

JAYPEE UNIVERSITY OF ENGINEERING AND TECHNOLOGY

Curriculum for B. Tech. (Electronics and Communication Engineering)
(For Batch 2023-27 onwards)

FIRST SEMESTER

| S. No. | Course Code | Dept. | Title of Course | Contact Hours | | | | Credits |
|--------------|-------------|-------|--------------------------|---------------|---|---|-----------|-------------|
| | | | | L | T | P | Total | |
| 1. | MA101 | MATH | Engineering Mathematics | 3 | 1 | 0 | 4 | 4 |
| 2. | PH101 | PHY | Physics-1 | 3 | 1 | 0 | 4 | 4 |
| 3. | HS101 | HSS | English | 2 | 0 | 2 | 3 | 3 |
| 4. | CS101 | CSE | Computer Programming | 3 | 1 | 0 | 4 | 4 |
| 5. | PH201 | PHY | Physics Lab-1 | 0 | 0 | 2 | 2 | 1 |
| 6. | CS201 | CSE | Computer Programming Lab | 0 | 0 | 4 | 4 | 2 |
| 7. | ME201 | MEC | Workshop | 0 | 0 | 3 | 3 | 1.5 |
| 8. | | HSS | Value Added Course-1 | 2 | 0 | 0 | 2 | Qualifying |
| TOTAL | | | | | | | 26 | 19.5 |

SECOND SEMESTER

| S. No. | Course Code | Dept. | Title of Course | Contact Hours | | | | Credits |
|--------------|-------------|-------|---|---------------|---|---|-----------|-------------|
| | | | | L | T | P | Total | |
| 1. | HS104 | HSS | Life Skills and Effective Communication | 1 | 0 | 2 | 3 | 2 |
| 2. | MA104 | MATH | Discrete Mathematics | 3 | 1 | 0 | 4 | 4 |
| 3. | PH102 | PHY | Physics-2 | 3 | 1 | 0 | 4 | 4 |
| 4. | EC101 | ECE | Electrical Science | 3 | 1 | 0 | 4 | 4 |
| 5. | CS102 | CSE | Object Oriented Programming | 3 | 1 | 0 | 4 | 4 |
| 6. | PH202 | PHY | Physics Lab-2 | 0 | 0 | 2 | 2 | 1 |
| 7. | EC201 | ECE | Electrical Science Lab | 0 | 0 | 2 | 2 | 1 |
| 8. | CS202 | CSE | Object Oriented Programming lab | 0 | 0 | 2 | 2 | 1 |
| 9. | ME203 | MEC | Engineering Drawing & Design Lab | | | 3 | 3 | 1.5 |
| TOTAL | | | | | | | 28 | 22.5 |

THIRD SEMESTER

| S. No. | Course Code | Dept. | Title of Course | Contact Hours | | | | Credits |
|--------------|-------------|-------|------------------------------------|---------------|---|---|-----------|------------|
| | | | | L | T | P | Total | |
| 1. | HS103 | HSS | Techniques for Decision Making | 2 | 1 | 0 | 3 | 3 |
| 2. | CS103 | CSE | Data Structures and Algorithms | 3 | 0 | 0 | 3 | 3 |
| 3. | EC103 | ECE | Signals & Systems | 3 | 1 | 0 | 4 | 4 |
| 4. | EC104 | ECE | Analog Electronics | 3 | 1 | 0 | 4 | 4 |
| 5. | EC105 | ECE | Measurement & Instrumentation | 3 | 0 | 0 | 3 | 3 |
| 6. | GE101 | GE | Environmental Science | 2 | 0 | 0 | 2 | Qualifying |
| 7. | CS203 | CSE | Data Structures and Algorithms Lab | 0 | 0 | 2 | 2 | 1 |
| 8. | EC203 | ECE | Signals & Systems Lab | 0 | 0 | 2 | 2 | 1 |
| 9. | EC204 | ECE | Analogue Electronics Lab | 0 | 0 | 2 | 2 | 1 |
| 10. | EC205 | ECE | Measurement & Instrumentation Lab | 0 | 0 | 2 | 2 | 1 |
| 11. | HS002 | HSS | Value Added Course-2 | 0 | 0 | 2 | 2 | Qualifying |
| 12. | CS002 | CSE | Value Added Course-3 | 0 | 0 | 2 | 2 | Qualifying |
| TOTAL | | | | | | | 31 | 21 |

