



**VIGNAN'S**  
Foundation for Science, Technology & Research  
**UNIVERSITY**

(Established by UGC Act of 1956)

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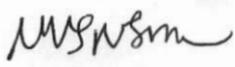
**(DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING)**

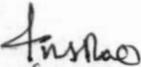
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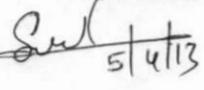
5<sup>th</sup> April, 2013

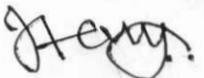
The following External members attended for the BoS meeting on 05/04/2013

1. Er. D. Ramakrishna. Managing Director, Efftronics, Vijayawada. 

2. Dr. N. V.S.N. Sharma Professor, NIT Warangal. 

3. Mr. M. Srinivasarao. Director, ICOMMTELE, Hyderabad. 

4. Mr. Subba Rangaiah. Director, VEDA IIT, Hyderabad. 

5. Mr. P. Haribabu, Scientist, C-DAC, Bangalore. 

The Board of Studies Meeting for B.TECH (ECE) Program was held on 05-04-2013 in Board Room. The BOS Members Resolved and recommended the following:

- Er. D.Rama Krishna has given a short talk on “How to be successful in present age” and he has given points on what industry wants and the importance of course objectives, programme objectives linking and connectivity in syllabus.
- Dr. N.V.S. Sarma insisted the exposure of industry practices for faculty, importance of feedback from old students & industrial persons.
- Dr. Sudhakar insisted about creating the interest among faculty to improve industrial exposure.
- Dr. B. Seetharamanjaneylu discussed about choice based credit system, credits to skills and exit options to students.
- Lab and theory merging is discussed.
- Sri. P. Hari Babu suggested that electives selection should lead to project work.
- Dr. L. Rathaiah, Chairman welcomed BoS members and he has given some inputs for framing syllabus.

### Reflections on ECE Syllabus

- Cyber security course can be offered instead of network security proposed by Dr. B.Seetha Ramanjaneyulu.
- Some of BoS members felt that cloud computing paper is not necessary for B.Tech ECE people and all accepted that.
- Sri. M.Srinivasa Rao and Sri. P. Hari Babu felt that no need of Professional Communication Lab for engineers.
- Power electronics course can be offered as elective for B.Tech students.
- Suggested by Sri. P. Hari Babu operating system course should made compulsory for B.Tech ECE students.
- Dr. N.V.S. Sarma proposed microprocessor course and computer organization courses can be merged.
- Er. D. Rama Krishna, Sri. Srinivasa Rao & Sri. P. Hari babu suggested that instead of 8086 introduce ARM Processor Architectures.
- Sri. P. Sudhakara Rao suggested to introduce multi-core processors in Microprocessor Subject.
- Control systems course can be moved for the previous semesters suggested by Dr. N.V.S. Sarma.
- For B.Tech students introduce ARM lab instead of 8086 and use either keil or GCC tools suggested by Er. D. Rama Krishna and Sri. P.Hari babu.
- Dr. N.V.S. Sarma suggested data structures subject should be in first year itself.
- Suggested by Dr. N.V.S. Sarma - Antennas course can be merged with Electromagnetic Field Theory (EMFT).
- Sri. M. Srinivasa Rao, Dr. N.V.S. Sarma, Er. D. Rama Krishna suggested to change the lab name from "VLSI design lab" to "VLSI Lab".
- Managerial Economics can be offered in any semester and it is useful for costing suggested by Er.D.Rama Krishna.
- DSP paper, EMI paper can be offered in earlier semesters.
- "Internet of things" course can be offered as elective suggested by Sri. P. Hari Babu.
- Rename the lab from "EMI Lab" to "Instrumentation Lab".
- Zigbee topic can be offered in any one of suitable courses of wireless communications.
- Make optical or radars communication courses as compulsory, instead of Electives.
- Exposure classes are needed to select any one of the electives stream.

