Indrashil University

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

A Life Sciences University

Sustained Excellence with Relevance

School of Engineering

Computer Science and Engineering

Course Curriculum

Batch: 2025-2029

(w.e.f. Academic Year 2024-2025)

B.TECH. (ALL BRANCHES) ENGINEERING PROGRAMME

(W.E.F. ACADEMIC YEAR 2024-25)

Semester: 1	**Minimum Semester Credit Required: 22** **Cumulative Semester Credit Required: 22**		
Course Code	**Subject Name**	**L-T-P**	**Credits**
24ENG101	Fundamentals of Programming & Logic Development	2-0-4	4
24ENG102	Basic Electrical and Electronics Engineering	3-0-2	4
24ENG103	Engineering Workshop	0-0-4	2
24HS101	Calculus & Linear Algebra for Engineers	3-1-0	4
24HS102	Physics for Engineers	3-0-2	4
24HS103	Communicative English	2-0-2	3
24HS104	Service-Learning Programme	0-0-1	1
	Total	**13-1-15**	**22**
Semester: 2	**Minimum Semester Credit Required: 22** **Cumulative Semester Credit Required: 44**		
Course Code	**Subject Name**	**L-T-P**	**Credits**
24ENG201	Python Programming	2-0-4	4
24ENG202	Engineering Graphics	2-0-4	4
24ENG203	Environmental Science	2-0-0	2
24ENG204	Digital Engineering	2-0-0	2
24ENG205	Computer workshop	0-0-4	2
24HS201	Differential Equations & Numerical Methods	3-1-0	4
24HS202	Engineering Chemistry	3-0-2	4
	Total	**14-1-14**	**22**

CURRICULUM FOR B.TECH. COMPUTER SCIENCE AND ENGINEERING PROGRAMME

Semester: 3	**Minimum Semester Credit Required: 22** **Cumulative Semester Credit Required: 66**		
Course Code	**Subject Name**	**L-T-P**	**Credits**
MATH302	Discrete Mathematics	3-1-0	4
CS301	Data Structures	3-0-2	4
CS302	Object Oriented Programming	3-0-2	4
CS303	Digital Logic Design	3-0-2	4
CS304	Database Management System	3-0-2	4
CS305	Engineering Innovation Project-I	0-0-2	1
HS301	Soft Skills-III (Ethics and Values)	2-0-0	0
HS302	Community Connect Program	0-0-2	1
	Total	**17-1-12**	**22**
Semester: 4	**Minimum Semester Credit Required: 21** **Cumulative Semester Credit Required: 87**		
Course Code	**Subject Name**	**L-T-P**	**Credits**
MATH401	Probability and Statistics	3-1-0	4
CS401	Operating System	3-0-2	4
CS402	Web Technology	3-0-2	4
CS403	Computer Organization and Architecture	3-1-0	4
CS404	Computer Networks	3-0-2	4
CS405	Engineering Innovation Project-II	0-0-2	**1**
HS401	Soft Skills-IV (Engineering Economics)	2-0-0	0
	Total	**17-2-8**	**21**

Semester: 5	Minimum Semester Credit Required: 23 Cumulative Semester Credit Required: 110		
Course Code	**Subject Name**	**L-T-P**	**Credits**
CS501	Design and Analysis of Algorithms	3-0-2	4
CS502	Data Visualization	3-0-2	4
CS503	Cyber Security	3-0-2	4
1CS5E1(Cyber Security) / 2CS5E1(AI&ML)	Cryptography and Network Security / Foundation of Machine Learning	3-0-0	3
1CS5E2(Cyber Security) / 2CS5E2 (AI&ML)	Ethical Hacking / Deep Learning	3-0-0	3
CS504	Engineering Innovation Project-III	0-0-2	1
HS501	Soft Skills-V (Laws for Engineers)	2-0-0	0
CS505	Industrial Practice*	0-0-0	4
	Total	**17-0-8**	**23**
Semester: 6	**Minimum Semester Credit Required: 19** **Cumulative Semester Credit Required: 129**		
Course Code	**Subject Name**	**L-T-P**	**Credits**
CS601	Compiler Design	3-1-0	4
CS602	Software Engineering	3-0-2	4
CS603	Artificial Intelligence	3-0-2	4
1CS6E3(Cyber Security) / 2CS6E3 (AI&ML)	Wireless Security / Soft Computing	3-0-0	3
1CS6E4(Cyber Security) / 2CS6E4 (AI&ML)	Cyber Crimes, Ethics and Laws Defense / Data Analysis and Interpretation	3-0-0	3
CS604	Engineering Innovation Project-IV	0-0-2	1
HS601	Soft Skills-VI (Entrepreneurship Development)	2-0-0	0
	Total	**17-1-6**	**19**

Semester: 7	Minimum Semester Credit Required: 23 Cumulative Semester Credit Required: 152		
Course Code	**Subject Name**	**L-T-P**	**Credits**
CS701	Cloud Computing	3-0-2	4
CS702	Data Analytics with R	3-0-2	4
1CS7E5 (Cyber Security) / 2CS7E5 (AI&ML)	Web and Database Security / Human-Computer Interaction	3-0-0	3
1CS7E6 (Cyber Security) / 2CS7E6 (AI&ML)	Cyber Forensics / Natural Language Processing	3-0-0	3
HS701	Foreign Language (French)	3-0-0	0
HS702	Soft Skills-VII (Organizational Behaviour)	2-0-0	0
IU7E1	Transcendental Energy Engineering & Philosophy	3-0-0	3
CS703	Engineering Innovation Project-V	0-0-2	1
CS704	Comprehensive Viva	0-0-0	1
CS705	Industrial Practice *	0-0-0	4
	Total	**18-0-6**	**23**
Semester: 8	**Minimum Semester Credit Required: 15** **Cumulative Semester Credit Required: 167**		
Course Code	**Subject Name**	**L-T-P**	**Credits**
CS801	Major Project/ Industry Project /Industry Internship	0-0-30	15
	Total	**0-0-30**	**15**

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

***Industry Project / Industry Internship of 4 to 6 months will be conducted during final semester only.**

Specializations:

1. (Artificial Intelligence & Machine Learning)	**2. (Cyber Security)**
Foundation of Machine Learning	Cryptography and Network Security
Machine Learning with Python	Quantum Cryptography
Deep Learning	Ethical Hacking
Neural Network	Risk Assessment and Security Audit
Soft Computing	Wireless Security
Applied AI with Deep Learning	Malware Analysis and Reverse Engineering
Data Analysis and Interpretation	Cyber Crimes, Ethics and Laws Defense
Natural Language Processing	Cyber Forensics
Applied Data Science with Python	Internetworking and Security
Human Computer Interaction	Web and Database Security

Other Courses:

Open Elective)

- Design Thinking
- Transcendental Energy Engineering & Philosophy

(Soft Social Skill Courses)

- Communicative English
- Communication Skills
- Ethics and Values (SS-III)
- Engineering Economics (SS-IV)
- Laws for Engineers (SS-V)
- Entrepreneurship Development (SS-VI)
- Organizational Behaviour (SS-VII)