FOURTH SEMESTER

| S. No. | Course Code | Dept. | Title of Course | Contact Hours | | | | Credits |
|--------------|-------------|-------|--------------------------------------|---------------|---|---|-----------|-----------|
| | | | | L | T | P | Total | |
| 1. | | HSS | HSS Elective – 1 | 3 | 0 | 0 | 3 | 3 |
| 2. | EC107 | ECE | Digital Circuit Design | 3 | 0 | 0 | 3 | 3 |
| 3. | EC108 | ECE | Analog and Digital Communication | 3 | 1 | 0 | 4 | 4 |
| 4. | EC109 | ECE | Electromagnetic Field Theory | 3 | 1 | 0 | 4 | 4 |
| 5. | EC110 | ECE | Control System | 3 | 1 | 0 | 4 | 4 |
| 6. | EC207 | ECE | Digital Circuit Design Lab | 0 | 0 | 2 | 2 | 1 |
| 7. | EC208 | ECE | Analog and Digital Communication Lab | 0 | 0 | 2 | 2 | 1 |
| 8. | EC209 | ECE | Hardware Lab | 0 | 0 | 2 | 2 | 1 |
| TOTAL | | | | | | | 24 | 21 |

FIFTH SEMESTER

| S. No. | Course Code | Dept. | Title of Course | Contact Hours | | | | Credits |
|--------------|-------------|-------|------------------------------------|---------------|---|---|-----------|-----------|
| | | | | L | T | P | Total | |
| 1. | | HSS | HSS Elective-2 | 2 | 1 | 0 | 3 | 3 |
| 2. | MA106 | MATH | Probability and Random Processes | 3 | 1 | 0 | 4 | 4 |
| 3. | | ECE | Discipline Elective -1 | 3 | 0 | 0 | 3 | 3 |
| 4. | | | Science Elective | 3 | 0 | 0 | 3 | 3 |
| 5. | EC111 | ECE | Microprocessor and Interfacing | 3 | 0 | 0 | 3 | 3 |
| 6. | EC112 | ECE | Digital Signal Processing | 3 | 0 | 0 | 3 | 3 |
| 7 | EC210 | ECE | Microprocessor and Interfacing Lab | 0 | 0 | 2 | 2 | 1 |
| 9. | EC211 | ECE | Digital Signal Processing Lab | 0 | 0 | 2 | 2 | 1 |
| 10. | EC212 | ECE | Minor Project – 1 | 0 | 0 | 4 | 4 | 2 |
| TOTAL | | | | | | | 27 | 23 |

SIXTH SEMESTER

| S. No. | Course Code | Dept. | Title of Course | Contact Hours | | | | Credits |
|--------------|-------------|-------|--------------------------------|---------------|---|---|-----------|------------|
| | | | | L | T | P | Total | |
| 1. | | HSS | HSS Elective-3 | 3 | 0 | 0 | 3 | 3 |
| 2. | EC113 | ECE | Telecommunication Networks | 3 | 0 | 0 | 3 | 3 |
| 3. | EC114 | ECE | VLSI Design | 3 | 0 | 0 | 3 | 3 |
| 4. | | ECE | Discipline Elective – 2 | 3 | 0 | 0 | 3 | 3 |
| 5. | | ECE | Discipline Elective – 3 | 3 | 0 | 0 | 3 | 3 |
| 6. | EC213 | ECE | Telecommunication Networks Lab | 0 | 0 | 2 | 2 | 1 |
| 7. | EC214 | ECE | VLSI Design Lab | 0 | 0 | 2 | 2 | 1 |
| 8. | EC215 | ECE | Advanced Communication Lab | 0 | 0 | 2 | 2 | 1 |
| 9. | EC216 | ECE | Minor Project-2 | 0 | 0 | 4 | 4 | 2 |
| 10. | | HSS | Value Added Course-4 | 2 | 0 | 0 | 2 | Qualifying |
| TOTAL | | | | | | | 27 | 20 |

1. All students will undergo Value Added Course; however it will not count for CGPA calculations and will not be reflected in transcript of those students who fail to qualify.
2. Students will undergo 6 weeks Industrial Training during Summer Vacation after 6th Semester.

SEVENTH SEMESTER

| S. No. | Course Code | Dept. | Title of Course | Contact Hours | | | | Credits |
|--------------|-------------|--------------|-------------------------|---------------|---|---|-----------|------------|
| | | | | L | T | P | Total | |
| 1. | | All Branches | Open Elective – 1 | 3 | 0 | 0 | 3 | 3 |
| 2. | | ECE | Discipline Elective – 4 | 3 | 0 | 0 | 3 | 3 |
| 3. | | ECE | Discipline Elective– 5 | 3 | 0 | 0 | 3 | 3 |
| 4. | | ECE | Discipline Elective – 6 | 3 | 0 | 0 | 3 | 3 |
| 5. | EC217 | ECE | Major Project Part-I | 0 | 0 | 8 | 8 | 4 |
| 6. | EC001 | ECE | Summer Training Viva | 0 | 0 | 0 | 0 | Qualifying |
| 7. | | HSS | Value Added Course-5 | 2 | 0 | 0 | 2 | Qualifying |
| TOTAL | | | | | | | 22 | 16 |

