



University of Engineering & Management, Kolkata

B/5, Plot No. III, Action Area - III, New Town, University Area, Kolkata, West Bengal 700156

Structured & Detailed Syllabus

**Department of Electronics & Communication
Engineering.**



UNIVERSITY OF ENGINEERING AND MANAGEMENT, KOLKATA

B. TECH – ELECTRONICS & COMMUNICATION ENGINEERING

Second Year Third Semester

| A.THEORY | | | | | | | |
|---------------------------|--------------|---|--------------------|---|---|-----------|---------------|
| Sl No. | Subject Code | Theory | Contact Hours/Week | | | | Credit Points |
| | | | L | T | P | Total | |
| 1 | M(CS)301 | Numerical Methods | 2 | 1 | 0 | 3 | 2 |
| 2 | M302 | Mathematics-III | 3 | 1 | 0 | 4 | 4 |
| 3 | EC301 | 1. Circuit Theory & Networks | 3 | 0 | 0 | 4 | 4 |
| 4 | EC302 | 2. Solid State Device | 3 | 0 | 0 | 3 | 3 |
| 5 | EC303 | 1. Signals & Systems | 3 | 0 | 0 | 3 | 3 |
| 6 | EC304 | 2. Analog Electronic Circuits | 3 | 1 | 0 | 4 | 4 |
| 7 | GS301 | Essential Studies for Professionals-III | 3 | 1 | 0 | 4 | 2 |
| Total of Theory | | | | | | 21 | 22 |
| B. PRACTICAL | | | | | | | |
| 8 | M(CS)391 | Numerical Lab | 0 | 0 | 2 | 2 | 1 |
| 9 | EC391 | Circuit Theory & Network Lab | 0 | 0 | 3 | 3 | 2 |
| 10 | EC392 | Solid State Devices | 0 | 0 | 3 | 3 | 2 |
| 11 | EC393 | Signal System Lab | 0 | 0 | 3 | 3 | 2 |
| 12 | EC394 | Analog Electronic Circuits Lab | 0 | 0 | 3 | 3 | 2 |
| C. SESSIONAL | | | | | | | |
| 13 | GS381 | Skill Development for Professionals-III | 2 | 1 | 0 | 3 | 1 |
| Total of Practical | | | | | | 14 | 10 |
| Total of Semester | | | | | | 35 | 32 |



Second Year Fourth Semester

| A.THEORY | | | | | | | |
|---------------------------|--------------|--|--------------------|---|---|-----------|---------------|
| Sl No. | Subject Code | Theory | Contact Hours/Week | | | | Credit Points |
| | | | L | T | P | Total | |
| 1 | HU401 | Values & Ethics in Profession | 3 | 0 | 0 | 3 | 3 |
| 2 | CH401 | Basic Environmental Engineering & Elementary Biology | 3 | 0 | 0 | 3 | 3 |
| 3 | EC401 | 1. EM Theory & Transmission Lines | 3 | 1 | 0 | 4 | 4 |
| 4 | EC402 | 2. Digital Electronic & Integrated Circuits | 3 | 1 | 0 | 4 | 4 |
| 5 | EC403 | Computer Organisation and Architecture | 3 | 1 | 0 | 4 | 4 |
| 6 | GS401 | Essential Studies for Professionals-IV | 3 | 1 | 0 | 4 | 2 |
| Total of Theory | | | | | | 18 | 20 |
| B. PRACTICAL | | | | | | | |
| 7 | HU481 | Technical Report Writing & Language Lab Practice | 0 | 0 | 3 | 3 | 2 |
| 8 | EC491 | 1. EM Theory & Tx Lines Lab | 0 | 0 | 3 | 3 | 2 |
| 9 | EC492 | 2. Digital Electronic & Integrated Circuits Lab | 0 | 0 | 3 | 3 | 2 |
| 10 | EC493 | Computer Organisation and Architecture Lab | 0 | 0 | 3 | 3 | 2 |
| C. SESSIONAL | | | | | | | |
| 11 | GS481 | Skill Development for Professionals-IV | 2 | 1 | 0 | 3 | 1 |
| Total of Practical | | | | | | 12 | 9 |
| Total of Semester | | | | | | 30 | 29 |