The Outcomes of BoS meeting are as follows:

1. Major restructuring has taken place in the Curriculum with theoretical courses and Practical courses, the curriculum focussed on Higher education, Employability, Entrepreneurship etc.
2. The curriculum follows the choice based credit system (CBCS).
3. The 4 years B.Tech programme is approved with effect from the academic year 2013-14. The proposed structure and syllabus is applicable for 2013 admitted batch onwards.
4. The finalised Course Structure is shown in Appendix I
5. Inclusion of new courses in the curriculum is reviewed and is provided as Appendix II.
6. In all the courses of the revised curriculum (R13) significant changes are made in the content. The percentage of revision from R10 to R13 is 21%.
7. The analysed Stakeholder's feedback in CDMC kept before the BoS and the priority is given to the feedback while designing the curriculum and their suggestions are implemented.

  
Chairman BoS



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**Appendix-I**

**Course Structure**

**I year / I semester**

| S.No | Name of the Course                           | L | T | P | To | C |
|------|--|---|---|---|----|---|
| 1    | Engineering Mathematics I                    | 4 |   |   | 4  | 4 |
| 2    | Engineering Materials                        | 4 |   |   | 4  | 4 |
| 3    | Fundamentals of Electrical Engineering       | 4 |   |   | 4  | 4 |
| 4    | Engineering Chemistry                        | 4 |   |   | 4  | 4 |
| 5    | Environmental Studies                        | 3 |   |   | 3  | 3 |
| 6    | Professional Ethics, Values and Human Rights | 2 |   |   | 2  |   |
| 7    | Fundamentals of Electrical engineering Lab   |   |   | 3 | 3  | 2 |
| 8    | Engineering Chemistry Lab                    |   |   | 3 | 3  | 2 |
| 9    | Engineering Graphics                         | 1 |   | 3 | 4  | 3 |

**I year / II semester**

| S. No | Name of the Course                       | L  | T | P | To | C  |
|-------|--|----|---|---|----|----|
| 1     | Engineering Mathematics-II               | 4  |   |   | 4  | 4  |
| 2     | Engineering Physics                      | 4  |   |   | 4  | 4  |
| 3     | Engineering Mechanics                    | 4  |   |   | 4  | 4  |
| 4     | Technical English Communication          | 3  | 2 |   | 5  | 5  |
| 5     | Problem Solving and Computer Programming | 5  |   |   | 5  | 5  |
| 6     | Network Security                         | 2  |   |   | 2  |    |
| 7     | Engineering Physics Lab                  |    |   | 3 | 3  | 2  |
| 8     | Computer Programming Lab                 |    |   | 3 | 3  | 2  |
| 9     | Workshop Practice                        |    |   | 3 | 3  | 2  |
| Total |  | 22 | 2 | 9 | 31 | 28 |

**II year / I semester**

| S. No | Name of the Course                      | L  | T | P  | To | C  |
|-------|---|----|---|----|----|----|
| 1     | COMPLEX VARIABLES AND SPECIAL FUNCTIONS | 3  | 1 |    | 4  | 4  |
| 2     | ELECTRONIC DEVICES AND CIRCUITS         | 4  |   |    | 4  | 4  |
| 3     | NETWORK THEORY                          | 3  | 1 |    | 4  | 4  |
| 4     | SIGNALS AND SYSTEMS                     | 3  | 1 |    | 4  | 4  |
| 5     | DATA STRUCTURES USING C++               | 4  |   |    | 4  | 4  |
| 6     | MINOR-I                                 | 4  |   |    | 4  | 4  |
| 7     | SEMINAR                                 |    |   | 1  | 1  | 1  |
| 8     | ELECTRONIC DEVICES AND CIRCUITS LAB     |    |   | 3  | 3  | 2  |
| 9     | SIGNALS AND SYSTEMS LAB                 |    |   | 3  | 3  | 2  |
| 10    | SOFT SKILLS LAB                         |    |   | 3  | 3  | 2  |
|       | TOTAL                                   | 21 | 3 | 10 | 34 | 31 |

