# BOS MINUES

Bilech - Chemical



#### DEPARTMENT OF CHEMICAL ENGINEERING

Date: 15.05.2019

Minutes of Board of Studies (BOS) meeting of B.Tech Chemical Engineering program held on 15-05-2019 at office Head of the department, Department of Chemical Engineering, VFSTR, Vadlamudi.

#### Agenda of the meeting:

1. To discuss and finalize structure and detailed syllabus for B.Tech Chemical Engineering program applicable from 2019-20 admitted batch.

#### Members present:

S.No	Name	Members	Signature
1.	Dr. M. Ramesh Naidu, Head, Department of Chemical Engineering, VFSTR, Vadlamudi.	Chairman, BOS	Damos
2.	Dr. Y. Pydi Setty, Professor, Department of Chemical Engineering, National Institute of Technology, Warangal	Invited member	M.P. July
3.	Dr. G. Prabhakar, Professor. Department of Chemical Engineering, S. V. U. College of Engineering. Tirupati.	Invited member	C. Drawie
4.	Sri R. Banerjee Babu, General Manager, Production, JOCIL, Dokiparu.	Invited member	h
5.	Dr. M. Prasad Babu, Manager, R&D-DSB, NFCL, Hyderabad NFCL.	Invited member	M.P. Baby
6.	Dr. P. Ashok Kumar, Associate Professor. Department of Chemical Engineering, VFSTR, Vadlamudi	Internal Member	Naci
7.	Dr. P. Bangaraiah, Associate Professor, Department of Chemical Engineering, VFSTR, Vadlamudi.	Internal Member	R
8.	Dr. B. Sumalatha Assistant Professor, Department of Chemical Engineering, VFSTR. Vadlamudi	Internal Member	Slatha

#### Minutes of the BOS meeting

- 1. The chairman greeted all the BOS members.
- 2. The chairman emphasized broad objectives of the proposed changes in the course structure of B.Tech Chemical Engineering program.
- 3. The chairmen also elucidated in detail the suggestions and remarks communicated from various stakeholders.
- 4. The members of the BOS painstakingly observed the proposals of Department of Chemical Engineering in the light of suggestions made by experts and recommended a new course structure for B.Tech Chemical Engineering program.

#### After the discussion it is resolved to:

- 1. Propose and approve course structure for all 4 years of B.Tech. Program in Chemical Engineering (Appendix-I).
- Propose and approve detailed syllabus for the 4 year of B.Tech. Program in Chemical Engineering with effect from the academic year 2019-20. The proposed structure and syllabus are applicable for 2019 admitted batch onwards.
- 3. Stakeholder's feedback is collected, analyzed and given paramount priority while designing the curriculum and their suggestions are implemented.
- 4. The curriculum follows choice-based credit system.
- Major restructuring has taken place in the curriculum towards Project based learning with inclusion of Intradisciplinary, Inter-departmental and Societal centric and industry related projects.
- Major reformation has taken place in the curriculum by offering new courses and electives such as General pharmacy, pre-formulation studies, industrial pharmacy, MATLab programming, Energy Management and auditing etc.
- 7. The total percentage of syllabus revision for B.Tech Chemical Engineering Program is 45%.
- 8. The curriculum is encompassing the courses that enable employability or entrepreneurship or skill development (Appendix- II).
- In the B.Tech. Chemical Engineering revised regulation R19, the significant changes are
  made in the content of all courses and hence the courses are considered as new courses
  (Appendix- III).