Third Year – Fifth Semester

| A.THEORY | | | | | | | |
|---------------------------|---|--|--------------------|---|---|-----------|---------------|
| Sl No. | Subject Code | Theory | Contact Hours/Week | | | | Credit Points |
| | | | L | T | P | Total | |
| 1 | HU501 | Economics for Engineers | 3 | 0 | 0 | 3 | 3 |
| 2 | EC-501 | Analog Communication | 3 | 1 | 0 | 4 | 4 |
| 3 | EC-502 | Digital Signal Processing | 3 | 1 | 0 | 4 | 4 |
| 4 | EC-503 | Control System | 3 | 0 | 0 | 3 | 3 |
| 5 | F. E.- EC 504A EC-504B EC-504C | Design and Analysis of Algorithm Object Oriented Programming using Java Data Base Management Systems | 3 | 1 | 0 | 4 | 3 |
| 6 | GS501 | Essential Studies for Professionals-V | 3 | 1 | 0 | 4 | 2 |
| Total of Theory | | | | | | 18 | 19 |
| B. PRACTICAL | | | | | | | |
| 7 | EC-591 | Analog Communication | 0 | 0 | 3 | 3 | 2 |
| 8 | EC-592 | Digital Signal Processing | 0 | 0 | 3 | 3 | 2 |
| 9 | EC -593 | Control System | 0 | 0 | 3 | 3 | 2 |
| 10 | F.E. EC-594A EC-594B EC-594C | Design and Analysis of Algorithm Object Oriented Programming using Java Data Base Management Systems | 0 | 0 | 3 | 3 | 2 |
| C. SESSIONAL | | | | | | | |
| 11 | GS581 | Skill Development for Professionals-V | 2 | 1 | 0 | 3 | 1 |
| Total of Practical | | | | | | 12 | 9 |
| Total of Semester | | | | | | 30 | 28 |



Third Year – Sixth Semester

| A.THEORY | | | | | | | |
|---------------------------|----------------------------------|--|--------------------|---|---|-----------|---------------|
| Sl No. | Subject Code | Theory | Contact Hours/Week | | | | Credit Points |
| | | | L | T | P | Total | |
| 1 | HU601 | Principles of Management | 2 | 0 | 0 | 2 | 2 |
| 2 | EC601 | Digital Communications | 3 | 0 | 0 | 3 | 3 |
| 3 | EC602 | Microprocessors & Microcontrollers | 3 | 0 | 0 | 3 | 3 |
| 4 | EC 603 | Information Theory & Coding | 3 | 0 | 0 | 3 | 3 |
| 5 | (No Lab) EC-604A EC-604B | Antenna Theory & Propagation Telecommunication System | 3 | 0 | 0 | 3 | 3 |
| 6 | (With Lab) EC-605A EC-605B | Data Science & Data Analytics Operating System | 3 | 0 | 0 | 3 | 3 |
| 7 | GS601 | Essential Studies for Professionals-VI | 3 | 1 | 0 | 4 | 2 |
| Total of Theory | | | | | | 17 | 19 |
| B. PRACTICAL | | | | | | | |
| 8 | EC691 | Digital Communications | 0 | 0 | 3 | 3 | 2 |
| 9 | EC 692 | Microprocessors & Microcontrollers | 0 | 0 | 3 | 3 | 2 |
| 10 | F.E. EC-695A EC-695B | Data Science & Data Analytics Operating System | 0 | 0 | 3 | 3 | 2 |
| 11 | EC-681 | Seminar | 0 | 0 | 3 | 3 | 2 |
| C. SESSIONAL | | | | | | | |
| 12 | GS681 | Skill Development for Professionals-VI | 2 | 1 | 0 | 3 | 1 |
| Total of Practical | | | | | | 12 | 9 |
| Total of Semester | | | | | | 29 | 28 |



