

SYMBIOSIS INSTITUTE OF TECHNOLOGY
BACHELOR OF TECHNOLOGY (ELECTRONICS AND TELECOMMUNICATION
ENGINEERING)
PROGRAMME STRUCTURE 2017-21

- 1. OBJECTIVE**
- B.Tech is a full-time four year graduation programme, which aims at transforming a student into a technically sound professional. The syllabus contains courses on basic sciences, technical arts, humanities & liberal arts and professional courses. The mix of these courses has been evolved with an aim to produce professionals who have knowledge not only of Engineering but who are good managers to contribute in a cross-functional team and have human values.
- Being a professional programme it ensures a healthy balance between theoretical foundation and practical exposure to the present day world.
- The emphasis is to develop all round personality that would enable the students to take up the challenges of the corporate world and also become responsible citizens of the society.
- 2. DURATION** Four Years Full Time
- 3. INTAKE** 120 Students
- 4. RESERVATION**
- I. Within the sanctioned intake:
- a) Scheduled Castes – 15%
 - b) Scheduled Tribes – 7.5%
 - c) Differently Able - 3%
- II. Over and above the sanctioned intake:
- a) Kashmiri Migrants - 2 Seats
 - b) International Students – 15%
- 5. ELIGIBILITY**
- Passed 10+2 examination with Physics and Mathematics as compulsory subjects along with one of Chemistry/ Biotechnology/ Biology/ Technical Vocational subjects. Obtained at least 45% marks (40% in case of candidate belonging to reserved category) in the above subjects taken together.
- B. Tech (Lateral entry to second year) :
- a) Passed Diploma examination from an AICTE approved Institution; with at least 45% marks (40% in case of candidates belonging to reserved category) in

- appropriate branch of Engineering / Technology.
- b) Passed B.Sc. Degree from a recognized University as defined by UGC, with at least 45% marks (40% in case of candidates belonging to reserved category) and passed XII standard with mathematics as a subject.
 - c) Provided that in case of students belonging to B. Sc. Stream, shall clear the subjects of Engineering Graphics / Engineering Drawing and Engineering Mechanics of the first year Engineering program along with the second year subjects.
 - d) Provided further that, the students belonging to B. Sc. Stream shall be considered only after filling the supernumerary seats in this category with students belonging to the Diploma stream.
 - e) Provided further that students, who have passed Diploma in Engineering and Technology from an AICTE approved Institution or B. Sc. Degree from a recognized University as defined by UGC, shall also be eligible for admission to the first year Engineering Degree courses subject to vacancies in the first year class in case the vacancies at lateral entry are exhausted. However the admissions shall be based strictly on the eligibility criteria as mentioned in A, B,C, and D above.

A candidate who has completed qualifying qualification from any Foreign Board / University must obtain an equivalence certificate from Association of Indian Universities (AIU).

6. SELECTION PROCEDURE	Merit list by valid score of Symbiosis Entrance Test (SET) or Joint Entrance Examination (JEE - Main) or Maharashtra Common Entrance Test (MHT-CET)						
7. MEDIUM OF INSTRUCTION	English						
8. PROGRAMME PATTERN	Semester Pattern - 8 Semesters						
9. COURSES & SPECIALIZATION	As per Annexure A						
10. FEE	<p>Indian Students</p> <table border="0"> <tr> <td>Academic Fee p.a.</td> <td>Rs. 2,25,000</td> </tr> <tr> <td>Institute Deposit</td> <td>Rs. 10,000</td> </tr> <tr> <td>Total</td> <td>Rs. 2,35,000</td> </tr> </table> <p>International Students</p>	Academic Fee p.a.	Rs. 2,25,000	Institute Deposit	Rs. 10,000	Total	Rs. 2,35,000
Academic Fee p.a.	Rs. 2,25,000						
Institute Deposit	Rs. 10,000						
Total	Rs. 2,35,000						

Academic Fee p.a.	Rs. 3,40,000
Institute Deposit	Rs. 10,000
Total	Rs. 3, 50, 000

11. ASSESSMENT

All internal courses will have 100% component as internal evaluation at the institute level. All external courses will have 40% internal component and 60% component as external [University] examination. The internal and external will be separate heads of passing.

