**KURUKSHETRA UNIVERSITY KURUKSHETRA**

**Bachelor of Technology (Electronics & Communication Engineering) (Credit Based)**

**A. Definition of Credit:**

|  |  |
| --- | --- |
| 1 Hour Lecture (L) per week | 1 credit |
| 1Hour Tutorial (T) per week | 1 credit |
| 1 Hour Practical (P) per week | 0.5 credit |
| 2 Hours Practical (Lab) per week | 1 credit |

**B. Range of Credits:**

A total credit of 160 is required for a student to be eligible to get Under Graduate degree in **Electronics and Communication Engineering**. A student will be eligible to get Under Graduate degree **(B.Tech.) with Honours**, if he/she completes an additional 20 credits. These could be acquired through MOOCs at Swayam portal or with in-house examination being conducted. In order to have an Honours degree, a student may choose minimum 20 credits provided that the student must ensure the course is approved by the Competent Authority, Government of India.

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| **Bachelor of Technology (Electronics & Communication Engineering) (Credit Based)**  **KURUKSHETRA UNIVERSITY KURUKSHETRA**  **Scheme of Studies/Examination**  **Semester III (w.e.f. session 2019-2020 )** | | | | | | | | | | | | | | | | | | | | | | |
| **Sr. No.** | | **Course No.** | | **Subject** | | **L:T:P** | | **Hours/Week** | | | **Credits** | | **Examination Schedule (Marks)** | | | | | | | | **Duration of Exam (Hrs)** | |
|
| **Major Test** | | **Minor Test** | | **Practical** | | **Total** | |
| 1 | | BS-201A | | Optics & Waves | | 3:0:0 | | 3 | | | 3 | | 75 | | 25 | | 0 | | 100 | | 3 | |
| 2 | | EC-201A | | Electronic Devices | | 3:0:0 | | 3 | | | 3 | | 75 | | 25 | | 0 | | 100 | | 3 | |
| 3 | | EC-203LA | | Electronic Devices Lab | | 0:0:2 | | 2 | | | 1 | | - | | 40 | | 60 | | 100 | | 3 | |
| 4 | | EC-205A | | Digital Electronics | | 3:0:0 | | 3 | | | 3 | | 75 | | 25 | | 0 | | 100 | | 3 | |
| 5 | | EC-207LA | | Digital Electronics Lab | | 0:0:2 | | 2 | | | 1 | | - | | 40 | | 60 | | 100 | | 3 | |
| 6 | | EC-209A | | Signals & Systems | | 3:0:0 | | 3 | | | 3 | | 75 | | 25 | | 0 | | 100 | | 3 | |
| 7 | | EC-211LA | | [Signals & Systems Lab](#somlab) | | 0:0:2 | | 2 | | | 1 | | - | | 40 | | 60 | | 100 | | 3 | |
| 8 | | EC-213A | | Network Theory | | 3:0:0 | | 3 | | | 3 | | 75 | | 25 | | 0 | | 100 | | 3 | |
| 9 | | ES-201A | | Essentials of Information Technology | | 3:0:0 | | 3 | | | 3 | | 75 | | 25 | | 0 | | 100 | | 3 | |
| 10 | | \*EC-215A | | Industrial Training-I | | 2:0:0 | | 2 | | | - | | - | | 100 | | - | | 100 | | 3 | |
| 11 | | \*\*MC-901A | | Environmental Sciences | | 3:0:0 | | 3 | | | - | | 100 | | - | | 0 | | 100 | | 3 | |
|  | |  | | **Total** | |  | | **26** | | | **21** | | **450** | | **270** | | **180** | | **900** | |  | |
| \*EC-215A is a mandatory credit-less course in which the students will be evaluated for the industrial training undergone after 2nd semester and students will be required to get passing marks to qualify.  \*\*MC-901A is a mandatory credit-less course in which the students will be required to get passing marks in the major test. | | | | | | | | | | | | | | | | | | | | | | |
| **Bachelor of Technology (Electronics & Communication Engineering) (Credit Based)**  **KURUKSHETRA UNIVERSITY KURUKSHETRA**  **Scheme of Studies/Examination**  **Semester IV (w.e.f. session 2019-2020 )** | | | | | | | | | | | | | | | | | | | | |
|  | |  | |  | |  | |  |  | |  | |  | |  | |  | |  | |
| **S. No.** | | **Course No.** | | **Subject** | | **L:T:P** | | **Hours/**  **Week** | **Credits** | | **Examination Schedule (Marks)** | | | | | | | | **Duration of Exam (Hrs)** | |
|
| **Major Test** | | **Minor Test** | | **Practical** | | **Total** | |
| 1 | | BS-204A | | Higher Engineering Mathematics | | 3:0:0 | | 3 | 3 | | 75 | | 25 | | 0 | | 100 | | 3 | |
| 2 | | HM-903A | | Soft Skills & Interpersonal Communication | | 3:0:0 | | 3 | 3 | | 75 | | 25 | | 0 | | 100 | | 3 | |
| 3 | | EC- 202A | | Digital Communication | | 3:0:0 | | 3 | 3 | | 75 | | 25 | | 0 | | 100 | | 3 | |
| 4 | | EC-204LA | | Communication Lab | | 0:0:2 | | 2 | 1 | | - | | 40 | | 60 | | 100 | | 3 | |
| 5 | | EC-206A | | Analog Circuits | | 3:0:0 | | 3 | 3 | | 75 | | 25 | | 0 | | 100 | | 3 | |
| 6 | | EC-208LA | | Analog Circuits Lab | | 0:0:2 | | 2 | 1 | | - | | 40 | | 60 | | 100 | | 3 | |
| 7 | | EC-210A | | Microprocessors & Microcontrollers | | 3:0:0 | | 3 | 3 | | 75 | | 25 | | 0 | | 100 | | 3 | |
| 8 | | EC-212LA | | Microprocessors & Microcontrollers Lab | | 0:0:2 | | 2 | 1 | | 0 | | 40 | | 60 | | 100 | | 3 | |
| 9 | | ES-202A | | Basics of Analog Communication | | 3:0:0 | | 3 | 3 | | 75 | | 25 | | 60 | | 100 | | 3 | |
| 10 | | \*MC-902A | | Constitution of India | | 3:0:0 | | 3 | - | | 100 | | - | | 0 | | 100 | | 3 | |
|  | |  | | **Total** | |  | | **27** | **21** | | **550** | | **270** | | **240** | | **900** | |  | |