#### APPENDIX - I

#### **Course Structure**

#### I Year I Semester

Course Title	L	T	P	C
Engineering Mathematics - I(D)	3	1	2	5
Engineering Physics (B)	3	0	2	4
Basics of Electrical & Electronics Engineering	3	0	2	4
Engineering Graphics & Design	2	0	2	3
Chemical Engineering Thermodynamics - I	3	1	0	4
Physical Fitness, Sports & Games-I	0	0	3	1
Total	14	1	11	21

#### I Year II Semester

Course Title	L	T	P	C
Engineering Mathematics - II(D)	3	1	2	5
Organic Chemistry	3	0	2	4
Programming for Problem Solving	2	0	4	4
English Proficiency and Communication Skills	0	0	2	1
Technical English Communication	2	0	2	3
Constitution of India	1	0	0	1
Workshop	1	0	2	2
Momentum Transfer	3	0	2	4
Physical Fitness, Sports & Games-II	0	0	3	1
Total	15	2	17	25

#### II Year I Semester

Course Title	L	T	P	C
Chemical Process Calculations	3	1	0	4
Mechanical Unit Operations	3	0	2	4
Process Heat Transfer	3	0	2	4
Chemical Engineering Thermodynamics-II	3	1	0	4
Mass Transfer Operations-I	3	0	2	4
Life Skills-I	0	0	2	0
Technical Seminar-I	0	0	2	1
Intra-disciplinary Projects-I	0	0	3	1
Physical Fitness, Sports & Games-III	0	0	2	1
Total	15	2	15	23

#### II Year II Semester

Course Title	L	T	P	C
General Pharmacy	3	0	2	4
Chemical Reaction Engineering-I	3	1	0	4
Mass Transfer Operations-II	3	0	2	4
Environmental Studies	1	0	0	1
Department Elective-I	3	0	0	3
Management Science	3	0	0	3
Life Skills-II	0	0	2	1
Technical Seminar-II	0	0	2	1
Intra Disciplinary Projects-II	0	0	2	1
Open Elective-I	3	0	0	3
Total	19	1	10	25

#### III Year I Semester

Course Title	L	T	P	C
Pre-Formulation Studies	3	0	2	4
Chemical Reaction Engineering-II	3	0	2	4
Instrumentation and Process Control	3	0	2	4
Soft Skills Laboratory	0	0	2	1
Employability Skills-I	0	0	2	0
Human Values. Professional Ethics & Gender	2	0	0	2
Inter Departmental Projects-I	0	0	4	2
Modular Course	0	0	0	1
Department Elective-II	3	0	0	3
Open Elective-II	3	0	0	3
Total	18	0	12	24

#### III Year II Semester

Course Title	L	T	P	C
Chemical Engineering Process Design and	3	1	()	4
Industrial Pharmacy	3	0	2	4
Safety in Chemical Industries-I	3	1	0	3
Professional Communications Laboratory	0	0	2	1
Employability Skills-II	0	0	2	1
Inter Departmental Projects-II	0	0	4	2
Department Elective-III	3	0	0	3
Open Elective-III	3	0	0	3
Total	15	1	10	21

#### IV Year I Semester

Course Title	L	T	P	C
Quality Control of Pharmaceutical Dosage Forms	3	0	0	3
Safety in Chemical Industries-II	3	0	0	3
Industrial Process Technologies-I	3	0	0	3
Industrial Process Technologies-II	3	0	2	4
Societal Centric and Industry Related Project	0	0	6	3
Department Elective-IV	3	0	0	3
Total	15	1	8	19

#### IV Year II Semester

Course Title	L	T	P	C
Project work / Internship (Industry Oriented Projects)	0	0	24	12
Total	-	-	24	12

L = Lecture; T = Tutorial; P = Practical; C = Credits

The courses that are highlighted denote implementation of 'Choice Based Credit System (CBCS)'

### R-19 Department Elective Courses

#### ELECTIVE - I

Course Title	L	T	P	C
Material Technology	3	-	-	3
Industrial Effluent Treatment Methods	3	-	-	3
Energy Management and Auditing	3	-	-	3
Mineral Process Technology	3	-	-	3
Polymer Science and Engineering	3	-	-	3
Petro Chemicals	3	- 1-	-	3
Fundamentals of Biotechnology	3	-	-	3

