1	ES214	Physical and Inorganic Chemistry	ES	3	-	2	2	1	50	50	50	150
2	CH211	Chemical Technology	PC	3	-	2	2	1	50	50	50	150
3	CH212	Mechanics of Materials	PC	3	1	2	3	1	50	50	50	150
4	CH213	Material and Energy Balance Calculations	PC	3	1	-	3	-	50	-	50	100
5	CH214	Computational Skills	PC	-	-	2	-	1	-	50	-	50
6		Environmental Science	HSS	2	-	-	1	-	50	-	-	50
Total :				14	02	08	11	04	250	200	200	650

Weekly Teaching Hours: 24 Hours

Total Credits: Second Year B. Tech. Trimester-I: 15

****Assessment Marks are valid only if Attendance criteria are met**

* CCA: Class Continuous Assessment

*LCA: Laboratory Continuous Assessment

Prof. (Dr.) L. K. Kshirsagar
Dean



B. Tech. Chemical Engineering (Second Year) (Batch 2017-18)
Trimester – V

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs			Credits		Assessment Marks**			
				Theory	Tutorial	Lab.	Th.	Lab.	CCA*	LCA*	End Term Test	Total
1	ES224	Organic Chemistry	ES	3	-	2	2	1	50	50	50	150
2	CH221	Fluid Mechanics	PC	3	-	2	2	1	50	50	50	150
3	CH222	Mechanical Operations	PC	3	-	2	2	1	50	50	50	150
4	CH223	Engineering Thermodynamics	PC	3	-	-	2	-	50	-	50	100
5	WPC 3	Spirit and Mind, Saints of India and Their Teachings	WP	3	-	-	2	-	50	-	50	100
6		National Study Tour	WP	-	-	-	-	-	-	-	-	-
Total :				15	01	06	10	03	250	150	250	650

**Assessment Marks are valid only if Attendance criteria are met

Weekly Teaching Hours: 22 Hours

* CCA: Class Continuous Assessment

Total Credits: Second Year B. Tech. Trimester-II: 13

*LCA: Laboratory Continuous Assessment

Prof. (Dr.) L. K. Kshirsagar
 Dean



B. Tech. Chemical Engineering (Second Year) (Batch 2017-18)

Trimester – VI

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs.			Credits		Assessment Marks**			
				Theory	Tutorial	Lab.	Th.	Lab.	CCA*	LCA*	End Term Test	Total
1	ES231	Mathematics-III	BS	3	1	-	3	-	100	-	50	150
2	CH231	Heat Transfer	PC	3	-	2	2	1	50	50	50	150
3	CH232	Chemical Engineering Thermodynamics	PC	3	-	-	2	-	50	-	50	100
4	CH233	Process Instrumentation	PC	3	-	-	2	-	50	-	50	100
5	CH234	Chemical Reaction Engineering	PC	3	-	2	2	1	50	50	50	150
6		Environmental Science/Indian Constitution	HSS	2	-	-	-	1	50	-	-	50
Total :				15	02	04	11	03	350	100	250	700

Weekly Teaching Hours: 21 Hours

Total Credits: Second Year B. Tech. Trimester-III: 14

****Assessment Marks are valid only if Attendance criteria are met**

* CCA: Class Continuous Assessment

*LCA: Laboratory Continuous Assessment

Total Second Year B. Tech Credits: 15+13+14=42

Prof. (Dr.) L. K. Kshirsagar
Dean



B. Tech. Chemical Engineering (Third Year) (Batch 2017-18)

Trimester – VII

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs.			Credits		Assessment Marks**			
				Theory	Tutorial	Lab	Th.	Lab.	CCA*	LCA*	End Term Test	Total
1	ES313	Numerical and Statistical Methods	BS	3	-	2	2	1	50	50	50	150
2	ES312	Mass Transfer-I	PC	3	-	2	2	1	50	50	50	150
3	CH313	Process Equipment Deign	PC	3	-	2	2	1	50	50	50	150
4	CH314	Professional Elective-I	PE	3	-	2	2	1	50	50	50	150
5	CH315	Open Elective-I	OE	3	-	2	2	1	50	50	50	150
6	WPC 6	Human Values and Professional Ethics	WP	3	-	-	2	-	50	-	50	100
Total :				18	-	10	12	05	300	250	300	850