**II year / II semester**

| S. No | Name of the Course                          | L  | T | P  | To | C  |
|-------|---|----|---|----|----|----|
| 1     | PROBABILITY THEORY AND STOCHASTIC PROCESSES | 3  | 1 |    | 4  | 4  |
| 2     | ELECTRONIC CIRCUIT ANALYSIS                 | 4  |   |    | 4  | 4  |
| 3     | DIGITAL ELECTRONICS                         | 3  | 1 |    | 4  | 4  |
| 4     | ANALOG COMMUNICATIONS                       | 4  |   |    | 4  | 4  |
| 5     | ELECTRO MAGNETIC FIELD THEORY               | 3  | 1 |    | 4  | 4  |
| 6     | MINOR-II                                    | 4  |   |    | 4  | 4  |
| 7     | SEMINAR                                     |    |   | 1  | 1  | 1  |
| 8     | ELECTRONIC CIRCUIT ANALYSIS LAB             |    |   | 3  | 3  | 2  |
| 9     | ANALOG COMMUNICATIONS LAB                   |    |   | 3  | 3  | 2  |
| 10    | PROFESSIONAL COMMUNICATION LAB              |    |   | 3  | 3  | 2  |
|       | TOTAL                                       | 21 | 3 | 10 | 34 | 31 |

### III year / I semester

| S. No | Name of the Course                       | L  | T | P  | To | C  |
|-------|--|----|---|----|----|----|
| 1     | LINEAR IC'S AND APPLICATIONS             | 4  |   |    | 4  | 4  |
| 2     | MICROPROCESSORS AND MICROCONTROLLERS     | 4  |   |    | 4  | 4  |
| 3     | DIGITAL COMMUNICATIONS                   | 4  |   |    | 4  | 4  |
| 4     | TRANSMISSION LINES AND WAVEGUIDES        | 4  |   |    | 4  | 4  |
| 5     | DEPT ELECTIVE -I                         | 4  |   |    | 4  | 4  |
|       | OPERATING SYSTEMS                        |    |   |    |    |    |
|       | OBJECT ORIENTED PROGRAMMING THROUGH JAVA |    |   |    |    |    |
|       | DIGITAL IC APPLICATIONS                  |    |   |    |    |    |
| 6     | MINOR-III                                | 4  |   |    | 4  | 4  |
| 7     | SEMINAR                                  |    |   | 1  | 1  | 1  |
| 8     | IC APPLICATIONS LAB                      |    |   | 3  | 3  | 2  |
| 9     | MICROPROCESSORS AND MICROCONTROLLERS LAB |    |   | 3  | 3  | 2  |
| 10    | DIGITAL COMMUNICATIONS LAB               |    |   | 3  | 3  | 2  |
|       | TOTAL                                    | 24 | 0 | 10 | 34 | 31 |

### III year / II semester

| S. No | Name of the Course                             | L  | T | P  | To | C  |
|-------|--|----|---|----|----|----|
| 1     | LINEAR CONTROL SYSTEMS                         | 4  |   |    | 4  | 4  |
| 2     | VLSI DESIGN                                    | 4  |   |    | 4  | 4  |
| 3     | ANTENNA PROPAGATION                            | 4  |   |    | 4  | 4  |
| 4     | COMPUTER ARCHITECTURE AND ORGANIZATION         | 4  |   |    | 4  | 4  |
| 5     | DEPT ELECTIVE -II                              | 4  |   |    | 4  | 4  |
|       | OPTICAL COMMUNICATION                          |    |   |    |    |    |
|       | EMBEDDED SYSTEMS                               |    |   |    |    |    |
|       | ELECTROMAGNETIC INTERFERENCE AND COMPATIBILITY |    |   |    |    |    |
| 6     | MINOR-IV                                       | 4  |   |    | 4  | 4  |
| 7     | SEMINAR  |    |   | 1  | 1  | 1  |
| 8     | DATA STRUCTURES USING C++ LAB                  |    |   | 3  | 3  | 2  |
| 9     | VLSI DESIGN LAB                                |    |   | 3  | 3  | 2  |
| 10    | MINI PROJECT                                   |    |   | 3  | 3  | 2  |
|       | TOTAL  | 24 | 0 | 10 | 34 | 31 |

