

Basic BTech Curriculum

Important Notes:

1. Course numbering is not given. It is suggested that an entirely new numbering system may be followed.
2. **Course syllabii of under-graduate courses is given in the Appendix.**
3. Elective List is *tentative* and will be revised/expanded later.
4. Introduction to Electronics (DIC-II) is being proposed in lieu of EEX, since EE students need not do EEX after doing DIC-I.

1. Total Credits (Minimum Credit Required : 252)	253 credits
2. Institute Electives (2)	12 credits
3. HSS Courses (2)	12 credits
1. Economics 6 credits	
2. Elective 6 credits	
4. Basic Sciences + Basic Sciences Labs	48 credits
1. Maths (Calculus)	8 credits
2. Maths (Lin Alg + DE-I)	8 credits
3. Physics-I (Electricity and Magnetism)	6 credits
4. Chemistry-I	6 credits
5. Environment Studies	6 credits
6. Maths (Complex Anal. and DE-II) - Dept. Option-1	8 credits
7. Physics Lab	3 credits
8. Chemistry Lab	3 credits
5. Basic Engg + Basic Engg Labs	37 credits
1. Computer Programming & Utilization	6 credits
2. Introduction to Electrical Systems (DIC-I)	6 credits
3. Introduction to Electronics (DIC-II) - in lieu of EEX	6 credits
4. Data Analysis and Interpretation	6 credits
5. Engg. Drawing & Graphics	5 credits
6. Workshop Practice	4 credits
7. Measurements Lab	4 credits

6. Dept Core

84 credits

1.	Electronic Devices	6 credits
2.	Analog Circuits - (modified)	6 credits
3.	Digital Systems - (new/modified)	6 credits
4.	Electrical Machines and Power Electronics - (modified)	6 credits
5.	EM Waves - (modified)	6 credits
6.	Signals and Systems - (modified)	6 credits
7.	Network Theory - (modified)	6 credits
8.	Microprocessors - (modified 2-0-2-6)	6 credits
9.	Communication Systems	6 credits
10.	Power Systems - (modified)	6 credits
11.	Digital Signal Processing	6 credits
12.	Control Systems - (modified)	6 credits
13.	Probability and Random Processes - (new)	6 credits
14.	Digital Communications - (new)	6 credits

Note:

- (a) Several courses have pre-requisites. This has to be accounted for in sequencing. Since some courses may be run in both semesters, some flexibility is expected in sequencing of courses especially 2nd year onwards.
- (b) Digital Systems is a modification/enhancement of Digital Circuits since the students get introduced to digital circuits in DIC-II itself.

7. Dept Labs -

18 credits

1.	Electronic Devices Lab	3 credits
2.	Analog Circuits Lab	3 credits
3.	Digital Circuits Lab	3 credits
4.	Machines Lab	3 credits
5.	Control Lab	3 credits
6.	Communications Lab	3 credits

Note:

- a) μ P course also has a lab component, but is accounted for in Dept Core
- b) Communication Lab has experiments from EM waves, Comm. Electronics etc.

8. Compulsory Supervised Learning

6 credits

- 1. BTP-I 6 credits

Note:

Satisfactory performance in BTP-I will determine whether the student will be allowed to credit BTP-II of 12 credits, otherwise he does other elective courses.

9. Dept/Open Electives

36 credits

- 6 elective courses OR
- 5 elective courses + 1 elective of supervised learning (EDL) OR
- 4 elective courses + (effectively) 2 electives of supervised learning (BTP-II of 12 credits) OR
- 3 elective courses + (effectively) 3 electives of supervised learning (EDL + BTP-II of 12 credits)

Pool of Electives - Tentative

- UG ELECTIVES OFFERED BY THE DEPARTMENT

- (a) EDL (6 credit)
- (b) BTP-II (12 credit) (pre-requisite BTP-I)
- (c) EE429 Discrete Data and Digital Control
- (d) EE430/708 Information Theory and Coding
- (e) EE442/700 Advanced Network Analysis
- (f) EE425 VLSI Technology

Note: This elective list is being revised and expanded.

