



# **Indrashil University**

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

*A Life Sciences University*

*Sustained Excellence with Relevance*

## **School of Engineering**

**Mechanical Engineering**

**Proposed Course Curriculum**

**w.e.f Academic Year 2018-19**

**B.TECH. (All Branches) ENGINEERINGPROGRAMME (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
		<b>Total</b>	<b>15-4-8/15-3-10</b>	<b>21/21</b>
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
		<b>Total</b>	<b>17-3-8/17-4-6</b>	<b>22/22</b>

## CURRICULUM FOR B.TECH. MECHANICAL ENGINEERING PROGRAMME

Semester : 3		Minimum Semester Credit Required : 26 Cumulative Semester Credit Required : 69		
Course Code	Subject No.	Subject Name	L-T-P	Credits
ME 301		Mechanics of Solids	3-1-0	4
ME 302		Materials Science and Metallurgy	3-0-2	4
ME 303		Engineering Thermodynamics	3-1-0	4
ME 304		Fluid Mechanics and Fluid Machinery	3-0-2	4
ME 305		Theory of Machine -I	2-1-2	4
MATH 301		Engineering Mathematics -III	3-1-0	4
ME 306		Engineering Innovation Project - I	0-0-2	1
ME 307		Community Connect Programme	0-0-1	1
HS 301		Soft skills III	2-0-0	0
		<b>Total</b>	<b>19-4-8</b>	<b>26</b>
Semester : 4		Minimum Semester Credit Required : 21 Cumulative Semester Credit Required : 90		
Course Code	Subject No.	Subject Name	L-T-P	Credits
ME 401		Measurement and Instrumentation	3-0-2	4
ME 402		Manufacturing Technology -I	3-0-2	4
ME 403		Theory of Machines II (Dynamics)	2-1-2	4
ME 404		Heat and Mass Transfer	3-0-2	4
ME 405		Machine Design -I	2-1-0	4
ME 406		Engineering Innovation Project - II	0-0-2	1
HS401		Soft skills IV	2-0-0	0
		<b>Total</b>	<b>15-3-11</b>	<b>21</b>

<b>Semester : 5</b>		<b>Minimum Semester Credit Required : 26 Cumulative Semester Credit Required : 116</b>		
<b>Course Code</b>	<b>Subject No.</b>	<b>Subject Name</b>	<b>L-T-P</b>	<b>Credits</b>
ME 501		Thermal Engineering I	3-0-2	4
ME 502		Machine Design II	3-1-0	4
ME 503		Manufacturing Technology II	3-0-2	4
ME 504		Operations Research	3-0-0	3
ME 5E1		Elective 1	3-0-0	3
ME 5E2		Elective 2	3-0-0	3
HS 501		Soft skills V	2-0-0	0
ME 505		Engineering Innovation Project - Part III	0-0-2	1
ME 506		Industrial Practice*	0-0-0	4
		<b>Total</b>	<b>20-1-6</b>	<b>26</b>
<b>Semester : 6</b>		<b>Minimum Semester Credit Required : 21 Cumulative Semester Credit Required : 137</b>		
<b>Course Code</b>	<b>Subject No.</b>	<b>Subject Name</b>	<b>L-T-P</b>	<b>Credits</b>
ME 601		Thermal Engineering II	3-0-2	4
ME 602		Control Engineering and System Integration	3-0-2	4
ME 603		Industrial Engineering	3-0-0	3
ME 6E1		Elective 3	3-0-0	3
ME 6E2		Elective 4	3-0-0	3
ME 6E3		Elective 5	3-0-0	3
HS 601		Soft skills 6	2-0-0	0
ME 604		Engineering Innovation Project - IV	0-0-2	1
		<b>Total</b>	<b>20-0-6</b>	<b>21</b>

Semester : 7		Minimum Semester Credit Required : 17 Cumulative Semester Credit Required : 154		
Course Code	Subject No.	Subject Name	L-T-P	Credits
ME 701		Gas Dynamics and Turbo-Machinery	3-1-0	4
ME 7E1		Elective 6	3-0-0	3
ME 7E2		Elective 7	3-0-0	3
ME 7E3		Foreign Language	2-0-0	2
ME 702		Comprehensive Viva	0-0-0	1
ME 703		Industrial Practice*	0-0-0	4
		<b>Total</b>	<b>11-1-0</b>	<b>17</b>
Semester : 8		Minimum Semester Credit Required : 15 Cumulative Semester Credit Required : 169		
Course Code	Subject No.	Subject Name	L-T-P	Credits
ME801		Project + 2 courses / Thesis / Industry Project / Internship	0-0-30	15
		<b>Total</b>	<b>0-0-30</b>	<b>15</b>

\*Student will undergo for 6 to 8 weeks Industry Internship during summer vacation.

## Specialization

### Design Engineering

Process Equipment Design  
 Process Piping and Power Piping  
 Rotating Machine Design  
 Thermal System Design  
 Tribology  
 Vibration and Noise Isolation  
 Acoustics  
 Product Design Development (PDD)

### Advance Manufacturing

Computer-integrated manufacturing (CIM)  
 Welding Technology  
 Foundry Technology  
 Tool Design  
 Die Design, Forming and Punching  
 Advance machining process  
 Additive Manufacturing  
 Total Quality Management

### Automobiles Engineering

Basic Automobile Engineering  
 Internal Combustion Engines  
 Automobile Materials

### Mechatronics

Calculus & Linear Algebra  
 Multivariable Calculus and ODE  
 Introduction to Electrical Systems  
 Computer and Software Systems  
 Circuit Signal and Systems  
 Mechanical and Space Dynamics

### Functional systems

Industrial Hydraulics and Pneumatics  
 Bulk Material Handling  
 Dredging Basic  
 Dynamics of Living bodies

### Interdisciplinary Electives

Energy Audit  
 Mechatronics  
 Robotics  
 Control Engineering

Vehicle Dynamics  
Vehicle Interaction with Terrain  
Off-Road vehicle Engineering

**Industrial Engineering**

Planning Engineering  
Value Engineering  
Cost Accounting  
Production Management  
Quality Engineering

**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

**Energy Systems**

Thermo Chemical Process Design  
Advance Air conditioning  
Cryogenics  
Advance Power Generation  
Renewable Energy Resources  
Greenhouse capture, storage and utilization  
Alternative Energy  
Experimental Techniques in Thermal & Fluid Sciences  
Computational Fluid Dynamics (CFD )  
Advance Heat Transfer

**Automation and Robotics**

Automatic Control Systems  
Basic Robotics  
Digital Electronics  
Microcontroller and Microprocessor  
Programmable Logic Controller  
Sensors and Instrumentation