12. STANDARD OF PASSING

The assessment of the student for each examination is done, based on relative performance. Maximum Grade Point (GP) is 10 corresponding to O (Outstanding). For all courses, a student is required to pass both internal and external examination separately with a minimum Grade Point of 4 corresponding to Grade P. Students securing less than 40% absolute marks in each head of passing will be declared FAIL. The University awards a degree to the student who has achieved a minimum CGPA of 4 out of maximum of 10 CGPA for the programme.

13. AWARD OF DEGREE

Bachelor of Technology (Electronics and Telecommunication Engineering) will be awarded at the end of semester VIII examination by taking into consideration the performance of all semester examinations after obtaining minimum 4.00 CGPA out of 10 CGPA.

Annexure A Semester I

Catalog Course Code	Course Code	Course Title	Nature	Teaching Scheme			Practical		Examination Scheme Marks		Total Credits	Total Marks
				L	T	Lab	CA	ESE	CA	ESE		
T7385	070123101	Engineering Mathematics I	BS	4	2	-	-	-	50	75	5	125
T7381	070123102	Chemistry	BS	3	-	-	-	-	30	45	3	75
T7382	070123103	Chemistry Lab	BS	-	-	2	10	15	-	-	1	25
T7936	070123104	Fundamentals of Electronic Devices and Circuits	ES	3	-	-	-	-	30	45	3	75
T7937	070123105	Fundamentals of Electronic Devices and Circuits Lab	ES	-	-	2	10	15	-	-	1	25
T7414	070123106	Engineering Mechanics	ES	3	-	-	-	-	30	45	3	75
T7415	070123107	Engineering Mechanics Lab	ES	-	-	2	10	15	-	-	1	25
T7924	070123108	Engineering Graphics	ES	2	-	-	-	-	20	30	2	50
T7925	070123109	Engineering Graphics Lab	ES	-	-	4	20	30			2	50
T7943	070123110	Technical English and Communication Skill	MC	2	-	-			50		2	50
T7944	070123111	Technical English and Communication Skill Lab	MC		-	2	10	15			1	25
Inter Institute Course (Choose Any One course from the following)												
T7945	070123112	Law for Engineers	OE	2	-	-	-	-	50	-	2	50
T7946	070123113	Economics for Engineers	OE	2	-	-	-	-	50	-	2	50
T4609	070123114	My Nutrition Guide	OE	2	-	-	-	-	50	-	2	50
Total				19	2	12	60	90	260	240	26	650

Semester II

Catalog Course Code	Course Code	Course Title	Nature	Teaching Scheme			Examination Scheme Marks				Total Credits	Total Marks
				L	T	Lab	Practical		CA	ESE		
							CA	ESE				
T7387	070123201	Engineering Mathematics II	BS	4	2	-	-	-	50	75	5	125
T7391	070123202	Physics	BS	3	-	-	-	-	30	45	3	75
T7392	070123203	Physics Lab	BS	-	-	2	10	15	-	-	1	25
T7418	070123204	Environmental and Civil Engineering	ES	3	-	-	-	-	30	45	3	75
T7458	070123205	Environmental and Civil Engineering Lab	ES		-	2	10	15			1	25
T7484	070123206	Computer Programming	ES	2	-	-	-	-	20	30	2	50
T7485	070123207	Computer Programming Lab	ES	-	-	2	10	15	-	-	1	25
T7938	070123208	Fundamentals of Electric Circuits	PC	2					20	30	2	50

T7658	070123209	Workshop Practice	ES	-	-	4	20	30	-	-	2	50
T7604	070123210	Basic Mechanical Engineering	ES	3	-	-	-	-	30	45	3	75
T7605	070123211	Basic Mechanical Engineering Lab	ES	-	-	2	10	15	-	-	1	25
Total				17	2	12	60	90	180	270	24	600