EIGHTH SEMESTER

| S. No. | Course Code | Dept. | Title of Course | Contact Hours | | | | Credits |
|--------------|-------------|--------------|-------------------------|---------------|---|----|-----------|-----------|
| | | | | L | T | P | Total | |
| 1. | | Engg. Branch | Open Elective – 2 | 3 | 0 | 0 | 3 | 3 |
| 2. | | ECE | Discipline Elective– 7 | 3 | 0 | 0 | 3 | 3 |
| 3. | | ECE | Discipline Elective – 8 | 3 | 0 | 0 | 3 | 3 |
| 4. | EC218 | ECE | Major Project Part-II | 0 | 0 | 16 | 16 | 8 |
| TOTAL | | | | | | | 25 | 17 |

Total Credits for B. Tech. –160

| S. No. | Discipline Elective | |
|--------|---------------------|---|
| | Course Code | Course Title |
| 1. | EC303 | Network Synthesis |
| 2. | EC304 | Digital Hardware Design |
| 3. | EC305 | Electronic Testing |
| 4. | EC306 | Embedded System |
| 5. | EC307 | Antenna and Wave Propagation |
| 6. | EC308 | Microwave and Radar System |
| 7. | EC309 | Optical Communication |
| 8. | EC310 | DSP Processors |
| 9. | EC311 | Internet Based Automation |
| 10. | EC312 | Linear VLSI IC Design |
| 11. | EC313 | Multi-rate Signal Processing and Filter Banks |
| 12. | EC314 | Information Theory and Coding |
| 13. | EC315 | Advance Control System |
| 14. | EC316 | Neural Network |
| 15. | EC317 | Mobile Communication |
| 16. | EC318 | Stastical Signal Processing |
| 17. | EC319 | Image and Video Processing |
| 18. | EC320 | Spread Spectrum Communication |
| 19. | EC321 | Speech Signal Processing |
| 20. | EC322 | Wireless Sensor Networks |
| 21. | EC323 | Satellite Communication |
| 22. | EC324 | Biomedical Signal Processing |
| 23. | EC325 | MIMO Systems |
| 24. | EC326 | Instrumentation Engineering for Smart Cities |
| 25. | EC327 | FPGA based System Design |
| 26. | EC328 | Data Compression |

| S. No. | Discipline Elective (VLSI Design Micro-specialization) | |
|--------|--|-------------------------------|
| | Course Code | Course Title |
| 1. | EC304 | Digital Hardware Design |
| 2. | EC327 | FPGA Based System Design |
| 3. | | IC Technology |
| 4. | | VLSI Verification and Testing |

| S. No. | Discipline Elective (Advance Communication Technologies Micro-specialization) | |
|--------|---|--|
| | Course Code | Course Title |
| 1. | | Emerging Technologies- Beyond 5 G |
| 2. | | Machine Learning for Communication Systems |
| 3. | | Green Communication Technologies |
| 4. | | Data Analytics for 5 G |

| S. No. | Discipline Elective (IOT with Machine Learning Micro-specialization) | |
|--------|--|-----------------------------------|
| | Course Code | Course Title |
| 1. | | Internet of Things |
| 2. | CSE | Machine Learning |
| 3. | | Artificial Intelligence of Things |
| 4. | | Industrial IoT |

| S. No. | Science Elective | |
|--------|------------------|-----------------------------------|
| | Course Code | Course Title |
| 1. | EC301 | Power Science |
| 2. | EC302 | Science of Semiconductors |
| 3. | | Nano Science |
| 4. | | Material Science and Applications |
| 5. | CH303 | Biochemistry |
| 6. | | Introduction to Quantum Computing |

| S. No. | Open Elective -1 | |
|--------|------------------|--|
| | Course Code | Course Title |
| 1. | EC329 | Sensors and Transducers |
| 2. | EC330 | Introduction to Microprocessors and Microcontrollers |
| | Open Elective -2 | |
| | Course Code | Course Title |
| 1. | EC331 | Introduction to Neural Network |
| 2. | EC332 | Introduction to Robotics |

| S. No. | Value Added Courses | |
|--------|---------------------|--|
| | Course Code | Course Title |
| 1. | HS001 | Value Added Course-1 (Human Values and Professional Ethics) |
| 2. | HS007 | Value Added Course-2 (Career Management and Development) |
| 3. | CS002 | Value Added Course-3 (Programming in Python) |
| 4. | | Value Added Course-4 (Indian Constitution and Traditional Knowledge) |
| 5. | HSS | Value Added Course-5 (Choice based) |
| | | Legal and Ethical Issues in Business |
| | | Introduction to Financial Markets |
| | | Academic Research and Paper Writing |