

PROGRAMME STRUCTURE

&

SYLLABI

B. Tech (ET)

(Session 2021-22)



DEPARTMENT

OF

ELECTRONICS & TELECOMMUNICATION

ENGINEERING

COLLEGE OF ENGINEERING ROORKEE

(AFFILIATED TO UTTARAKHAND TECHNICAL UNIVERSITY DEHRADUN)

ROORKEE, UTTARAKHAND-247667

B. Tech. (Electronics & Telecommunication Engineering)

I Semester

S.No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
				Theory Slot			Practical Slot			L	T	P	
				End Sem.	Mid Sem Exam.	Quiz/ Assignment	End Sem.	Lab work & Sessional					
1.	BAST 104 BASP 104	BSC-3	Engineering Physics	100	30	20	30	20	200	3	1	2	5
2.	BAST 102	BSC-2	Mathematics-I	100	30	20	-	-	150	3	1	-	4
3.	BMET 102 BMEP 102	ESC-4	Basic Mechanical Engineering	100	30	20	30	20	200	3	1	2	5
4.	BECT 101 BECF 101	ESC-4	Basic Electronics Engineering	100	30	20	30	20	200	3	1	2	5
5.	BMEP 103	ESC-2	Engineering Graphics	-	-	-	50	25	75	1	-	2	2
6.	BASP 106	HSMC-2	Language Lab & Seminars	-	-	-	50	25	75	1	-	2	2
7.	BEST 101	BSC	Environmental Studies	70	Not Credit Course. Student must clear it to complete the degree.			30 (Field & Project Work)	100	3	-	-	-
8.	BASP 102	DLC-1	Internship-I - (60 Hrs Duration) at the Institute level	To be completed during first/second semester. Its evaluation/credit to be added in third semester.									
Total				470	120	80	190	140	1000	17	4	10	23

Note: The Meaning of last Character of Subject Code (T – Theory and P – Practical)

1 Hr Lecture	1 Hr Tutorial	2 Hr Practical
1 Credit	1 Credit	1 Credit

II Semester

S. No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
				Theory			Practical			L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional					
Mandatory Induction Program (First three weeks)				Physical Activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Visits to local Areas, Familiarization to Dept./Branch & Innovations									
Fourth week onwards classes will start													
1.	BAST 101 BASP 101	BSC-1	Engineering Chemistry	100	30	20	30	20	200	3	1	2	5
2.	BAST 102	BSC-2	Mathematics-I	100	30	20	-	-	150	3	1	-	4
3.	BAST 103 BASP 103	HSMC-1	English for Communications	100	30	20	30	20	200	3	-	2	4
4.	BEET 101 BEEP 101	ESC-1	Basic Electrical Engineering	100	30	20	30	20	200	3	1	2	
5.	BCST 101 BCSP 101	ESC-6	Fundamentals of Computers & Programming in C	100	30	20	30	20	200	3	1	2	5
6.	BMEP 101	ESC-3	Manufacturing Practices / Workshop	-	-	-	30	20	50	1	-	2	2
7.	BASP 102	DLC-1	Internship-I (60 Hrs Duration) at the Institute level	To be completed during or at the end of the second semester. Its evaluation/credit to be added in third semester.									
8.	BASP 105	DLC-2	Swachh Bharat Summer Internship Unnat Bharat Abhiyan (100Hrs)/ Rural Outreach				15	10	25*	-	-	4	-
			Total	500	150	100	150	100	1000	16	4	10	25

*It is non credit course. Student must clear it to be promoted in II Year; Marks will not be added to the total

Note: The Meaning of last Character of Subject Code (T – Theory and P – Practical)