#### ELECTIVE - II

Course Title	L	T	P	C
Process Modelling and Simulation	3		-	3
Solid Waste Management and Treatment	3		-	3
Petroleum Refinery Engineering	3	-	-	3
Colloidal and Interfacial Science	3		-	3
Fundamentals of Nanotechnoogy	3	_	-	3
Membrane Technology	3	-	-	3
Bio Process Engineering	3		-	3

#### ELECTIVE - III

Course Title	L	T	P	C
Transport Phenomena	3		=	3
Energy Conservation and Waste Heat Recovery	3	-	-	3
Non Conventional Energy Sources	3	-	-	3
Computational Fluid Dynamics	3	-	-	3
Introduction to MAT Lab Programming	3	-	-	3

#### ELECTIVE - IV

Course Title	L	T	P	C
Design and Analysis of Experiments	3	-	-	3
MAT Lab Programming for Numerical	3	-	-	3
Optimization in Chemical Engineering	3	-	-	3
Chemical Process Equipment Design	3	-	-	3
Environmental Regulations and Impact Analysis	3	-	-	3

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## DEPARTMENT OF CHEMICAL ENGINEERING APPENDIX - II

## List of courses that enable employability or entrepreneurship or skill development in the R-19 B.Tech – Chemical Engineering

SI. No	Semester (Year)	Core / Elective	Course Name	Employability/ Entrepreneurs hip/ Skill development	
1	First Year (Semester I)	Core	Chemical Engineering Thermodynamics - I	Skill development	
2	First Year (Semester II)	Core	Momentum Transfer	Skill development	
3	Second Year (Semester I)	Core	Chemical Process Calculations	Skill development	
4	Second Year (Semester I)	Core	Mechanical Unit Operations	Employability	
5	Second Year (Semester I)	Core	Process Heat Transfer	Skill development	
6	Second Year (Semester I)	Core	Chemical Engineering Thermodynamics - II	Skill development	
7	Second Year (Semester I)	- Core	Mass Transfer Operations - I	Skill development	
8	Second Year (Semester I)	Employabil ity Skills	Life Skills-I	Skill development	
9	Second Year (Semester I)	Employabil ity Skills	Technical Seminar-I	Skill development	
10	Second Year (Semester I)	Employabil ity Skills	Intra-disciplinary Projects-I	Skill development	
11	Second Year (Semester I)	Employabil ity Skills	Physical Fitness, Sports & Games-III	Skill development	
12	Second Year (Semester II)	Core	General Pharmacy	Skill development	
13	Second Year (Semester II)	Core	Chemical Reaction Engineering-I	Skill development	
14	Second Year (Semester II)	Core	Mass Transfer Operations-II	Skill development	
15	Second Year (Semester II)	Core	Environmental Science	Skill development	

16	Second Year	Department	Material Technology	Employability	
(Semester II)		Elective-I	Waterial Technology	Employability	
17	Second Year	Department	Industrial Effluent Treatment Methods	Employability	
	(Semester II)	Elective-I	Industrial Efficient Fredholds		
18	Second Year	Department	Energy Management and Auditing	Skill development	
	(Semester II)	Elective-I	Ziring management and reading		
19	Second Year	Department Elective-I	Mineral Process Technology	Employability	
	(Semester II)				
20	Second Year	Department Elective-I	Polymer Science and Engineering	Skill	
	(Semester II)	Elective-I		development	
21	Second Year	Department	Petro Chemicals	Skill	
	(Semester II)	Elective-I		development	
22	Second Year	Department	Fudamentals of Biotechnology	Skill	
	(Semester II)	Elective-I		development	
23	Second Year	Core	Management Science	Employability	
	(Semester II)	D			
Second Year		Employabil ity Skills	Life Skills-II	Skill development	
	(Semester II) Second Year			-	
25	(Semester II)	Employabil ity Skills	Technical Seminar-II	Skill development	
Second Year		-		Skill	
(Semester II) ity Skills		Employabil ity Skills	Intra Disciplinary Projects-II	development	
	Third Year			Skill	
27	(Semester I) Core		Pre-Formulation Studies		
Third Vear			Skill		
28	(Semester I)	Core	Chemical Reaction Engineering-II	development	
29	Third Year	Core	Instrumentation and Process Control	Skill	
49	(Semester I)	Core	instrumentation and Process Control	development	
30	Third Year	Employabil	Soft Skills Laboratory	Skill	
50	(Semester I)	ity Skills	John Skills Edbordtory	development	
31	Third Year	Employabil	Employability Skills-I	Employability	
	(Semester I)	ity Skills			
32	Third Year	Employabil	Human Values, Professional Ethics & Gender	Employability	
	(Semester I)	ity Skills	Equity	2 / 5	
33	Third Year (Semester I)	Core	Inter Departmental Projects-I	Skill development	
34	Third Year (Semester I)	Core	Modular Course	Skill development	
2.5	Third Year	Department	B. M. I. W	Skill	
35	(Semester I)	Elective-II	Process Modelling and Simulation	development	
36	Third Year	Department	Solid Waste Management and Treatment	Employability	
SCATCA CONTRACTOR OF THE PARTY	(Semester I)	Elective-II			
37	Third Year	Department	Petroleum Refinery Engineering	Skill •	

