



**CHAITANYA BHARATHI
INSTITUTE OF TECHNOLOGY (A)**

Kokapet (Village), Gandipet, Hyderabad, Telangana-500075. www.cbit.ac.in



Electronics and Communication Engineering

Electronics and Communication Engineering department is offering “**Honours**” and “**Additional Minor Engineering**” degree under the following rules and eligibility criteria.

Students, who have taken admission on or after 2018-19 academic year, will be eligible to get Under Graduate Degree with “**Honours**” or “**Additional Minor Engineering**”, if he/she completes an additional 20 credits through MOOCs/NPTEL/any other on-line courses apart from 160 academic credits.

INSTRUCTIONS FOR MINOR OR HONOURS DEGREE:

1. For **Additional Minor Engineering**, a student has to earn at least twenty (20) Additional credits from professional courses.
2. A Student can choose the courses which were not studied earlier in the previous semester. Further the courses should not be present in the curriculum of the forthcoming semesters.
3. For “Additional Minor Engineering”, a student has to earn additional credits from their discipline.
4. Credits for 4 weeks course is-1, for 8 weeks course is-2, for 12 weeks course is-3.
5. A student must ensure that he/she shall earn these additional credits before the completion of the regular course.
6. It is the student’s responsibility for registering the courses through ONLINE and the required registration fee shall be borne by the respective student.
7. Students have to register for the courses with the approval of Head of the Department.
8. A student is eligible to opt either for “**Honours**” or “**Additional Minor Engineering**”, **not eligible for the both.**

CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)
Department of Electronics and Communication Engineering

NPTEL EQUIVALENT COURSES FOR MINOR DEGREE 2021-2022 (July-December)

Date: 17-05-2021

Additional Minor Engineering Degree In

- I. Communications and Networking
- II. Embedded Systems & IoT
- III. Signal Processing
- IV. VLSI

| Level | Credits |
|----------|------------------|
| Basic | 8 to 10 credits |
| Advanced | 10 to 12 credits |

Note: Student has to choose the courses at least from any two groups and from each group at most 2 courses only.

***-subject to approval, from the department**

The Tentative list of courses for Additional Minor Degree approved by Electronics and communication Engineering Department BoS members are as follows:

NPTEL/ COURSERA EQUIVALENT COURSES

| Sno | Course Code | Course Name | Institute | Credits | Duration | Start date | Exam date | Nptel/Coursera links |
|--------------------------------------|-------------|--|------------------------|---------|----------|---------------------------------|--------------------|---|
| Communications and Networking | | | | | | | | |
| Basic Level | | | | | | | | |
| 1 | noc21-ee65 | Principles of Communication Systems: Part - II | IITK | 3 | 8 Weeks | July 26, 2021 | September 17, 2021 | https://nptel.ac.in/courses/108/104/108104098/ |
| 2 | noc21-ee66 | Introduction to Wireless and Cellular Communications | IITM | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://nptel.ac.in/courses/106/106/106106167/ |
| 3 | noc21-ee72 | Microwave Theory and Techniques | IITB | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://nptel.ac.in/courses/108/101/108101112/ |
| 4 | noc21-ee74 | Analog communication | IITKGP | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://nptel.ac.in/courses/117/105/117105143/ |
| 5 | noc21-ee81 | Optical Engineering | IITM | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://nptel.ac.in/courses/108/106/108106161/ |
| 6 | noc21-ee83 | Electromagnetic Theory | IITK | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://nptel.ac.in/courses/108104087/ |
| 7 | noc21-ee88 | Microwave Engineering | IITG | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://nptel.ac.in/courses/108/103/108103141/ |
| 8 | CN | Fundamentals of Network Communication | University of Colorado | 1.25 | 5 Weeks | Considered from registered Date | | https://www.coursera.org/learn/fundamentals-network-communications |
| Advanced Level | | | | | | | | |
| 1 | noc21-ee64 | Principles of Modern CDMA/ MIMO/ OFDM | IITK | 2 | 8 Weeks | August 23, 2021 | October 15, 2021 | https://nptel.ac.in/courses/117/104/117104115/ |