\*MC-902A is a mandatory credit-less course in which the students will be required to get passing marks in the major test.

**Note: All the students have to undergo 4 to 6 weeks Industrial Training after 4th semester which will be evaluated in 5th semester.**

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| **Bachelor of Technology (Electronics & Communication Engineering) (Credit Based)**  **KURUKSHETRA UNIVERSITY KURUKSHETRA**  **Scheme of Studies/Examination**  **Semester V (w.e.f. session 2020-2021 )** | | | | | | | | | | | |
|  |  |  |  |  |  |  |  |  |  |  |
| **S. No.** | **Course No.** | **Subject** | **L:T:P** | **Hours/**  **Week** | **Credits** | **Examination Schedule (Marks)** | | | | **Duration of Exam (Hrs.)** |
|
| **Major Test** | **Minor Test** | **Practical** | **Total** |
| 1 | EC-301A | Electromagnetic Waves | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 2 | EC-303LA | Electromagnetic Waves Lab | 0:0:2 | 2 | 1 | - | 40 | 60 | 100 | 3 |
| 3 | EC-305A | Computer Organization & Architecture | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 4 | EC-307A | Information Theory and Coding | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 5 | EC-309A | Digital Signal Processing | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 6 | EC-311LA | Digital Signal Processing Lab | 0:0:2 | 2 | 1 | 0 | 40 | 60 | 100 | 3 |
| 7 | ECP\* | Program Elective-I | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 8 | ECO\* | Open Elective-I | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 9 | \*\*EC-313A | Industrial Training-II | 2:0:0 | 2 | - | - | \*100 | - | \*100 | 3 |
| 10 | \*\*\*MC-903A | Essence of Indian Traditional Knowledge | 3:0:0 | 3 | - | 100 | - | 0 | 100 | 3 |
|  |  | **Total** |  | **27** | **20** | **550** | **230** | **120** | **900** |  |

**\* The course of both Program Elective and Open Elective will be offered at 1/3rd strength or 20 students (whichever is smaller) of the section.**

\*\*EC-313A is a mandatory credit-less course in which the students will be evaluated for the industrial training undergone after 4th semester and students will be required to get passing marks to qualify.