	(Semester I)	Elective-II		development	
38	Third Year	Department	Colloidal and Interfacial Science	Employability	
, 0	(Semester I)	Elective-II	Conoidar and Interfacial Science	Employability	
39	Third Year	Department	Fundamentals of Nanotechnoogy	Employability	
	(Semester I)	Elective-II	T undumentals of Franceemicogy	Employaemty	
40	Third Year	Department	Membrane Technology	Employability	
	(Semester I)	Elective-II	<i>C.</i>		
41	Third Year	Department Elective-II	Bio Process Engineering	Skill	
	(Semester I)	Elective-II		development	
42	Third Year (Semester II)	Core	Chemical Engineering Process Design and Economics	Skill development	
	Third Year		Leonomies	Skill	
43	(Semester II)	Core	Industrial Pharmacy	development	
	Third Year			Skill	
44	(Semester II)	Core	Safety in Chemical Industries-I	development	
	Third Year	Employabil		Skill	
45	(Semester II)	ity Skills	Professional Communications Laboratory	development	
11	Third Year	Employabil	Facility Chills II	Employability	
46	(Semester II)	ity Skills	Employability Skills-II		
47	Third Year	Core	Later Description to H	Skill	
4/	(Semester II)	Core	Inter Departmental Projects-II	development	
48	Third Year	Department	Transport Phenomena	Skill	
70	(Semester II)	Elective-III	Transport i nenomena	development	
49	Third Year	Department	Energy Conservation and Waste Heat	Skill development	
	(Semester II)	Elective-III	Recovery		
50	Third Year	Department	Non Conventional Energy Sources	Skill	
- 0.00	(Semester II)	Elective-III	CV .	development	
51	Third Year	Department Elective-III	Computational Fluid Dynamics	Skill	
	(Semester II)			development	
52	Third Year	Department Elective-III	Introduction to Matlab Programming	Skill development	
	(Semester II)	Elective-III	0 11 0 1 001	development	
53	Fourth Year (Semester I)	Core	Quality Control of Pharmaceutical Dosage Forms	Employability	
	Fourth Year		Torns	Skill	
54	(Semester I)	Core	Safety in Chemical Industries-II	development	
	Fourth Year			Skill	
55	(Semester I)	Core	Industrial Process Technologies-I	development	
	Fourth Year			Skill	
56	(Semester I)	Core	Industrial Process Technologies-II	development	
. 7	Fourth Year	Employabil		Carala della	
57	(Semester I)	ity Skills	Societal Centric and Industry Related Project	Employability	
58	Fourth Year	Department	Decision and Association (CD)	Skill	
00	(Semester I)	Elective-IV	Design and Analysis of Experiments	development	
59	Fourth Year	Department	Matlab Programming for Numerical	Skill	