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| | | Wireless Communications | | | | | | |
| 2 | noc21-ee82 | Applied Electromagnetics For Engineers | IITK | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://nptel.ac.in/courses/108/104/108104099/ |
| 3 | noc21-ee91 | Computational Electromagnetics | IITM | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://nptel.ac.in/courses/108/106/108106152/ |
| 4 | noc21-ee108 | Principles and Techniques of Modern Radar Systems | IITKGP | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://nptel.ac.in/courses/108/105/108105154/ |
| 5 | noc21-ee111 | Advanced Microwave Guided-Structures and Analysis | IITKGP | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://onlinecourses.nptel.ac.in/noc21_ee111/preview |
| 6 | CN | Peer-to-Peer Protocols and Local Area Networks | University of Colorado | 1.25 | 5 Weeks | Considered from registered Date | | https://www.coursera.org/learn/peer-to-peer-protocols-local-area-networks |
| 7 | CN | Packet Switching Networks and Algorithms | University of Colorado | 1.25 | 5 Weeks | Considered from registered Date | | https://www.coursera.org/learn/packet-switching-networks-algorithms |
| 8 | | TCP/IP and Advanced Topics | University of Colorado | 1.25 | 5 Weeks | Considered from registered Date | | https://www.coursera.org/learn/tcp-ip-advanced |
| Embedded Systems & IoT | | | | | | | | |
| Basic Level | | | | | | | | |
| 1 | noc21-ee85 | Design for internet of things | IISc | 2 | 8 Weeks | July 26, 2021 | September 17, 2021 | https://onlinecourses.nptel.ac.in/noc21_ee85/preview |

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| 2 | 20CSMIO T14 | Introduction to internet of things | IITKGP | 3 | 12 Weeks | July 26, 2021 | October 24, 2021 | https://onlinecourses.nptel.ac.in/noc21_cs63/preview |
| 3 | 20CSMC S21 | Introduction to Industry 4.0 and Industrial Internet of Things | IITKGP | 3 | 12 Weeks | July 26, 2021 | October 23, 2021 | https://onlinecourses.nptel.ac.in/noc21_cs66/preview |
| 4 | 20CSMIO T18 | Introduction and programming with IoT Boards | Korea university | 1.25 | 5 Weeks | - | - | https://www.coursera.org/learn/introduction-iot-boards |
| 5 | IOT | The Arduino Platform and C Programming | University of California | 1 | 4 Weeks | | | https://www.coursera.org/learn/arduino-platform?specialization=iot |
| 6 | ML | Machine Learning Foundations: A Case Study Approach | University of Washington | 1.5 | 6 Weeks | | | https://www.coursera.org/learn/ml-foundations?specialization=machine-learning |
| Advanced Level | | | | | | | | |
| 1 | 20CSMIO T22:Security in IOT | Industrial IoT Markets and Security | Colorado boulder university | 1.25 | 5 Weeks | - | - | https://www.coursera.org/learn/industrial-iot-markets-security |
| 2 | ECEA 5315 | Real-Time Embedded Systems Concepts and Practices | University of Colorado Boulder | 1 | 4 Weeks | | | https://www.coursera.org/learn/real-time-embedded-systems-concepts-practices?specialization=real-time-embedded-systems |
| 3 | ECEA 5316 | Real-Time Embedded Systems Theory and | University of Colorado Boulder | 1 | 4 Weeks | | | https://www.coursera.org/learn/real-time-embedded-theory-analysis?specialization=real-time-embedded-systems |

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| | | Analysis | | | | | | |
| 4 | ECEA 5317 | Real-Time Mission-Critical Systems Design | University of Colorado Boulder | 1 | 4 Weeks | | | https://www.coursera.org/learn/real-time-mission-critical-systems-design?specialization=real-time-embedded-systems |
| 5 | ECEA 5318 | Real-Time Project for Embedded Systems | University of Colorado Boulder | 1 | 4 Weeks | | | https://www.coursera.org/learn/real-time-project-embedded-systems?specialization=real-time-embedded-systems |
| 6 | ECEA 5340 | Sensors and Sensor Circuit Design | University of Colorado Boulder | 1.25 | 5 Weeks | | | https://www.coursera.org/learn/sensors-circuit-interface?specialization=embedding-sensors-motors |
| 7 | ECEA 5342 | Pressure, Force, Motion, and Humidity Sensors | University of Colorado Boulder | 1.25 | 5 Weeks | | | https://www.coursera.org/learn/pressure-force-motion-humidity-sensors?specialization=embedding-sensors-motors |
| 8 | IOT | Interfacing with the Arduino | University of California | 1 | 4 Weeks | | | https://www.coursera.org/learn/interface-with-arduino |
| 9 | IOT | The Raspberry Pi Platform and Python Programming for the Raspberry Pi | University of California | 1 | 4 Weeks | | | https://www.coursera.org/learn/raspberry-pi-platform?specialization=iot |
| 10 | CC | Cloud Computing Concepts, Part 1 | University of Illinois at Urbana-Champaign | 1.25 | 5 Weeks | | | https://www.coursera.org/learn/cloud-computing?specialization=cloud-computing |
| 11 | CC | Cloud Computing | University of Illinois | 1.25 | 5 Weeks | | | https://www.coursera.org/learn/cloud-computing-2?specialization=cloud-computing |