Semester III

Catalog Course Code	Course Code	Course Title	Nature	Teaching Scheme			Examination Scheme Marks				Total Credits	Total Marks
				L	T	Lab	Practical		CA	ESE		
							CA	ESE				
T7388	070123301	Engineering Mathematics III	BS	3	2	-	-	-	40	60	4	100
T7587	070123302	Semiconductor Devices and Circuit Applications	PC	4	-	-	-	-	40	60	4	100
T7586	070123303	Semiconductor Devices and Circuits Applications Lab	PC	-	-	2	10	15	-	-	1	25
T7553	070123304	Digital Electronics	PC	4	-	-	-	-	40	60	4	100
T7556	070123305	Digital Electronics Lab	PC	-	-	2	10	15	-	-	1	25
T7549	070123306	Data Structures and Algorithms	PC	4	-	-	-	-	40	60	4	100
T7550	070121307	Data Structures and Algorithms Lab	PC	-	-	2	10	15	-	-	1	25
T7815	070123308	Network Analysis and Synthesis	PC	3	-	-	-	-	30	45	3	75
T7563	070123309	Electronic Measurements & Instrumentation	PC	3	-	-	-	-	30	45	3	75
T7564	070123310	Electronic Measurement & Instrumentation Lab	PC	-	-	2	10	15	-	-	1	25
TE7027	070123311	Minor Project in Electronic Circuits	PC	-	-	2	10	15	-	-	1	25
T2353	070123312	Inter Institute Course II : Entrepreneurship	MC	2	-	-	-	-	50	-	2	50
Total				22	4	10	50	75	270	330	29	725

Semester IV

Catalog Course Code	Course Code	Course Title	Nature	Teaching Scheme			Examination Scheme Marks				Total Credits	Total Marks
				L	T	Lab	Practical		CA	ESE		
							CA	ESE				
T7960	070123401	Statistics, Probability and Numerical Methods	BS	3	-	-	-	-	30	45	3	75
T7961	070123402	Statistics, Probability and Numerical Methods Lab	BS	-	-	2	10	15	-	-	1	25
TE7083	070123403	Signals and Systems	PC	3	-	-	-	-	30	45	3	75
T7589	070123404	Signals and Systems Lab	PC	-	-	2	10	15	-	-	1	25
T7547	070123405	Control Systems	PC	3	1	-	-	-	40	60	4	100
T7548	070123406	Control Systems Lab	PC	-	-	2	10	15	-	-	1	25
T7562	070123407	Electromagnetic Field Theory	PC	3	1	-	-	-	40	60	4	100
TE7084	070123408	Analog Circuit Design	PC	3	-	-	-	-	30	45	3	75
T7536	070123409	Analog Circuit Design Lab	PC	-	-	2	10	15	-	-	1	25
TE7028	070123410	Principles of Communication	PC	4	-	-	-	-	40	60	4	100
TE7029	070123411	Principles of Communication Lab	PC	-	-	2	10	15	-	-	1	25

Liberal Arts (Choose any one from 070123412-414)

T6184	070123412	Basic German I	MC	2	-	-	-	-	50	-	2	50
T6186	070123413	Basic French I	MC	2	-	-	-	-	50	-	2	50
T6188	070123414	Basic Spanish I	MC	2	-	-	-	-	50	-	2	50
		Total		21	4	10	50	75	260	315	28	700
T4005	070123415	Integrated Disaster Management	GP	-	-	-	-	-	-	-	-	Letter Grade

Semester V

Catalog Course Code	Course Code	Course Title	Nature	Teaching Scheme			Examination Scheme Marks				Total Credits	Total Marks
				L	T	Lab	Practical		CA	ESE		
							CA	ESE				
T7575	070123501	Microcontrollers and Applications	PC	3	1	-	-	-	40	60	4	100
T7576	070123502	Microcontrollers and Applications Lab	PC	-	-	2	10	15	-	-	1	25
T7558	070123503	Digital Signal Processing	PC	3	1	-	-	-	40	60	4	100
T7559	070123504	Digital Signal Processing Lab	PC	-	-	2	10	15	-	-	1	25
TE7085	070123505	Power Electronics	PC	3	-	-	-	-	30	45	3	75
T7583	070123506	Power Electronics Lab	PC	-	-	2	10	15	-	-	1	25
TE7086	070123507	VLSI Design	PC	3	-	-	-	-	30	45	3	75
T7592	070123508	VLSI Design Lab	PC	-	-	2	10	15	-	-	1	25
TE7087	070123509	Microwave Communication	PC	3	-	-	-	-	30	45	3	75
TE7031	070123510	Microwave Communication Lab	PC	-	-	2	10	15	-	-	1	25
T7594	070123511	Product Design Lab	PC	-	-	2	10	15	-	-	1	25
T8000	070123512	Service Learning	HS	4	-	-	-	-	100	-	4	100
		Total		19	4	12	60	90	270	255	27	675
	070123513	Energy Studies	MC	-	-	-	-	-	-	-	-	Letter Grade
	070123514	Soft skills	MC	-	-	-	-	-	-	-	-	Letter Grade