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	(Semester I)	Elective-IV	Computation	development
60	Fourth Year	Department	Optimization in Chemical Engineering	Skill
00	(Semester I)	Elective-IV		development
61	Fourth Year	Department	Cl. 'In F. '	Skill development
	(Semester I)	Elective-IV	Chemical Process Equipment Design	
62	Fourth Year	Department	Environmental Regulations and Impact Analysis	Skill development
02	(Semester I)	Elective-IV		
63	Fourth Year		Project work / Internship (Industry Oriented Projects)	Employability
	(Semester II)	Core		

Lamesh Chairman Bos



## DEPARTMENT OF CHEMICAL ENGINEERING APPENDIX - III

#### List of new courses in the R-19 B.Tech – Chemical Engineering Curriculum

SI. No.	Semester (Year)	Core / Elective	Course Name
1	First Year	Core	Chemical Engineering Thermodynamics - I
	(Semester I)	540	
2	First Year	Core	Momentum Transfer
	(Semester II)		
3	Second Year	Core	Chemical Process Calculations
	(Semester I)		
4	Second Year	Core	Mechanical Unit Operations
	(Semester I)		
5	Second Year	Core	Process Heat Transfer
	(Semester I)		
6	Second Year	Core	Chemical Engineering Thermodynamics - II
	(Semester I)		
7	Second Year	Core	Mass Transfer Operations - I
_	(Semester I)		
8	Second Year	Employability	Life Skills-I
0	(Semester I)	Skills	
9	Second Year	Employability	Technical Seminar-I
	(Semester I)	Skills	
10	Second Year	Employability	Intra-disciplinary Projects-I
10	(Semester I)	Skills	
11	Second Year	Employability	Physical Fitness, Sports & Games-III
1.1	(Semester I)	Skills	1 hysical filliess, sports & Gallies-III
12	Second Year	Core	General Pharmacy
12	(Semester II)	Core	General Pharmacy
13	Second Year	Core	Chemical Reaction Engineering-I
13	(Semester II)	Core	Chemical Reaction Engineering-1
14	Second Year	Core	Mass Transfer Operations II
14	(Semester II)	Core	Mass Transfer Operations-II
15	Second Year	Cara	Environmental Science
13	(Semester II)	Core	Environmental Science

16	Second Year	Department	Material Technology	
10	(Semester II)	Elective-I		
17	Second Year	Department	Industrial Effluent Treatment Methods	
17	(Semester II)	Elective-I	industrial Efficient Treatment Methods	
18	Second Year	Department	Energy Management and Auditing	
10	(Semester II)	Elective-I	Energy Management and Auditing	
19	Second Year	Department	Mineral Process Technology	
	(Semester II)	Elective-I	Thin tall the season technically	
20	Second Year	Department	Polymer Science and Engineering	
	(Semester II)	Elective-I	1 or, mer serence and Engineering	
21	Second Year	Department	Petro Chemicals	
21	(Semester II)	Elective-I	Tetro Chemicais	
22	Second Year	Department	Fudamentals of Biotechnology	
22	(Semester II)	Elective-I	1 ddamentals of Biotechnology	
23	Second Year	Core	Management Science	
23	(Semester II)	Core	Wallagement Science	
24	Second Year	Employability	Life Skille II	
	(Semester II)	Skills	Life Skills-II	
25	Second Year	Employability	Technical Seminar-II	
25	(Semester II)	Skills	Technical Seminar-II	
26	Second Year	Employability	Intra Disciplinary Projects-II	
26	(Semester II)	Skills		
27	Third Year	C	Pre-Formulation Studies	
27	(Semester I)	Core		
20	Third Year	0	Chemical Reaction Engineering-II	
28	(Semester I)	Core		
20	Third Year	Come	Instrumentation and Process Control	
29	(Semester I)	Core		
30	Third Year	Employability	C-A Chille Laborat	
30	(Semester I)	Skills	Soft Skills Laboratory	
31	Third Year	Employability	Employability Skills-I	
31	(Semester I)	Skills	Employability Skills-1	
32	Third Year	Employability	Human Values, Professional Ethics & Gender Equity	
32	(Semester I)	Skills	Human Values, Professional Ethics & Gender Equity	
22	Third Year	Coro	Inter Departmental Projects I	
33	(Semester I)	Core	Inter Departmental Projects-I	
24	Third Year	Coro	Madular Caurea	
34	(Semester I)	Core	Modular Course	
2.5	Third Year	Department	D	
35	(Semester I)	Elective-II	Process Modelling and Simulation	
20	Third Year	Department	C-1:1W-4-M	
36	(Semester I)	Elective-II	Solid Waste Management and Treatment	
37	Third Year	Department	Petroleum Refinery Engineering	

