| Subject Code | Subject Name | Teaching Scheme (Hrs.) | | | Credits Assigned | | | |
|---|---|---|---|---|---|---|---|---|
| | | Theory | Practical | Tutorial | Theory | TW/Practical | Tutorial | Total |
| EXC 8042 | Mobile Communication | 04 | -- | -- | 04 | -- | -- | 04 |

| Subject Code | Subject Name | Examination Scheme | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Theory Marks | | | | Term Work | Practical | Oral | Total |
| | | Internal assessment | | | End Sem. Exam | | | | |
| | | Test 1 | Test 2 | Ave. Of Test 1 and Test 2 | | | | | |
| EXC 8042 | Mobile Communication | 20 | 20 | 20 | 80 | -- | -- | -- | 100 |

**Course Pre-requisite:**

- EXC 704: Computer Communication Networks
- EXC: Digital Communication

**Course Objectives:**

To enable the student to study, understand and appreciate the concepts of mobile communication technology.

**Course Outcomes:**

**After successful completion of the course student will be able to**

1. Understand the fundamentals of mobile communications
2. Differentiate between GSM and CDMA
3. Understand the evolving wireless communication technologies.
4. Understand the requirement of 4 G technology

| Module No. | Unit No. | Topics | Hrs. |
|---|---|---|---|
| 1 | | **Cellular Communication System** | 10 |
| | 1.1 | **I**ntroduction to Cellular Communications, Frequency reuse, Multiple Access Technologies | |
| | 1.2 | **Cellular Processes:** Channel assignment, Call Setup, Handoff strategies, interferences and system capacity | |
| | 1.3 | **Traffic Theory:** Trunking and grade of service, improving system capacity | |
| 2 | | **GSM** | 8 |
| | 2.1 | GSM Network architecture, signaling protocol architecture, identifiers, channels, Frame structure, speech coding, authentication and security, call procedure, handoff procedure, services and features | |
| 3 | | **CDMA digital cellular standard (1S-95)**. | 8 |
| | 3.1 | Frequency and channel specifications of IS-95, forward and reverse CDMA channel, packet and frame formats, mobility and radio resource management | |
| 4 | | **3 G Mobile Communication System** | 10 |
| | 4.1 | 2.5 G TDMA Evolution Path, GPRS, EDGE , 2.5G CDMA one cellular N/W, Need of 3G Cellular N/w, IMT 2000 Global Standard, UMTS Technology, W-CDMA Air interface, TD-SCDMA Technology, CDMA 2000 Cellular Technology | |
| 5 | | **4G Wireless Standards** | 8 |
| | 5.1 | Need for 4G network, difference between 3G and 4G, LTE, WiMAX | |
| 6 | | **Emerging Technologies** | 8 |
| | 6.1 | Mobile Adhoc Network, Mobile IP and Mobility Management, Mobile TCP, Wireless Sensor Networks, RFID Technology | |
| | | **Total** | 52 |

**Recommended Books:**


1. Wireless Communications - Theodore S. Rappaport, Prentice Hall of India, PTR publication
2. Mobile & Personal Communication system & Services by Raj Pandya , Prentice –Hall of India (PHI) Private Limited
3. Principles of Wireless Networks-KavehPahlavan, Prashant Krishnamurthy, PHI
4. Wireless communication and Networking-Vijay Garg, ELSEVIER Inc
5. Wireless communication- Singhal_TMH
6. Fundamentals of Wireless Communications, "David Tse and Pramod Viswanath, Publisher, Cambridge University Press.
7. Wireless Communications: Andrea Goldsmith, Cambridge University Press.


**Internal Assessment (IA):**
Two tests must be conducted which should cover at least 80% of syllabus. The average marks of both the test will be considered as final IA marks

**End Semester Examination**:
1. Question paper will comprise of 6 questions, each of 20 marks.
2. Total 4 questions need to be solved.
3. Question No.1 will be compulsory and based on entire syllabus wherein sub questions of 2 to 5 marks will be asked.
4. Remaining questions will be selected from all the modules