**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.**   |  |  |  | | --- | --- | --- | | **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**   |  |  |  | | --- | --- | --- | | **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 |  |  |  |  | | --- | --- | --- | | **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** | |
| **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**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **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 | |
| **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