Fourth Year – Seventh Semester

| A.THEORY | | | | | | | |
|---------------------------|---------------------|---|---|---|---|-----------|---------------|
| Sl No. | Subject Code | Theory | Contact Hours/Week | | | | Credit Points |
| | | | L | T | P | Total | |
| 1 | EC701 | Wireless Communication & N/W | 3 | 0 | 0 | 3 | 3 |
| 2 | EC702 | Microelectronics & VLSI Designs | 3 | 0 | 0 | 3 | 3 |
| 3 | EC703 (With Lab) | A. RF & Microwave Engineering. B. Optical Communication & N/W C. Computer Networks D. FPGA & Reconfigurable Computing | 3 | 0 | 0 | 3 | 3 |
| 4 | EC704 (No Lab) | A. Radar Engg B. Embedded Systems C. Biomedical Instrumentation | 3 | 0 | 0 | 3 | 3 |
| 5 | F. E. EC705 | A. Artificial Intelligence B. Robotics C. Software Engineering D. Power Electronics E. Electronic Measurement & Instrumentation | 3 | 0 | 0 | 3 | 3 |
| 6 | GS701 | Essential Studies for Professionals-VII | 3 | 1 | 0 | 4 | 2 |
| Total of Theory | | | | | | 15 | 17 |
| B. PRACTICAL | | | | | | | |
| 7 | HU781 | Group Discussion | 0 | 0 | 3 | 3 | 2 |
| 8 | EC792 | VLSI Design Lab | 0 | 0 | 3 | 3 | 2 |
| 9 | EC793 | A. RF & Microwave Engg. Lab B. Optical Communication & N/W Lab C. Computer Networks Lab D. FPGA & Reconfigurable Computing lab | 0 | 0 | 3 | 3 | 2 |
| 10 | F.E EC795 | A. Artificial Intelligence Lab B. Robotics lab C. Software Engineering D. Power Electronics Lab E. Electronic Measurement & Instrumentation | 0 | 0 | 3 | 3 | 2 |
| 11 | EC781 | Industrial training | 4 weeks during 6th -7 th Sem-break | | | | 2 |
| 12 | EC782 | Project- 1 | | | | 3 | 2 |
| C. SESSIONAL | | | | | | | |
| 13 | GS781 | Skill Development for Professionals-VII | | 1 | 0 | 3 | 1 |
| Total of Practical | | | | | | 15 | 13 |
| Total of Semester | | | | | | 30 | 30 |



Fourth Year – Eighth Semester

| A.THEORY | | | | | | | |
|---------------------------|-------------------|---|--------------------|---|----|-----------|---------------|
| Sl No. | Subject Code | Theory | Contact Hours/Week | | | | Credit Points |
| | | | L | T | P | Total | |
| 1 | HU801A | A. Organisational Behaviour B. Project Management | 2 | 0 | 0 | 2 | 2 |
| 2 | EC801 (No Lab) | A. Smart Antenna B. Digital Image Processing C. Satellite Communication & Remote Sensing | 3 | 0 | 0 | 3 | 3 |
| 3 | EC802 (No Lab) | A. Neural Network & Applications B. Material Science & Engineering C. Renewable Energy D. Audio & Speech Processing E. Mobile Computing | 3 | 0 | 0 | 3 | 3 |
| 6 | GS801 | Essential Studies for Professionals-VIII | 3 | 1 | 0 | 4 | 2 |
| Total of Theory | | | | | | 8 | 10 |
| B. PRACTICAL | | | | | | | |
| 7 | EC881 | Design Lab / Industrial problem related practical training | 0 | 0 | 6 | 6 | 4 |
| 8 | EC882 | Project-2 | 0 | 0 | 12 | 12 | 6 |
| 9 | EC893 | Grand Viva | | | | | 3 |
| C. SESSIONAL | | | | | | | |
| 10 | GS881 | Skill Development for Professionals-VIII | 2 | 1 | 0 | 3 | 1 |
| Total of Practical | | | | | | 18 | 14 |
| Total of Semester | | | | | | 26 | 24 |