#### IV year / I semester

| S. No | Name of the Course                          | L  | T | P | To | C  |
|-------|---|----|---|---|----|----|
| 1     | MANAGERIAL ECONOMICS                        | 4  |   |   | 4  | 4  |
| 2     | DIGITAL SIGNAL PROCESSING                   | 3  | 1 |   | 4  | 4  |
| 3     | RF AND MICROWAVE ENGINEERING                | 4  |   |   | 4  | 4  |
| 4     | ELECTRONIC MEASUREMENTS AND INSTRUMENTATION | 4  |   |   | 4  | 4  |
| 5     | DEPT ELECTIVE -III                          | 4  |   |   | 4  | 4  |
|       | DATA COMMUNICATION AND COMPUTER NETWORKS    |    |   |   |    |    |
|       | SATELLITE COMMUNICATION                     |    |   |   |    |    |
|       | MEMS  |    |   |   |    |    |
| 6     | DEPT ELECTIVE -IV                           | 4  |   |   | 4  | 4  |
|       | DIGITAL DESIGN THROUGH VERILOG              |    |   |   |    |    |
|       | CELLULAR AND MOBILE COMMUNICATIONS          |    |   |   |    |    |
|       | NANO ELECTRONICS                            |    |   |   |    |    |
| 7     | DIGITAL SIGNAL PROCESSING LAB               |    |   | 3 | 3  | 2  |
| 8     | MICROWAVE ENGINEERING LAB                   |    |   | 3 | 3  | 2  |
| 9     | INSTRUMENTATION LAB                         |    |   | 3 | 3  | 2  |
|       | TOTAL                                       | 23 | 1 | 9 | 33 | 30 |

#### IV year / II semester

| S. No | Name of the Course           | L  | T | P  | To | C  |
|-------|------------------------------|----|---|----|----|----|
| 1     | MINOR-V                      | 4  |   |    | 4  | 4  |
| 2     | DEPT ELECTIVE -V             | 4  |   |    | 4  | 4  |
|       | SENSORS AND ACTUATORS        |    |   |    |    |    |
|       | WIRELESS SENSOR NETWORKS     |    |   |    |    |    |
|       | BIOMEDICAL SIGNAL PROCESSING |    |   |    |    |    |
| 3     | DEPT ELECTIVE -VI            | 4  |   |    | 4  | 4  |
|       | DIGITAL IMAGE PROCESSING     |    |   |    |    |    |
|       | RADAR SYSTEMS                |    |   |    |    |    |
|       | VLSI TESTING AND VALIDATION  |    |   |    |    |    |
|       | PROJECT                      |    |   | 20 | 20 | 10 |
|       | TOTAL                        | 12 | 0 | 20 | 32 | 22 |

The students opting for semester long industrial internship during eight semester, carry out Minor-V in seventh semester itself as additional courses eighteen credits are allocated to internship as given below

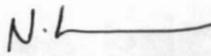
#### IV year / II semester

|   |                      |  |  |    |    |    |
|---|----------------------|--|--|----|----|----|
| 1 | Project / Internship |  |  | 36 | 36 | 18 |
|---|----------------------|--|--|----|----|----|