1 Hr Lecture	1 Hr Tutorial	2 Hr Practical
1 Credit	1 Credit	1 Credit

III Semester

S. No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per Week			Total Credit
				Theory			Practical			L	T	P	
				End Sem	Mid Sem	Quiz / Assignment	End Sem	Term Work /Lab Work & Sessional					
1.	BCET 301	BSC-5	Mathematics-III	100	30	20	--	--	150	3	1	0	4
2.	BECT 302 BECP 302	DC-1	Electronic Measurement & Instrumentation	100	30	20	30	20	200	3	1	2	5
3.	BECT 303 BECP 303	DC-2	Digital Electronics	100	30	20	30	20	200	3	1	2	5
4.	BECT 304 BECP 304	DC-3	Electronic Devices	100	30	20	30	20	200	3	1	2	5
5.	BEET 305 BEEP 305	DC-4	Network Analysis & Synthesis	100	30	20	30	20	200	3	1	2	5
6.	BASP 307	DLC-1	Evaluation of Internship-I completed at I year level /Seminar for Lateral Entry	-	-	-	-	50	50			4	2
7.		HV	90 hrs Internship based on using various software's –Internship -II	To be completed anytime during Third/ fourth semester. Its evaluation/credit to be added in fifth semester.									
Total				500	150	100	120	130	1000	15	5	12	26
NSS/NCC													

IV Semester

S. No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per Week			Total Credit
				Theory			Practical			L	T	P	
				End Sem	Mid Sem	Quiz / Assignment	End Sem	Term Work /Lab Work & Sessional					
1.	BAST 401	ESC	Energy & Environmental Engineering	100	30	20	-	-	150	3	1	-	4
2.	BECT 402 BECP 402	DC	Signal & Systems	100	30	20			150	3	1	-	4
3.	BECT 403 BECP 403	DC	Analog Communication	100	30	20	30	20	200	3	1	2	5
4.	BEET 404 BEEP 404	DC	Control System	100	30	20	30	20	200	3	1	2	5
5.	BECT 405 BECP 405	DC	Analog Circuits	100	30	20	30	20	200	3	1	2	5
6.	BHUT-401	HV	Universal Human Value -2	50	30	20	-	-	100	2	1	0	3
	BCST 408	MC	Cyber Security and PCB Design Software Simulation										
7.		DLC	90 hrs Internship based on using various software's –Internship -II	To be completed anytime during Third/ fourth semester. Its evaluation/credit to be added in fifth semester.									
Total				550	180	120	90	60	1000	17	6	6	26
NSS/NCC													

V Semester

S. No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per Week			Total Credit
				Theory			Practical			L	T	P	
				End Sem	Mid Sem	Quiz / Assignment	End Sem	Term Work /Lab Work & Sessional					
1.	BECT 501 BECF-501	DC	Microprocessors & Interfacing	100	30	20	30	20	200	3	1	2	5
2.	BECT -502 BECF-502	DC	Electromagnetic Theory	100	30	20	30	20	200	3	1	2	5
3.	BECT -503 BECF-503	DC	VLSI Technology and Design	100	30	20	30	20	200	3	1	2	5
4.	BECT -504	DE	Departmental Elective	100	30	20	-	-	150	3	1	0	4
5.	BOEC-505	OE	Open Elective	100	30	20	-	-	150	3	1	0	4
6.	BECF 506	O/E Lab	Simulation Software Lab (Mat Lab, Multisim etc) / PCB design and Fabrication Lab	-	-	-	30	20	50	0	0	2	1
	BECF -507	DLC-1	Evaluation of Internship-II completed at II year level	-	-	-	-	50	50			2	1
8		IN	Internship -III	To be completed any time during Fifth/ Sixth semester. Its evaluation/credit to be added in Seventh semester.									
Total				500	150	100	120	130	1000	15	5	14	25
NSS/NCC													

Departmental Electives		Open Electives	
BECT 504(A)	CNTL	BOEC -505(A)	Data Structure using C++
BECT 504(B)	Data Communication and Networks	BOEC -505(B)	Computer System Organisation
BECT 504(C)	Advanced Control System	BOEC -505(C)	Process Control Instrumentation
BECT 504 (D)	IC Technology	BOET -504 (D)	Innovation and Entrepreneurship

