



Indrashil University

(Established by an Act under the Gujarat Private Universities Act, 2009)

A Life Sciences University

Sustained Excellence with Relevance

School of Engineering

Chemical and Biochemical Engineering

Proposed Course Curriculum

w.e.f Academic Year 2019-20

B.TECH. (All Branches) ENGINEERING PROGRAMME (w.e.f. academic year 2019-20)

Semester : 1	Minimum Semester Credit Required :21 Cumulative Semester Credit Required : 21			
Course Code	Subject No.	Subject Name	L-T-P	Credits
CHE101		Engineering Chemistry	3-0-2	4
MATH 101		Engineering Mathematics-I	3-1-0	4
HS 101		Communication Skills – I	2-2-0	4
TA 101 / TA 102		Computer Programming / Engineering Graphics	3-0-2/2-0-4	4/4
HS 102		Soft Skills – I	2-0-0	0
ES 101 / ES 102		Engineering Mechanics / Electrical Technology	2-1-2/3-0-2	4/4
WS101		Engineering Workshop	0-0-2	1
		Total	15-4-8/15-3-10	21/21
Semester : 2	Minimum Semester Credit Required :22 Cumulative Semester Credit Required : 43			
Course Code	Subject No.	Subject Name	L-T-P	Credits
PHY 101		Engineering physics	3-0-2	4
MATH 102		Engineering Mathematics-II	3-1-0	4
HS 103		Communication Skills – II	2-2-0	4
TA 102 / TA 101		Engineering Graphics / Computer Programming	2-0-4/3-0-2	4/4
HS 104		Soft Skills – II	2-0-0	0
ES 102 / ES 101		Electrical Technology / Engineering Mechanics	3-0-2/2-1-2	4/4
ES 103		Environmental science	2-0-0	2
		Total	17-3-8/17-4-6	22/22

**CURRICULUM FOR B.TECH. CHEMICAL AND BIOCHEMICAL
ENGINEERING PROGRAMME**

Semester : 3		Minimum Semester Credit Required : 22 Cumulative Semester Credit Required : 65		
Course Code	Subject No.	Subject Name	L-T-P	Credits
MATH301		Engineering Mathematics-III	3-1-0	4
CH301		Heat Transfer Operations	3-0-2	4
CH302		Fluid Flow Operations	3-0-2	4
CY301		Physical and Analytical Chemistry	3-0-2	4
CH303		Process Calculations	3-1-0	4
HS301		SS-III	2-0-0	0
CH304		Engineering Innovation Project-I	0-0-2	1
CH305		Community Connect Programme	0-0-1	1
		Total	17-2-7	22
Semester : 4		Minimum Semester Credit Required : 20 Cumulative Semester Credit Required : 85		
Course Code	Subject No.	Subject Name	L-T-P	Credits
CH401		Material Science	3-0-0	3
CH402		Chemical Engineering Thermodynamics	3-1-0	4
CH403		Mass Transfer Operations-I	3-0-2	4
CH404		Mechanical Operations and Particulate Technology	3-0-2	4
CY401		Inorganic and Organic Chemistry	3-0-2	4
HS401		SS-IV	2-0-0	0
CH405		Engineering Innovation Project-II	0-0-2	1
		Total	17-1-8	20

Semester : 5		Minimum Semester Credit Required : 23 Cumulative Semester Credit Required : 108		
Course Code	Subject No.	Subject Name	L-T-P	Credits
CH501		Mass Transfer Operations-II	3-0-2	4
CH502		Chemical and Fuel Process Technology	3-0-2	4
CH503		Chemical Reaction Engineering-I	3-0-2	4
CH5E1		Elective-I	3-0-0	3
CH5E2		Elective-II	3-0-0	3
HS501		SS-V	2-0-0	0
CH504		Engineering Innovation Project -III	0-0-2	1
CH505		Industrial Practices*	0-0-0	4
		Total	17-0-8	23
Semester : 6		Minimum Semester Credit Required : 22 Cumulative Semester Credit Required : 130		
Course Code	Subject No.	Subject Name	L-T-P	Credits
CH601		Chemical Reaction Engineering-II	3-0-2	4
CH602		Process Equipment Design	3-0-2	4
CH603		Instrumentation and Process Control	3-0-2	4
CH6E1		Elective-III	3-0-0	3
CH6E2		Elective-IV	3-0-0	3
CH6E3		Elective-V	3-0-0	3
HS601		SS-VI	2-0-0	0
CH604		Engineering Innovation Project -IV	0-0-2	1
		Total	20-0-8	22

Semester : 7		Minimum Semester Credit Required : 22 Cumulative Semester Credit Required : 152		
Course Code	Subject No.	Subject Name	L-T-P	Credits
CH701		Biochemical Engineering	3-0-0	3
CH702		Chemical Engineering Economics and Plant Design	3-1-0	4
CH7E1		Elective- VI	3-0-0	3
HS701		Foreign Language	3-0-0	3
IU7E1		Elective-VII	3-0-0	3
HS702		SS-VII	2-0-0	0
CH703		Engineering Innovation Project -V	0-0-2	1
CH704		Industrial Practices*	0-0-0	4
CH705		Comprehensive Viva	0-0-0	1
		Total	17-1-2	22
Semester : 8		Minimum Semester Credit Required : 15 Cumulative Semester Credit Required : 167		
Course Code	Subject No.	Subject Name	L-T-P	Credits
CH801		Project + 2 courses / Thesis / Industry Project /Internship	0-0-30	15
		Total	0-0-30	15

*Industry Practice of 6 to 8 weeks will be conducted during summer vacations only.

Specializations:

Bio Process Engineering

Microbiology
 Enzyme Engineering and Technology
 Bioprocess Engineering
 Metabolic Engineering

Sector Technology

Dyes and Dye Intermediates Technology
 Pharmaceutical Technology
 Petroleum Refining and Petrochemicals
 Polymer Technology
 Fertilizer Technology
 Food Technology
 Non-Conventional Energy Sources

Micro and Nano Fluidics

Nanoscience and Nanotechnology
Colloids and Interfacial Science
Microfluidics
Soft nano technology

Environmental Science and Sustainability

Environmental Biotechnology
Air Pollution Control Engineering
Wastewater Engineering
Solid Waste Treatment
Process Safety Engineering
Cleaner Production and Cleaner
Technology

Advanced Chemical Engineering

Applied Chemical Process
Thermodynamics
Catalytic Reaction Engineering
Advanced Chemical Instrumentation
Techniques
Transport Phenomena
Unit Processes
Advanced Separation Techniques
Advances in Chemical Process Control

Process Modelling and Optimization

Chemical Process Optimization

Process Intensification
Process Integration

Process Modelling
Process Simulation Techniques

Soft Social Skill Courses:

1. English
2. Communication Skill
3. Ethics and Values
4. Economics for Engineers
5. Laws for Engineers
6. Entrepreneurship Development
7. Organizational Behaviour