\*\*\*MC-903A is a mandatory credit-less course in which the students will be required to get passing marks in the major test.

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| **Bachelor of Technology (Electronics & Communication Engineering) (Credit Based)**  **KURUKSHETRA UNIVERSITY KURUKSHETRA**  **Scheme of Studies/Examination**  **Semester VI (w.e.f. session 2020-2021 )** | | | | | | | | | | |
| **S. No.** | **Course No.** | **Subject** | **L:T:P** | **Hours/**  **Week** | **Credits** | **Examination Schedule (Marks)** | | | | **Duration of Exam (Hrs.)** |
|
| **Major Test** | **Minor Test** | **Practical** | **Total** |
| 1 | HM-901A | Organizational Behavior | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 2 | EC-302A | Control System Engineering | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 3 | EC-304LA | Control System Engineering Lab | 0:0:3 | 3 | 1.5 | - | 40 | 60 | 100 | 3 |
| 4 | EC-306A | Verilog HDL | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 5 | EC-308LA | Verilog HDL Lab | 0:0:3 | 3 | 1.5 | - | 40 | 60 | 100 | 3 |
| 6 | EC-310LA | Mini Project/Electronic Design Workshop | 0:0:4 | 4 | 2 | - | 40 | 60 | 100 | 3 |
| 7 | ECP\* | Program Elective-II | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
| 8 | ECO\* | Open Elective-II | 3:0:0 | 3 | 3 | 75 | 25 | 0 | 100 | 3 |
|  |  | **Total** |  | **25** | **20** | **375** | **245** | **180** | **800** |  |

**\* The course of both Program Elective and Open Elective will be offered at 1/3rd strength or 20 students (whichever is smaller) of the section.**

**Note: All the students have to undergo 4 to 6 weeks Industrial Training after 6th semester which will be evaluated in 7th semester.**

