

# Annexure I

**INDIAN INSTITUTE OF INFORMATION TECHNOLOGY RANCHI**  
**(At NIT Jamshedpur - 831014), Jharkhand**  
**B. Tech Electronics and Communication Engineering**

First Semester			Second Semester		
Paper Code	Course Name	Credits	Paper Code	Course Name	Credits
MA 101	Calculus & Differential Equations	3-1-0 4	MA 102	Probability and Statistics	3-1-0 4
PY 101	Classical and Quantum Physics	3-0-0 3	CS 102	Data Structure and Algorithms	3-1-0 4
EC 101	Electrical Sciences	3-1-0 4	EC 102	Electronic Devices and Circuits	3-1-0 4
CS 101	Computer Programming I	3-0-0 3	CS 104	Computer Programming II	3-0-0 3
ME 101	Engineering Graphics	3-0-0 3	EC 104	Engineering Materials	3-0-0 3
HS 101	Professional Communication	1-0-2 2	HS 102	Professional Ethics for Engineers	2-0-0 2
EC 103	Electrical Sciences Lab	0-0-3 2	CS 106	Data Structure and Algorithms Lab	0-0-2 1
CS 103	Computer Programming I Lab	0-0-2 1	EC 106	Electronic Devices and Circuits Lab	0-0-2 1
ME 103	Engineering Graphics Lab	0-0-2 1	CS 108	Computer Programming II Lab	0-0-2 1
Total Credits		23	Total Credits		23

Third Semester			Fourth Semester		
Paper Code	Course Name	Credits	Paper Code	Course Name	Credits
MA 203	Complex Variables and Linear Algebra	3-1-0 4	EC 208	Analog Communication	3-1-0 4
EC 205	Digital Design	3-1-0 4	EC 210	Electromagnetic Theory	3-1-0 4
EC 207	Analog Electronics	3-1-0 4	EC 212	Digital Communication	3-1-0 4
EC 209	Signals & Systems	3-0-0 3	EC 214	Electronic Measurements & Instrumentation	3-0-0 3
EC 211	Network Theory	3-1-0 4	EC 216	Microprocessor & Interfacing	3-1-0 4
HS 203	Management Concepts and Technology	2-0-0 2	ES 202	Environmental Sciences & Green Technology	2-0-0 2
EC 213	Signals & Systems Lab	0-0-2 1	EC 218	Analog Communication Lab	0-0-2 1
EC 215	Digital Design Lab	0-0-2 1	EC 220	Digital Communication Lab	0-0-2 1
EC 217	Analog Electronics Lab	0-0-2 1	EC 322	Microprocessor & Interfacing Lab	0-0-2 1
Total Credits		24	Total Credits		24

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(At NIT Jamshedpur - 831014), Jharkhand

## B. Tech Electronics and Communication Engineering

Fifth Semester			Sixth Semester		
Paper Code	Course Name	Credits	Paper Code	Course Name	Credits
EC 319	Digital Signal Processing	3-1-0 4	EC 322	Embedded Systems	3-1-0 4
EC 321	Microwave Engineering	3-1-0 4	EC 324	Data Communication Networks	3-1-0 4
EC 323	Control System	3-1-0 4	EC 326	Wireless Communication	3-1-0 4
EC 325	Microelectronics & VLSI Design	3-1-0 4		Elective II	3-1-0 4
	Elective I	3-1-0 4		Open Elective	3-1-0 4
EC 327	VLSI Design Lab	0-0-2 1	EC 328	Data Communication Networks Lab	0-0-2 1
EC 329	Digital Signal Processing Lab	0-0-2 1	EC 330	Embedded System Lab	0-0-2 1
Total Credits		22	Total Credits		22

Seventh Semester			Eighth Semester		
Paper Code	Course Name	Credits	Paper Code	Course Name	Credits
EC 439	Optical Communication	3-1-0 4	EC 444	Industrial Practices/ Dissertation	16
	Elective III	3-1-0 4	EC 446	Industrial Training Seminar	2
	Elective IV	3-1-0 4			
	Elective V	3-1-0 4			
EC 441	Optical Communication Lab	0-0-2 1			
HS 405	Foreign Language	2			
	Minor Project Elective	4			
Total Credits		23	Total Credits		18

**Total Credits 179**

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**List of Electives:**

**A. Discipline Electives:**

**5<sup>th</sup> Semester**

- EC 331 Information Theory & Coding
- EC 333 Computational Intelligence
- EC 335 Microcontroller Design
- EC 337 Fiber Optics & Optoelectronics

**6<sup>th</sup> Semester**

- EC 332 Advanced Digital Communication
- EC 334 Antenna Design
- EC 336 Computer Vision and Image Processing
- EC 338 Digital VLSI Design

**7<sup>th</sup> Semester**

- EC 443 Radar Systems
- EC 445 Mobile Communication
- EC 447 Smart Sensors and Sensor Networks
- EC 449 System on Chip
- EC 451 Speech and Audio Processing
- EC 453 Software for Embedded Systems
- EC 455 Biomedical Instrumentation
- EC 457 MEMS and NEMS
- EC 459 Telecommunication and Switching Networks
- EC 461 Microwave Integrated Circuits
- EC 463 RF Microelectronics Chip Design
- EC 465 Satellite Communication
- EC 467 Adaptive Signal Processing
- EC 469 VLSI Technology & CAD

**B. Open Electives:**

- CS 310 Compiler Construction
- CS 312 Operating Systems
- CS 314 Network Programming
- CS 316 Theory of Computation
- CS 318 Computer Architecture
- CS 320 Cryptography and Network Security
- CS 322 Data Base Management System

**C. Minor Project Electives:**

- EC 471 Special Project
- EC 473 Lab Project
- EC 475 Design Project
- EC 477 Computer Project

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