**Assessment Marks are valid only if Attendance criteria are met

* CCA: Class Continuous Assessment

*LCA: Laboratory Continuous Assessment

Weekly Teaching Hours:28 Hours

Total Credits: Third Year B. Tech.Trimester- I: 17

Prof. (Dr.) L. K. Kshirsagar
Dean



B. Tech. Chemical Engineering (Third Year) (Batch 2017-18)

Trimester – VIII

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs.			Credits		Assessment Marks**			
				Theory	Tutorial	Lab	Th.	Lab.	CCA*	LCA*	End Term Test	Total
1	CH321	Mass Transfer-II	PC	3	-	2	2	1	50	50	50	150
2	CH322	Environmental Engineering	PC	3	-	2	2	1	50	50	50	150
3	CH 323	Professional Elective –II	PE	3	-	2	2	1	50	50	50	150
4	CH324	Open Elective-II	OE	3	-	2	2	1	50	50	50	150
5		Finance and Accounting	HSS	3	-	-	2	-	50	-	50	100
6	WPC 5	Science and Spirituality	WP	3	-	-	2	-	50	-	50	100
Total :				18	-	8	12	04	300	200	300	800

Weekly Teaching Hours: 26Hours

Total Credits: Third Year B. Tech.Trimester-II: 16

****Assessment Marks are valid only if Attendance criteria are met**

* CCA : Class Continuous Assessment

*LCA : Laboratory Continuous Assessment

Prof. (Dr.) L. K. Kshirsagar
Dean



B. Tech. Chemical Engineering (Third Year) (Batch 2017-18)

Trimester – IX

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs.			Credits		Assessment Marks**			
				Theory	Tutorial	Lab.	Th.	Lab.	CCA*	LCA*	End Term Test	Total
1	CH331	Plant Design and Economics	PC	3	-	2	2	1	50	50	50	150
2	CH332	Process Dynamics and Control	PC	3	-	2	2	1	50	50	50	150
3	CH333	Professional Elective –III	PE	3	-	2	2	1	50	50	50	150
4	CH334	Open Elective-III	OE	3	-	-	2	-	50	-	50	100
5	CH335	Seminar/ Mini Project	PR	-	-	2	-	1	-	50	-	50
6	WPC 2	Gandhian Philosophy	WP	3	-	-	2	-	50	-	50	100
7		International Study Tour	WP	-	-	-	-	-	-	-	-	-
Total :				15	-	8	10	04	250	200	250	700

Weekly Teaching Hours: 23 Hours

Total Credits: Third Year B. Tech.Trimester-III: 14

Total Third Year B. Tech Credits: 17+16+14= 47

****Assessment Marks are valid only if Attendance criteria are met**

* CCA : Class Continuous Assessment

*LCA : Laboratory Continuous Assessment



B. Tech. Chemical Engineering (Final Year) (Batch 2017-18)

Trimester – X

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs.			Credits		Assessment Marks**			
				Theory	Tutorial	Lab.	Th.	Lab.	CCA*	LCA*	End Term Test	Total
1	CH 411	Professional Elective –IV	PE	3	-	2	2	1	50	-	50	100
2	CH412	Professional Elective –V	PE	3	-	2	2	1	50	50	50	150
3	CH413	Open Elective-IV	OE	3	-	2	2	1	50	50	50	150
4	CH414	Mini Project / Interdisciplinary Project	PR	-	-	4	-	2	-	100	-	100
5		Strategic Planning and Leadership	LPC	3	-	-	2	-	50	-	50	100
Total :				12	-	10	8	5	200	200	200	600

Weekly Teaching Hours: 22 Hours

Total Credits: Final Year B. Tech.Trimester-I:13

****Assessment Marks are valid only if Attendance criteria are met**

* CCA : Class Continuous Assessment

*LCA : Laboratory Continuous Assessment

Prof. (Dr.) L. K. Kshirsagar
 Dean



B. Tech. Chemical Engineering (Final Year) (Batch 2017-18)

Trimester – XI

Sr. No.	Course Code	Name of Course	Type	Weekly Workload, Hrs.			Credits		Assessment Marks**			
				Theory	Tutorial	Lab.	Th.	Lab.	CCA*	LCA*	End Term Test	Total
1	CH 421	Professional Elective-VI	PE	3	-	2	2	1	50	50	50	150
2	CH 422	Open Elective-V	OE	3	-	2	2	1	50	50	50	150
3	CH 423	Open Elective-VI	OE	3	-	2	2	1	50	50	50	150
4	CH 424	Capstone Project : Stage-I	PR	-	-	6	-	2	-	100	-	100
Total :				9	-	12	6	5	150	250	150	550