**Bachelor of Technology (Electronics & Communication Engineering) (Credit Based)**

**KURUKSHETRA UNIVERSITY KURUKSHETRA**

**Scheme of Studies/Examination**

**Semester VII (w.e.f. session 2021-2022)**

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| **S. No.** | | **Course No.** | **Subject** | | | **L:T:P** | | **Hours/**  **Week** | | **Credits** | | **Examination Schedule (Marks)** | | | | | | | | | **Duration of Exam (Hrs)** | |
|
| **Major Test** | | **Minor Test** | | | **Practical** | | **Total** | |
| 1 | | HM- 904A | Intellectual Property Rights for Technology Development & Management | | | 3:0:0 | | 3 | | 3 | | 75 | | 25 | | | 0 | | 100 | | 3 | |
| 2 | | ECP\* | Program Elective-III | | | 3:0:0 | | 3 | | 3 | | 75 | | 25 | | | 0 | | 100 | | 3 | |
| 3 | | ECP\* | Program Elective-IV | | | 3:0:0 | | 3 | | 3 | | 75 | | 25 | | | 0 | | 100 | | 3 | |
| 4 | | ECP\* | Program Elective-V | | | 3:0:0 | | 3 | | 3 | | 75 | | 25 | | | 0 | | 100 | | 3 | |
| 5 | | ECO\* | Open Elective-III | | | 3:0:0 | | 3 | | 3 | | 75 | | 25 | | | 0 | | 100 | | 3 | |
| 6 | | EC-401LA | Project Stage-I | | | 0:0:6 | | 6 | | 3 | | - | | 40 | | | 60 | | 100 | | 3 | |
| 7 | | \*\*EC-403A | Industrial Training-III | | | 2:0:0 | | 2 | | - | | - | | \*100 | | | - | | \*100 | | 3 | |
|  | |  | **Total** | | |  | | **23** | | **18** | | **375** | | **165** | | | **60** | | **600** | |  | |
| **\* The course of both Program Elective and Open Elective will be offered at 1/3rd strength or 20 students (whichever is smaller) of the section.**  \*\*EC-403A is a mandatory credit-less course in which the students will be evaluated for the industrial training undergone after 6th semester and students will be required to get passing marks to qualify. | | | | | | | | | | | | | | | | | | | | | | |
| **Bachelor of Technology ( Electronics & Communication Engineering) (Credit Based)**  **KURUKSHETRA UNIVERSITY KURUKSHETRA**  **Scheme of Studies/Examination**  **Semester VIII(w.e.f. session 2021-2022 )** | | | | | | | | | | | | | | | | | | | | | | |
| **S. No.** | **Course No.** | | | **Subject** | **L:T:P** | | **Hours/**  **Week** | | **Credits** | | **Examination Schedule (Marks)** | | | | | | | | | **Duration  of Exam. (Hrs.)** | | |
|
| **Major Test** | | **Minor Test** | | **Practical** | | | **Total** | |
| 1 | ECP\* | | | Program Elective-VI | 3:0:0 | | 3 | | 3 | | 75 | | 25 | | 0 | | | 100 | | 3 | | |
| 2 | ECP\* | | | Program Elective-VII | 3:0:0 | | 3 | | 3 | | 75 | | 25 | | 0 | | | 100 | | 3 | | |
| 3 | ECO\* | | | Open Elective-IV | 3:0:0 | | 3 | | 3 | | 75 | | 25 | | 0 | | | 100 | | 3 | | |
| 4 | ECO\* | | | Open Elective-V | 3:0:0 | | 3 | | 3 | | 75 | | 25 | | 0 | | | 100 | | 3 | | |
| 5 | EC-402LA | | | Project Stage-II | 0:0:14 | | 14 | | 7 | | - | | 40 | | 60 | | | 100 | | 3 | | |
|  |  | | | **Total** |  | | **26** | | **19** | | **300** | | **140** | | **60** | | | **500** | |  | | |
|  |  | | |  |  | |  | |  | |  | |  | |  | | |  | |  | | |
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|  |  | | | | | | | | | | | | | | |  | | |  | | |  |
| **\*The course of both Program Elective and Open Elective will be offered at 1/3rd strength or 20 students (whichever is smaller) of the section.**  **Bachelor of Technology ( Electronics & Communication Engineering) (Credit Based)**  **KURUKSHETRA UNIVERSITY KURUKSHETRA**  **Scheme of Studies/Examination**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **LIST OF OPEN ELECTIVES (B.TECH. ECE)** | | |  | **LIST OF PROGRAM ELECTIVES (B.TECH. ECE)** | | | | **SEM** | **CODE** | **SUBJECT** | **SEM** | **CODE** | **SUBJECT** | | **V** | ECO-1A | Computer Networks | **V** | ECP-1A | Probability Theory & Stochastic Processes | | ECO-2A | Mechatronics | ECP-2A | Speech and Audio Processing | | ECO-3A | Electronic Measurement and Instruments | ECP-3A | Introduction to MEMS | | ECO-4A | Renewable Energy Resources | ECP-4A | Power Electronics | | **VI** | ECO-5A | Data Structures | ECP-5A | VLSI | | ECO-6A | Multimedia Communication | **VI** | ECP-6A | Antennas and Propagation | | ECO-7A | Consumer Electronics | ECP-7A | CMOS Design | | ECO-8A | Transducers and Their Applications | ECP-8A | Bio-Medical Electronics | | **VII** | ECO-9A | Bio-informatics | ECP-9A | Scientific Computing | | ECO-10A | Electromechanical Energy Conversion | **VII** | ECP-10A | Fiber Optic Communications | | ECO-11A | Operating Systems | ECP-11A | Nano electronics | | ECO-12A | Robotics | ECP-12A | Microwave Theory and Techniques | | **VIII** | ECO-13A | Machine Learning | ECP-13A | Adaptive Signal Processing | | ECO-14A | Soft Computing | **VIII** | ECP-14A | Wireless Sensor Networks | | ECO-15A | Neural Networks and Fuzzy Logic | ECP-15A | Satellite Communication | | ECO-16A | Software Defined Radio | ECP-16A | High Speed Electronics | | ECO-17A | Statistics and Operational Research | ECP-17A | Wavelets | | ECO-18A | Biomedical Signal Processing | ECP-18A | Embedded systems | | ECO-19A | Internet of Things | ECP-19A | Mixed Signal Design | | ECO-20A | Wireless Sensor Networks | ECP-20A | Error correcting codes | |  |  |  | ECP-21A | Digital Image & Video Processing | |  |  |  | ECP-22A | Mobile Communication and Networks | | | | | | | | | | | | | | | | | | | | | | | |