# INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPT./CENTRE**:** **Electronics and Computer Engineering**

1. Subject Code: **EC – 558N** Course Title**:** **Mobile Computing**

2. Contact Hours: **L: 3 T: 0 P: 0**

3. Examination Duration (Hrs.): **Theory:** 0 | 3 **Practical:** 0 | 0

4. Relative Weight**:** **CWS** 15 **PRS** 00 **MTE** 35 **ETE** 50 **PRE** 00

5. Credits**:** 0 | 3 6. Semester: [ ] **Autumn** [√] **Spring** [ ] **Both**

7. Pre-requisite**:** **EC - 252, EC - 356**

8. Subject Area**:** **MSC**

9. Objective: To impart knowledge of mobile and wireless computing systems and techniques.

10. Details of the Course:

| Sl. No. | Contents | Contact Hours |
|---|---|---|
| 1. | **Mobility:** Issues, challenges, and benefits; Review of mobile and cellular communication technology; Review of distributed/network operating systems, ubiquitous computing. | 4 |
| 2. | **Network Programming:** Process communication techniques, remote login, ftp, socket programming, RPC, RMI, client-server programming. | 4 |
| 3. | **Process Migration:** Steps, advantages, application taxonomy, alternatives, case study of DEMOS/MP. | 3 |
| 4. | **Mobile Computing:** Physical mobility, challenges, limits and connectivity, mobile IP and cellular IP in mobile computing, case study of CODA. | 6 |
| 5. | **Wireless LANs:** Introduction to IEEE 802.11, Bluetooth and IrDA technologies and standards. | 4 |
| 6. | **Mobile Adhoc Networks:** Hidden and exposed terminal problems; Routing protocols: DSDV, DSR, AODV. | 6 |
| 7. | **Wireless Sensor Networks:** Motes, smart dust, TinyOS, routing protocols. | 4 |
| 8. | **Handheld Devices and OS:** Palm, HP; PalmOS, WindowsCE, Windows Mobile. | 4 |
| 9. | **Mobile Internet and WAP:** WWW programming model, WAP programming model, gateways. | 4 |

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| 10. | **Mobile agents:** Aglets, Tcl, PMADE. | 3 |
| | **Total** | **42** |

11. Suggested Books:

| **Sl. No.** | **Name of Books / Authors** | **Year of Publication** |
|---|---|---|
| 1. | Tanenbaum, A. S., "Computer Networks", 4th Ed., Pearson Education. | 2003 |
| 2. | Milojicic, D., Douglis, F. and Wheeler R., (ed.), "Mobility Processes, Computers and Agents", Addison Wesley. | 2000 |
| 3. | Lange, D. B. and Oshima, M., "Programming and Deploying Java Mobile Agents with Aglets", Addison Wesley. | 1998 |
| 5. | Schildt, H., "The Complete Reference Java2", 5th Ed., McGraw-Hill. | 2002 |
| 6. | Stevens, W. R., "UNIX Network Programming", Prentice-Hall of India. | 1998 |
| 7. | Hansman, U. and Merck, L., "Principles of Mobile Computing", 2nd Ed., Springer. | 2003 |