	(Semester I)	Elective-II		
38	Third Year	Department	Colloidal and Interfacial Science	
30	(Semester I)	Elective-II		
39	Third Year	Department	Fundamentals of Nanotechnoogy	
	(Semester I)	Elective-II		
40	Third Year	Department	Membrane Technology	
70	(Semester I)	Elective-II	Wellibrane Technology	
41	Third Year	Department	Bio Process Engineering	
71	(Semester I)	Elective-II	Bio Frocess Engineering	
42	Third Year	Core	Chemical Engineering Process Design and Economics	
72	(Semester II)	Core	Chemical Engineering Process Design and Economics	
43	Third Year	Core	Industrial Pharmacy	
13	(Semester II)	Core	industrial Finalinacy	
44	Third Year	Core	Safety in Chemical Industries-I	
.,	(Semester II)	Core	Safety in Chemical madstres 1	
45	Third Year	Employability	Professional Communications Laboratory	
73	(Semester II)	Skills	Troicessional Communications Eaboratory	
46	Third Year	Employability	Employability Skills-II	
40	(Semester II)	Skills	Employability Skins-11	
47	Third Year	Core	Inter Departmental Projects-II	
47	(Semester II)	Core	intel Departmental Projects-11	
48	Third Year	Department	Transport Phenomena	
40	(Semester II)	Elective-III		
49	Third Year	Department	Energy Conservation and Waste Heat Recovery	
47	(Semester II)	Elective-III		
50	Third Year	Department	Non Conventional Energy Sources	
30	(Semester II)	Elective-III		
51	Third Year	Department	Computational Fluid Dynamics	
31	(Semester II)	Elective-III	Computational Fluid Dynamics	
52	Third Year	Department	Introduction to Matlab Programming	
34	(Semester II)	Elective-III	introduction to Matiao Programming	
53	Fourth Year	Core	Quality Control of Pharmaceutical Dosage Forms	
33	(Semester I)	Core	Quality Control of Finantiaceutical Bosage Forms	
54	Fourth Year	Core	Safety in Chemical Industries-II	
54	(Semester I)	Core	Safety III Chemical industries-ii	
55	Fourth Year	Core	Industrial Process Technologies-I	
33	(Semester I)	Core	ilidustriai Frocess reciniologies-i	
56	Fourth Year	Core	Industrial Process Technologies-II	
30	(Semester I)	Core	ilidustriai Frocess Technologies-11	
57	Fourth Year	Employability	Societal Contries and Industry Deleted President	
3/	(Semester I)	Skills	Societal Centric and Industry Related Project	
50	Fourth Year	Department	Design and Analysis of Eversiments	
58	(Semester I)	Elective-IV	Design and Analysis of Experiments	
59	Fourth Year	Department	Matlab Programming for Numerical Computation	

	(Semester I)	Elective-IV	
60	Fourth Year	Department	Outinity is Classical Edition
00	(Semester I)	Elective-IV	Optimization in Chemical Engineering
61	Fourth Year	Department Elective-IV	Chemical Process Equipment Design
61	(Semester I)		
62	Fourth Year	Department Elective-IV	Environmental Regulations and Impact Analysis
02	(Semester I)		
	Fourth Year	Core	
63	(Semester II)		Project work / Internship (Industry Oriented Projects)

Hamsh Chairman BoS