VI Semester

S. No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per Week			Total Credit
				Theory			Practical			L	T	P	
				End Sem	Mid Sem	Quiz / Assignment	End Sem	Team Work / Lab Work & Sessional					
1.	BECT 601 BECP-601	DC	Digital Signal Processing	100	30	20	30	20	200	3	1	2	5
2.	BECT -602 BECP-602	DC	Antenna and Wave Propagation	100	30	20	30	20	200	3	1	2	5
3.	BECT -603 BECP-603	DC	Digital Communication	100	30	20	30	20	200	3	1	2	5
4.	BECT -604	DE	Departmental Elective	100	30	20		-	150	3	1	0	4
5.	BOEC -605	OE	Open Elective	100	30	20	-	-	150	3	1	0	4
6.	BECP -606	O/E Lab	Open Source S/w Lab	-	-	-	30	20	50	0	0	2	1
7.	BECT -607	P	Minor Project -1						50			2	1
8.		IN	Internship - III	Non Credit Course									
Total				500	150	100	120	130	1000	15	5	10	25

Note: Meaning of Last Character of Subject Code (T – Theory; P – Practical)

Departmental Electives		Open Electives (Using SWAYAM etc may be allowed)	
BECT 604 (A)	Cellular and Mobile Communication	BOEC -605 (A)	Microcontroller and Embedded Systems
BECT 604 (B)	CMOS Design	BOEC -605 (B)	Bio Medical Electronics
BECT 604 (C)	Satellite Communication	BOEC -605 (C)	Power Electronics
BECT 604 (D)	High Speed Electronics	BOEC 605 (D)	IOT and Applications

VII Semester

S. No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per Week			Total Credit
				Theory			Practical			L	T	P	
				End Sem	Mid Sem	Quiz / Assignment	End Sem	Term Work /Lab Work & Sessional					
1.	BECT 701 BECP-701	DC	Microwave Engineering	100	30	20	30	20	200	3	1	2	5
2.	BECT -702 BECP-702	DC	Optical Fibre Communication	100	30	20	30	20	200	3	1	2	5
3.	BECT -703	DE	Departmental Elective	100	30	20	-	-	150	3	1	0	4
4.	BOEC -704	OE	Open Elective	100	30	20	-	-	150	3	1	0	4
5.	BECT -705	D Lab	Virtual Lab	-	-	-	30	20	50	0	0	2	1
7	BECP -706	DLC-1	Evaluation of Internship-III completed at III year level	-	-	-	-	50	50			2	1
8	EC-707	P	Minor Project-II	-	-	-	50	50	100	0	0	4	2
Total				400	120	80	140	160	900	12	4	12	22
NSS/NCC													

Departmental Electives		Open Electives	
BECT 703(A)	Mixed Circuit Design	BOEC -704(A)	Mobile Ad Hoc Networks
BECT 703(B)	Digital Image Processing	BOEC -704(B)	Artificial Intelligence
BECT 703(C)	Advanced Communication Systems	BOEC -704(C)	Artificial Neural Networks
BECT 703 (D)	Wireless Sensor Networks	BOEC 704 (D)	Subject from SWAYAM

VIII Semester

S. No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per Week			Total Credit
				Theory			Practical			L	T	P	
				End Sem	Mid Sem	Quiz/ Assignment	End Sem	Term Work /Lab Work & Sessional					
1.	BECT 801	DC	Television and Radar Engineering	100	30	20	30	20	200	3	1	2	5
2.	BECT -802	DC	Wireless Communications	100	30	20	30	20	200	3	1	2	5
3.	BECT -803	DE	Departmental Elective	100	30	20	-	-	150	3	1	0	4
4.	BOEC -804	OE	Open Elective	100	30	20	-	-	150	3	1	0	4
5.	BECP -805	P	Major Project	-	-	-	100	100	200	0	0	8	4
Total				400	120	80	120	130	900	11	5	12	22
NSS/NCC													

Departmental Electives		Open Electives	
EC 803 (A)	Digital System Design using VHDL	BOEC -804(A)	Industrial Automation Technology
EC 803 (B)	Adaptive Signal Processing	BOEC -804 (B)	Machine Learning
EC 803 (C)	Telecommunication Switching Systems	BOEC 804 (C)	Under Water Communication
EC 803 (D)	SDN and Cognitive Radio Networks	BOEC 804 (D)	Subject using SWAYAM etc

NOTE: Open elective in all the semesters can be taken from SWAYAM or any other International University after getting permission from authorities