Semester VI

Catalog Course Code	Course Code	Course Title	Nature	Teaching Scheme			Examination Scheme Marks				Total Credits	Total Marks
				L	T	Lab	Practical		CA	ESE		
							CA	ESE				
Group A												
T7191	070123601	Internship (6 Months)	PIS	-	-	-	195	130	-	-	13	325
T7671	070123602	Seminar	PIS	-	-	-	100	-	-	-	4	100
OR												
	070123603	Global Immersion Program	PC	-	-	-	-	-	-	-	17	425
OR												
Group B												
T7905	070123604	Internship(6-8Weeks)	PIS	-	-	10	75	50	-	-	5	125
T7048	070123605	Project Management	PE	4	-	-	-	-	40	60	4	100
T7139	070123606	Software Testing and Quality Assurance	PE	3	-	-	-	-	30	45	3	75
T7080	070123607	Software Testing and Quality Assurance Lab	PE	-	-	2	10	15	-	-	1	25
TE7033	070123608	Satellite Communication	PE	4	-	-	-	-	40	60	4	100
		Total		11	-	10	85	65	110	165	17	425

Semester VII

Catalog Course Code	Course Code	Course Title	Nature	Teaching Scheme			Examination Scheme Marks				Total Credits	Total Marks
				L	T	Lab	Practical		CA	ESE		
							CA	ESE				
TE7036	070123701	Embedded Systems and RTOS	PC	3	-	-	-	-	30	45	3	75
TE7037	070123702	Embedded Systems and RTOS Lab	PC	-	-	2	10	15			1	25
TE7034	070123703	Wireless and Mobile Communication	PC	4	-	-	-	-	40	60	4	100
TE7035	070123704	Wireless and Mobile Communication Lab	PC	-	-	2	10	15			1	25
T7968	070123705	Foundation of Ethics	MC	2	-	-	-	-	50	-	2	50
TE7038	070123706	Project Planning and Charter	PIS	-	-	4	20	30	-	-	2	50
Elective 1 (Any one from 070123707-070123710)												
TE7088	070123707	Digital Image Processing	PE	3	-	-	-	-	30	45	3	75
TE7040	070123708	Robotics and Automation	PE	3	-	-	-	-	30	45	3	75
TE7042	070123709	Computer Communication Networks	PE	3	-	-	-	-	30	45	3	75
TE7089	070123710	Modern Control Theory	PE	3	-	-	-	-	30	45	3	75
Elective 1 Lab (Any one from 070123711-070123714)												
T7094	070123711	Digital Image Processing Lab	PE	-	-	2	10	15	-	-	1	25
TE7041	070123712	Robotics and Automation Lab	PE	-	-	2	10	15	-	-	1	25
TE7043	070123713	Computer Communication Networks Lab	PE	-	-	2	10	15	-	-	1	25
TE7039	070123714	Modern Control Theory Lab	PE	-	-	2	10	15	-	-	1	25
Elective 2 (Any one from 070123715-070123718)												
TE7044	070123715	Pattern Recognition and Machine Learning	PE	3	-	-	-	-	30	45	3	75
TE7045	070123716	IoT and Applications	PE	3	-	-	-	-	30	45	3	75
Te7090	070123717	Antenna and Wave Propagation	PE	3	-	-	-	-	30	45	3	75
T7640	070123718	Mechatronics	PE	3	-	-	-	-	30	45	3	75
Elective Lab 2 (Any one from 070123719-070123722)												
TE7047	070123719	Pattern Recognition and Machine Learning Lab	PE	-	-	2	10	15	-	-	1	25
TE7048	070123720	IoT and Applications Lab	PE	-	-	2	10	15	-	-	1	25
TE7091	070123721	Antenna and Wave Propagation Lab	PE	-	-	2	10	15	-	-	1	25
T7101	070123722	Mechatronics Lab	PE	-	-	2	10	15	-	-	1	25
Open Elective I (Any one from 070123723-28)												
T7547	070123723	Integrated Water Resources Development and Management	OE	3	-	-	-	-	30	45	3	75
T7499	070123724	JAVA	OE	3	-	-	-	-	30	45	3	75
T7574	070123725	MATLAB	OE	3	-	-	-	-	30	45	3	75
T7616	070123726	Fundamentals of Automotive Technology	OE	3	-	-	-	-	30	45	3	75
T7020	070123727	Nanotechnology	OE	3	-	-	-	-	30	45	3	75
T7393	070123728	Computer Based Statistical Packages	OE	3	-	-	-	-	30	45	3	75
Total				18	0	12	60	90	210	240	24	600