#### ECE Minor Stream

| S.No | Name of the Course              | L | T | P | To | C |
|------|---------------------------------|---|---|---|----|---|
| 1    | ELECTRONIC DEVICES              | 4 |   |   | 4  | 4 |
| 2    | ELECTRONIC CIRCUITS             | 4 |   |   | 4  | 4 |
| 3    | DIGITAL ELECTRONICS             | 4 |   |   | 4  | 4 |
| 4    | COMMUNICATION SYSTEMS -I        | 4 |   |   | 4  | 4 |
| 5    | LINEAR IC APPLICATIONS          | 4 |   |   | 4  | 4 |
| 6    | MICROPROCESSORS AND INTERFACING | 4 |   |   | 4  | 4 |
| 7    | COMMUNICATION SYSTEMS -II       | 4 |   |   | 4  | 4 |
| 8    | SENSORS AND TRANSDUCERS         | 4 |   |   | 4  | 4 |

**Note: The courses that are highlighted denotes the implementation of "Choice Based Credit System (CBCS)"**

  
Chairman BoS



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Appendix-II

**List of new courses in the R-13**

**B.Tech Electronics and Communication Engineering Curriculum**

| S.No | Year/<br>Semester | Name of the Course                          |
|------|-------------------|---|
| 1    | II/I              | ELECTRONIC DEVICES AND CIRCUITS             |
| 2    | II/I              | NETWORK THEORY                              |
| 3    | II/I              | SIGNALS AND SYSTEMS                         |
| 4    | II/I              | Data Structures using C++                   |
| 5    | II/I              | Seminar                                     |
| 6    | II/II             | PROBABILITY THEORY AND STOCHASTIC PROCESSES |
| 7    | II/II             | ELECTRONIC CIRCUIT ANALYSIS                 |
| 8    | II/II             | DIGITAL ELECTRONICS                         |
| 9    | II/II             | ANALOG COMMUNICATIONS                       |
| 10   | II/II             | Electro Magnetic Field Theory               |
| 11   | II/II             | Seminar                                     |
| 12   | III/I             | Linear IC's and Applications                |
| 13   | III/I             | Microprocessors and Microcontrollers        |
| 14   | III/I             | Digital Communications                      |
| 15   | III/I             | Transmission Lines and Waveguides           |
| 16   | III/I             | Operating Systems                           |
| 17   | III/I             | Object Oriented Programming Through Java    |
| 18   | III/I             | Digital IC Applications                     |
| 19   | III/I             | Seminar                                     |
| 20   | III/II            | LINEAR CONTROL SYSTEMS                      |

|    |        |  |
|----|--------|--|
| 21 | III/II | VLSI Design                                    |
| 22 | III/II | Antenna Propagation                            |
| 23 | III/II | Computer Architecture and Organization         |
| 24 | III/II | Optical Communication                          |
| 25 | III/II | Embedded Systems                               |
| 26 | III/II | ELECTROMAGNETIC INTERFERENCE AND COMPATIBILITY |
| 27 | III/II | Seminar  |
| 28 | III/II | Mini Project                                   |
| 29 | IV/I   | Managerial Economics                           |
| 30 | IV/I   | Digital Signal Processing                      |
| 31 | IV/I   | RF and Microwave Engineering                   |
| 32 | IV/I   | Electronic Measurements and Instrumentation    |
| 33 | IV/I   | Data Communication and Computer networks       |
| 34 | IV/I   | Satellite Communication                        |
| 35 | IV/I   | MEMS   |
| 36 | IV/I   | Digital Design through Verilog                 |
| 37 | IV/I   | Cellular and Mobile Communications             |
| 38 | IV/I   | Nano Electronics                               |
| 39 | IV/II  | Sensors and Actuators                          |
| 40 | IV/II  | Wireless Sensor Networks                       |
| 41 | IV/II  | Biomedical Signal Processing                   |
| 42 | IV/II  | Digital Image Processing                       |
| 43 | IV/II  | Radar Systems                                  |
| 44 | IV/II  | VLSI Testing and Validation                    |
| 45 | IV/I   | Project  |
| 46 | IV/II  | Project / Internship                           |

  
 Chairman BoS