**COURSE PLAN**

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| **1. Course Title : 5. Semester**  | RF WIRELESS SYSTEMS AND STANDARDS | **5. Semester**  | III |
| **2. Course Code** | ECBY21  | **6. Academic Year** | 2014-2015 |
| **3. Course Faculty**  | S.SADHISH PRABHU | **7. Department**  | M.TECH COMMUNICATION SYSTEMS |
| **4. Theory / Practical** | THEORY | **8. No. of Credits** | 3 |
| **9. Course Learning Objectives:** To learn and acquire knowledge on* + Wireless and RF standards
	+ 2G,3G and 4G technologies and its spectrum
	+ WLAN, WIMAX and UWB standards
 |
| **10. Course pre-requisites:**Students should have knowledge on the basic of course like * Cellular mobile communication
* Wireless networks
* Telecommunication switching and networks and
 |
| **11. Schedule of teaching and learning****[As per Annexure 1]** |
| **12. Course material and References :**The course material and references are available in the website [www.ecby21.weebly.com](http://www.ecby21.weebly.com). |

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| **13. Assessment Scheme :**The following shall be the assessment method for this course.**i) Periodical tests.**

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| **Sl.no** | **Details** | **Marks**  |
| 1 | **CAT 1** (90 min) : Module 5,3 and 4 | 40 |
| 2 | **CAT 2** (90 min) : Module 2 and 1 | 40 |

**ii) Seminar**

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| **Sl.no** | **Details** | **Marks**  |
| 1 | Seminar topics on cellular standards has to be completed before CAT 1 exams  | 10 |
| 2 | Seminar topics on Wireless communication has to completed before CAT 2 exams | 10 |

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| **Sl.no** | **Details** | **Marks** |
| 1 | Internals will be awarded by taking the average of the two assessment including the seminars | 50 |
| 2 | End semester examination | 50 |
| **Total** | **100** |

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| **14. Course outcomes** On completion of this course, the students will have the knowledge on the latest technologies and standards like 2G,3G, UWB and their standards  |
| **15. Mapping of course outcomes with learning activities and assessments**

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| **Course outcomes** | **Learning activities** | **Assessments** | **CAT I \*****%** | **CAT II \*****%** | **End sem \*****%** |
| On completion of this course, the students will have the knowledge on the latest technologies and standards like 2G,3G, UWB and their standards  | Seminars in wireless communication and its standards  | CAT1 & CAT 2 | 50 | 50 | 100 |

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| **Date :** |
| **Course faculty:**  |
| **Head of the Department**  |

**ANNEXURE (vide item 11)**

**Schedule of Teaching and Learning**

|  |  |  |  |  |  |
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| **S.NO** | **PERIOD** | **TOPIC** | **MODE OF DELIVERY** | **TEACHING AIDS** | **REFERNCE/ SOURCE** |
| **MODULE V Recent Advances (7)** |
|  | 1 | Introduction  | Lecture | PPT | R2 - Pg: 483 |
|  | 1 | Ultra Wide Band (UWB) Technology – Characteristics | Lecture | PPT | R2 - Pg: 490 |
|  | 1 | Ultra Wide Band (UWB) Technology – Signal Propagation  | Lecture | PPT | R2 - Pg: 491 |
|  | 1 | Current Status and Applications  | Lecture | PPT | R2 - Pg: 491 |
|  | 1 | Advantages – Disadvantages | Lecture | PPT | R2 - Pg: 493 |
|  | 1 | Challenges and Future Directions. | Lecture | PPT | R2 - Pg: 494 |
| **MODULE III THE IEEE 802.11 WLAN Standard (6)**  |
|  | 1 | Introduction to IEEE 802.11 – General Description | Lecture | PPT | R1- Pg : 45 |
|  | 1 | Medium Access Control (MAC) | Lecture | PPT | R1- Pg : 47 |
|  | 2 | Physical Layer for IEEE 802.11 Wireless LAN - Radio systems – | Lecture | PPT | R1- Pg : 69 |
|  | 2 | IR Systems Applications.  | Lecture | PPT | R1- Pg : 96 |
| **MODULE IV The IEEE 802.16 WiMax Standard (6)**  |
|  | 1 | Introduction to IEEE 802.16 – General Description | Lecture | PPT | R2 - Pg: 446 |
|  | 1 | Medium Access Control (MAC)  | Lecture | PPT | R2 - Pg: 446 |
|  | 1 | Radio systems | Lecture | PPT | R2 - Pg: |
|  | 1 | Physical Layer- Evolution to 802.16m | Lecture | PPT | R2 - Pg: 525 |
|  | 1 | Bluetooth | Lecture | PPT | R2 - Pg: 459 |
|  | 1 | Zigbee | Lecture | PPT | R2 - Pg: 473 |
|  | 1 | RFID | Lecture | PPT | R2 - Pg: 497 |

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| **MODULE II Wireless Systems (12)**  |
|  | 2 | Advanced Mobile Phone Systems (AMPS) – Characteristics – Operation – General Working of AMPS Phone | Lecture | PPT | R2 - Pg: 254- 258 |
|  | 3 | Global System for Mobile Communication – Frequency Bands and Channels – Frames – Identity Numbers | Lecture | PPT | R2 - Pg: 262 - 265 |
|  | 1 | Layers - Planes and Interfaces of GSM | Lecture | PPT | R2 - Pg: 268 |
|  | 2 | – International Mobile Telecommunications (IMT-2000)- Spectrum Allocation | Lecture | PPT | R2 - Pg: 281 |
|  | 1 | Services provided by 3G Cellular Systems | Lecture | PPT | R2 - Pg: 282 |
|  | 1 | Harmonized 3G Systems | Lecture | PPT | R2 - Pg: 283 |
|  | 2 | Universal Mobile Telecommunications Systems (UMTS) | Lecture | PPT | R2 - Pg: 284 |
| **MODULE I**  **INTRODUCTION TO CELLULAR STANDARDS (14)** |
|  | 2 | 2G GSM, Cell structure, Frequency Bands and Channels | Lecture | PPT | R2 and R3 |
|  | 2 | Call processing , Identity numbers, Frame structure, Interfaces, | Lecture | PPT | R2 and R3 |
|  | 2 | GMSK modulation, Voice and data processing | Lecture | PPT | R2 and R3 |
|  | 2 | GPRS, EDGE, EDGE+, CDMA signal processing, IS-2000 system | Lecture | PPT | R2 and R3 |
|  | 1 | Frequency bands, Channel allocation, CDMA cell capacity | Lecture | PPT | R2 and R3 |
|  | 1 | Services provided by IS-2000  | Lecture | PPT | R2 and R3 |
|  | 1 | 1xEVDO signal processing and data services | Lecture | PPT | R2 and R3 |
|  | 1 | 3G UMTS signal processing | Lecture | PPT | R2 and R3 |
|  | 2 | WCDMA, HSPA, HSPA+Towards 4thG, LTE and LTE advanced. | Lecture | PPT | R2 and R3 |

**References:**

R1. Assuncion Santamaria, Francisco Lopez-Hernandez, “Wireless LAN Standards and Applications”, Artech House, 2001.

R2. Dharma Prakash Agarwal and Qing- An zeng, “Introduction to Wireless and Mobile Systems”, Vikas publishing House, New Delhi, 2004.

R3. Neeli Prasad and Anand Prasad, “WLAN System & Wireless IP for Next Generation Communications”, Artec House, 2002.

R4. Moray Rumney : LTE and the Evolution to 4G Wireless”,Wiley,2009