Semester VIII

Catalog Course Code	Course Code	Course Title	Nature	Teaching Scheme			Examination Scheme Marks				Total Credits	Total Marks
				L	T	La	Practical		CA	ES		
							CA	ESE				
TE7032	070123801	Optical Communication	PC	4	-	-	-	-	40	60	4	100
TE7092	070123802	Optical Communication Lab	PC	-	-	2	10	15	-	-	1	25
T7473	070123803	Artificial Intelligence	PC	3	-	-	-	-	30	45	3	75
T7804	070123804	Project	PIS	-	-	8	40	60	-	-	4	100
T7674	070123805	Cyber Security	MC	2	-	-	-	-	50	-	2	50
Elective 3 (Any one from 070123806-070123809)												
T7112	070123806	VLSI Digital Signal Processing	PE	4	-	-	-	-	40	60	4	100
T7542	070123807	CMOS VLSI Design	PE	4	-	-	-	-	40	60	4	100
TE7049	070123808	Radar and Electronic Navigation Systems	PE	4	-	-	-	-	40	60	4	100
TE7050	070123809	Biomedical Instrumentation	PE	4	-	-	-	-	40	60	4	100
Elective 4 (Any one from 070123810-0701238013)												
TE7051	070123810	Digital Speech and Audio Processing	PE	3	-	-	-	-	30	45	3	75
TE7094	070123811	Advanced FPGA Design	PE	3	-	-	-	-	30	45	3	75
TE7052	070123812	Information Theory and Coding	PE	3	-	-	-	-	30	45	3	75
TE7053	070123813	Mobile Robotics	PE	3	-	-	-	-	30	45	3	75
Elective 4 Lab (Any one from 070123814-0701238017)												
TE7054	070123814	Digital Speech and Audio Processing Lab	PE	-	-	2	10	15	-	-	1	25
TE7095	070123815	Advanced FPGA Design Lab	PE	-	-	2	10	15	-	-	1	25
TE7055	070123816	Information Theory and Coding Lab	PE	-	-	2	10	15	-	-	1	25
TE7056	070123817	Mobile Robotics Lab	PE	-	-	2	10	15	-	-	1	25
Open Elective 2 (Any one from 070123818-0701238023)												
T7456	070123818	Town and Country Planning	OE	3	-	-	-	-	30	45	3	75
T7509	070123819	Open Source Technologies	OE	3	-	-	-	-	30	45	3	75
T7474	070123820	Basics of Database	OE	3	-	-	-	-	30	45	3	75
T7584	070123821	Printed Circuit Board (PCB) Design	OE	3	-	-	-	-	30	45	3	75
T7650	070123822	Six Sigma	OE	3	-	-	-	-	30	45	3	75
T7394	070123823	Smart Materials	OE	3	-	-	-	-	30	45	3	75
Total				19	0	12	60	90	220	255	25	625

HS- Humanities and Social Sciences

L- Lecture , T-Tutorial

ES - Engineering Sciences

PIS- Project, Internship, Seminar

OE- Open Electives

CA- Continuous Assessment

ESE- End Semester Examination

Practical, CA, ESE are separate heads of Passing

PE- Professional Elective

BS – Basic Sciences

PD - Professional Development Course

MC - Mandatory Course

PC – Professional Core

Practical external examination may be conducted by alternate internal faculty

Summary

Semester	Internal Credits	External Credits	Total Credits	Total Marks
I	4	22	26	650
II	0	24	24	600
III	2	27	29	725
IV	2	26	28	700
V	4	23	27	675
VI	4	13	17	425
VII	2	22	24	600
VIII	2	23	25	625
Total	16	184	200	5000

* Integrated Disaster Management is mandatory for the award of degree.