Weekly Teaching Hours:21 Hours

Total Credits: Final Year B. Tech. Trimester-II: 11

****Assessment Marks are valid only if Attendance criteria are met**

* CCA: Class Continuous Assessment

*LCA : Laboratory Continuous Assessment

Prof. (Dr.) L. K. Kshirsagar
Dean



B. Tech. Chemical Engineering (Final Year) (Batch 2017-18)

Trimester – XII

Sr. No	Course Code	Name of Course	Type	Weekly Workload, Hrs.			Credits		Assessment Marks**			
				Theory	Tutorial	Lab.	Th.	Lab.	CCA*	LCA*	End Term Test	Total
1	CH431	Capstone Project with or without Internship: Stage-II	PR	-	-	24	-	10	-	300	-	300
Total :				-	-	24	-	10				

****Assessment Marks are valid only if Attendance criteria are met**

Weekly Teaching Hours:24 Hours

* CCA : Class Continuous Assessment

Total Credits: Final Year B. Tech.Trimester- III: 10

*LCA : Laboratory Continuous Assessment

Total Final Year B. Tech Credits: 13+11+10= 34

Total B. Tech Credits: FY+SY+TY+Final Year = 166+6 MOOC Credits

Prof. (Dr.) L. K. Kshirsagar
Dean



Humanities, Social Sciences, Management (HSS)	World Peace (WP)
<ul style="list-style-type: none"> • Effective Communication • Finance and Accounting • Indian Constitution • Environmental Science 	<ul style="list-style-type: none"> • Indian Culture and Heritage • Philosophers, Great Kings and Dynasties • Science and Spirituality • Human Values and Professional Ethics • Spirit & Mind, Saints of India and their teachings • Gandhian Philosophy
Leadership and Personality Credits (LPC) <ul style="list-style-type: none"> • Emotional Intelligence • Leadership • Strategic Planning 	

Every candidate will register for at least three MOOC courses, World Peace programmes like rural immersion, national study tour are mandatory for graduation. Students to submit the credits earned in MOOCs courses for inclusion in their grade sheet.

Year	Average Contact Hours per week	Credits	No. of Courses
First Year	24	43	5+5+5
Second Year	24	42	6+6+6+ MOOC
Third Year	27	47	6+6+7+ MOOC
Final Year	22	34	4+3+ MOOC
Total	--	166 + 6 MOOC	



List of Professional Elective Courses (PE):

TRACKS	Flow Simulation		Refining and Petrochemicals		Biochemical Engineering		Process Modeling and Simulation	
Electives	Code	Title	Code	Title	Code	Title	Code	Title
PE-I	CH314	A.Computational Methods in Chemical Engineering	CH314	B Refinery Operations	CH314	C.Introduction to Biotechnology	CH314	D.Process Modeling and Simulation
PE-II	CH 323	A.Multiphase Systems	CH 323	B.Petrochemical Processes	CH323	C.Enzyme Engineering	CH323	D.Process Data Analytics
PE-III	CH333	A.Computational Fluid Dynamics	CH333	B.Refinery Process Design	CH333	C.Biochemical Process Design	CH333	D.Chemical Process Optimization
PE-IV	CH411	A. Pollution Control in Process Industries	CH411	B.Natural Gas Engineering	CH411	C.Industrial Catalysis	CH411	D.Green Technology
PE-V	CH412	A.Piping Engineering	CH412	B.Membrane Technology	CH412	C.Multiphase Reactor Design	CH412	D.Advanced Separation Processes
PE-VI	CH421	A.Energy Engineering	CH421	B.Chemical Process Safety	CH421	C.Process Intensification	CH421	D.Advanced Process Control



Dr. Vishwanath Karad

**MIT WORLD PEACE
UNIVERSITY** | PUNE

TECHNOLOGY, RESEARCH, SOCIAL INNOVATION & PARTNERSHIPS

List of Open Elective Courses (OE):

List of Open Electives offered		
Professional Elective	Course Code	Name of Course
OE-I	CH315	Pinch Technology
	CH315	Green Technology and Sustainable Development
	CH315	Disaster Management
OE-II	CH324	Control Systems
	CH324	Design and Analysis of Experiments
	CH324	Piping Design and Engineering
OE-III	CH334	Health, Safety and Environment
	CH334	Advanced Waste Management
	CH334	Air Pollution Control Engineering
OE-IV	CH413	Energy Conservation and Management
	CH413	Industrial Safety and Hazard Management
	CH413	Material Science and Technology
OE-V	CH422	Engineering Ethics
	CH422	Risk Assessment and Management
	CH422	Project Engineering and Management
OE-VI	CH423	Catalysis
	CH423	Refining and Petrochemical Technology
	CH423	Fuels and Combustions