- UG - EXTRA DEPARTMENTAL ELECTIVES

It is proposed that ALL DEPARTMENTS offer a few courses which will be available to other department students. The class capacity will be fixed and therefore allotment based on choices will be done before the semester begins.

- PG COURSES OPEN FOR BTECHS

- (a) EE605 Error Correcting Codes
- (b) EE606 Fibre Optic Communication
- (c) EE609 Radiating Systems
- (d) EE620 Physics of Transistors
- (e) EE622 Optimal Control Systems
- (f) EE634 Simulation of Circuits and Devices
- (g) EE649 Finite Fields and their Applications
- (h) EE657 Electric Drives I
- (i) EE659 A First Course in Optimization
- (j) EE660 Application of Power Electronics to Power Systems
- (k) EE661 Physical Electronics
- (l) EE666 High Power Semiconductor Devices
- (m) EE679 Speech Processing
- (n) EE701 Introduction to MEMS
- (o) EE713 Circuit Simulation in Power Electronics
- (p) EE714 Behavioral Theory of Systems
- (q) EE722 Restructured Power Systems
- (r) EE724 Nanoelectronics
- (s) EE725 Computational Electronmagnetics

Note: This elective list will be revised and expanded.

A POSSIBLE SEQUENCING OF COURSES - FLEXIBLE¹

Semester I

Course Title	Credits	Category
Maths(Calculus)	8	Basic Science-1
Physics(Elec.& Magnetism)	6	Basic Science-2
Computer Programming & Utilization	6	Basic Engg-1
Introduction to Electrical Systems (DIC-I)	6	Basic Engg-2
Physics Lab	3	Basic Science-Lab-1
Workshop Practice	4	Basic Engg-Lab-1
Total	33	

Semester II

Course Title	Credits	Category
Maths(Lin. Alg + DE-I)	8	Basic Science-1
Chemistry	6	Basic Science-3
Introduction to Electronics(DIC-II)	6	Basic Engg-3
Data Analysis and Interpretation	6	Basic Engg -4
Chemistry Lab	3	Basic Science-Lab-2
Engg Graphics/Drawing	5	Basic Engg-Lab-2
Total	34	

Semester III

Course Title	Credits	Category
Mathematics-II (Complex Analysis + DE II)	8	Basic Science-5 (DO1)
Economics	6	HSS-1 - Branch Changers do EEX or DIC-I
Network Theory	6	Dept Core-1
Electronic Devices	6	Dept Core-3
Electronic Devices Lab	3	Dept Lab-1
Measurements Lab	4	Basic Engg-Lab-3
Total	33	

Semester IV

Course Title	Credits	Category
Signals and Systems	6	Dept. Core-2
Analog Circuits	6	Dept Core-4
Electrical Machines and Power Electronics	6	Dept Core-5
Digital Systems	6	Dept Core-6
Analog Lab	3	Dept Lab-2
Digital Circuits Lab	3	Dept Lab-3
Machines Lab	3	Dept Lab-4
Total	33	

¹Some flexibility is *permissible* provided pre-requisites are satisfied when taking a course. Flexibility may become *possible* since a few courses may run in both semesters

Semester V

Course Title	Credits	Category
Microprocessors	6	Dept Core-7
Power Systems	6	Dept Core-8
Communication Systems	6	Dept Core-9
EM Waves	6	Dept Core-10
Probability and Random Processes	6	Dept Core-11
Total	30	

Semester VI

Course Title	Credits	Category
Control Systems	6	Dept Core-12
Digital Signal Processing	6	Dept Core-13
Digital Communication	6	Dept Core-14
Control Systems Lab	3	Dept Lab -5
Communications Lab	3	Dept Lab -6
Dept Elective - I	6	
Total	30	

Semester VII

Course Title	Credits	Category
Environment Studies	6	Basic Sciences - 6
Institute Elective 1	6	
HSS Elective	6	HSS-2
Dept Elective - II	6	
BTP-I	6	
Total	30	

Semester VIII

Course Title	Credits	Category
Institute Elective 2	6	
Dept/Open Elective - III	6	
Dept/Open Elective - IV	6	
Dept Elective - V/BTP-II	6	
Dept Elective - VI/BTP-II	6	
Total	30	