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| | | Concepts, Part 2 | at Urbana- Champaign | | | | | |
| Signal Processing | | | | | | | | |
| Basic Level | | | | | | | | |
| 1 | noc21- ee78 | Digital Image Processing | IITKGP | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://nptel.ac.in/courses/117/105/117105135/ / |
| 2 | noc21- ee100 | Image Signal Processing | IITM | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://nptel.ac.in/courses/108/106/108106168/ / |
| 3 | noc21- ee95 | Basics of software defined Radios and Practical Applications | IITM | 1 | 4 Weeks | July 26, 2021 | August 20, 2021 | https://nptel.ac.in/courses/108107107/ |
| Advanced Level | | | | | | | | |
| 2 | noc21- ee79 | Pattern Recognition and Application | IITKGP | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://nptel.ac.in/courses/117/105/117105101/ / |
| 5 | noc21- ee102 | Signal Processing for mm Wave communication for 5G and beyond | IITKGP | 3 | 12 Weeks | July 26, 2021 | October 15, 2021 | https://onlinecourses.nptel.ac.in/noc21_ee102/p review |
| VLSI | | | | | | | | |
| Basic Level | | | | | | | | |
| 1 | noc21- ee80 | Semiconduct or Devices and Circuits | IISc | 3 | 12 Weeks | October 15, 2021 | October 23, 2021 | https://nptel.ac.in/courses/108/108/108108112/ / |
| 2 | noc21- ee86 | Microelectro nics: Devices To Circuits | IITR | 3 | 12 Weeks | October 15, 2021 | October 24, 2021 | https://nptel.ac.in/courses/108/107/108107142/ / |
| 3 | noc21- ee89 | Analog Electronic | IITD | 3 | 12 Weeks | October 15, 2021 | October 24, 2021 | https://nptel.ac.in/courses/108/102/108102112/ / |

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| | | Circuits | | | | | | |
| 4 | noc21-ee90 | Enclosure design of electronics equipment | IISc | 3 | 12 Weeks | October 15, 2021 | October 24, 2021 | https://nptel.ac.in/courses/117108140/ |
| 5 | noc21-ee59 | Introduction to Semiconductor Devices | IIT Hyderabad | 3 | 12 weeks | July 26, 2021 | October 15, 2021 | https://onlinecourses.nptel.ac.in/noc21_ee59/preview |
| Advanced Level | | | | | | | | |
| 1 | noc21-ee76 | Millimeter Wave Technology | IITKGP | 2 | 8 Weeks | September 17, 2021 | September 26, 2021 | https://nptel.ac.in/courses/117/105/117105139/ |
| 2 | noc21-ee97 | System Design Through VERILOG | IITG | 2 | 8 Weeks | September 17, 2021 | September 26, 2021 | https://onlinecourses.nptel.ac.in/noc21_ee97/preview |
| 3 | noc21-ee98 | Integrated Photonics Devices and Circuits | IITM | 3 | 12 weeks | October 15, 2021 | October 24, 2021 | https://onlinecourses.nptel.ac.in/noc21_ee97/preview |
| 4 | ECEA 5362 | FPGA Softcore Processors and IP Acquisition | University of Colorado Boulder | 1 | 4 weeks | Considered from registered Date | | https://www.coursera.org/learn/fpga-softcore-processors-ip |
| 5 | ECEA 5360 | Introduction to FPGA Design for Embedded Systems | University of Colorado Boulder | 1 | 4 weeks | Considered from registered Date | | https://www.coursera.org/learn/fpga-hardware-description-languages?specialization=fpga-design |
| 6 | ECEA 5361 | Hardware Description Languages for FPGA Design | University of Colorado Boulder | 1 | 4 weeks | Considered from registered Date | | https://www.coursera.org/learn/fpga-hardware-description-languages?specialization=fpga-design |
| 7 | ECEA | FPGA | University | 1 | 4 weeks | Considered from | | https://www.coursera.org/learn/capstone-fpga- |

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| | 5363 | Capstone: Building FPGA Projects | of Colorado Boulder | | | registered Date | | design |
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