

Siruseri IT park, OMR, Chennai - 603103

| LESSON PLAN                                                                                                                                                                                                                                                                                                                         |                                                                                      |        |          |                          |                 |     |         |
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| Department of Computer Science And Engineering                                                                                                                                                                                                                                                                                      |                                                                                      |        |          |                          |                 |     |         |
| Name of the                                                                                                                                                                                                                                                                                                                         | MOBILE COMMUNICATION                                                                 |        |          | Name of the handling     | Mr. R.Rajasekar |     |         |
| Subject Code                                                                                                                                                                                                                                                                                                                        | IT8602                                                                               |        |          | Year / Sem               | III/VI          |     |         |
| Acad Year                                                                                                                                                                                                                                                                                                                           | 2021-2022                                                                            |        |          | Batch                    | 2019-2023       |     |         |
| Course Objective                                                                                                                                                                                                                                                                                                                    |                                                                                      |        |          |                          |                 |     |         |
| <ul style="list-style-type: none"> <li>To understand the basic concepts of mobile computing.</li> <li>Understand Wireless LAN, Bluetooth and Wi-Fi Technologies</li> <li>Be familiar with the network protocol stack</li> <li>Learn the basics of mobile telecommunication system</li> <li>Be exposed to Ad-Hoc networks</li> </ul> |                                                                                      |        |          |                          |                 |     |         |
| Course Outcome                                                                                                                                                                                                                                                                                                                      |                                                                                      |        |          |                          |                 |     |         |
| CO1. Explain the basics of mobile telecommunication systems                                                                                                                                                                                                                                                                         |                                                                                      |        |          |                          |                 |     |         |
| CO2. Illustrate the generations of telecommunication systems in wireless networks                                                                                                                                                                                                                                                   |                                                                                      |        |          |                          |                 |     |         |
| CO3. Understand the architecture of Wireless LAN technologies                                                                                                                                                                                                                                                                       |                                                                                      |        |          |                          |                 |     |         |
| CO4. Determine the functionality of network layer and Identify a routing protocol for a given Ad hoc networks                                                                                                                                                                                                                       |                                                                                      |        |          |                          |                 |     |         |
| CO5. Explain the functionality of Transport and Application layer                                                                                                                                                                                                                                                                   |                                                                                      |        |          |                          |                 |     |         |
| Sl. No.                                                                                                                                                                                                                                                                                                                             |                                                                                      | T / R* | Periods  | Mode of Teaching (BB /   | Blooms Level    | CO  | PO      |
|                                                                                                                                                                                                                                                                                                                                     |                                                                                      | Book   | Required | PPT / NPTEL / MOOC / etc | (L1-L6)         |     |         |
| <b>UNIT-I INTRODUCTION</b>                                                                                                                                                                                                                                                                                                          |                                                                                      |        |          |                          |                 |     |         |
| 1                                                                                                                                                                                                                                                                                                                                   | Introduction to Mobile Computing                                                     | T      | 1        | BB                       | L1              | CO1 | PO1     |
| 2                                                                                                                                                                                                                                                                                                                                   | Applications of Mobile Computing                                                     | T      | 1        | BB                       | L1              | CO1 | PO1-PO3 |
| 3                                                                                                                                                                                                                                                                                                                                   | Generations of Mobile Communication Technologies                                     | T      | 1        | BB                       | L1              | CO1 | PO1-PO3 |
| 4                                                                                                                                                                                                                                                                                                                                   | Multiplexing                                                                         | T      | 1        | BB                       | L1              | CO1 | PO2     |
| 5                                                                                                                                                                                                                                                                                                                                   | Spread spectrum                                                                      | T      | 1        | BB                       | L2              | CO1 | PO2     |
| 6                                                                                                                                                                                                                                                                                                                                   | MAC Protocols                                                                        | T      | 1        | BB                       | L2              | CO1 | PO2     |
| 7                                                                                                                                                                                                                                                                                                                                   | SDMA- TDMA                                                                           | T      | 2        | BB                       | L2              | CO1 | PO3     |
| 8                                                                                                                                                                                                                                                                                                                                   | FDMA- CDMA                                                                           | T      | 1        | BB                       | L3              | CO1 | PO3     |
| Suggested Activity: Assignment / Case Studies / Tutorials/ Quiz / Mini Projects / Model Developed/others Planned if any                                                                                                                                                                                                             |                                                                                      |        |          |                          |                 |     |         |
| 1                                                                                                                                                                                                                                                                                                                                   | Compare and contrast SDMA,TDMA,FDMA and CDMA schemes                                 |        |          |                          |                 |     |         |
| 2                                                                                                                                                                                                                                                                                                                                   | Summarize the applications of Mobile computing                                       |        |          |                          |                 |     |         |
| Evaluation method                                                                                                                                                                                                                                                                                                                   |                                                                                      |        |          |                          |                 |     |         |
| <b>UNIT II MOBILE TELECOMMUNICATION SYSTEM</b>                                                                                                                                                                                                                                                                                      |                                                                                      |        |          |                          |                 |     |         |
| 9                                                                                                                                                                                                                                                                                                                                   | Introduction to Cellular Systems                                                     | T      | 1        | BB                       | L1              | CO2 | PO1-PO3 |
| 10                                                                                                                                                                                                                                                                                                                                  | GSM , Services & Architecture                                                        | T      | 1        | BB                       | L1              | CO2 | PO2     |
| 11                                                                                                                                                                                                                                                                                                                                  | Protocols ,Connection Establishment                                                  | T      | 1        | BB                       | L2              | CO2 | PO2     |
| 12                                                                                                                                                                                                                                                                                                                                  | Frequency Allocation , Routing                                                       | T      | 1        | BB                       | L2              | CO2 | PO2     |
| 13                                                                                                                                                                                                                                                                                                                                  | Mobility Management ,Security                                                        | T      | 1        | BB                       | L1              | CO2 | PO3     |
| 14                                                                                                                                                                                                                                                                                                                                  | GPRS                                                                                 | T      | 1        | BB                       | L1              | CO2 | PO3     |
| 15                                                                                                                                                                                                                                                                                                                                  | UMTS , Architecture                                                                  | T      | 2        | BB                       | L3              | CO2 | PO1     |
| 16                                                                                                                                                                                                                                                                                                                                  | Handover , Security                                                                  | T      | 1        | BB                       | L2              | CO2 | PO2     |
| Suggested Activity: Assignment / Case Studies / Tutorials/ Quiz / Mini Projects / Model Developed/others Planned if any                                                                                                                                                                                                             |                                                                                      |        |          |                          |                 |     |         |
| 1                                                                                                                                                                                                                                                                                                                                   | Explain GPRS ?                                                                       |        |          |                          |                 |     |         |
| 2                                                                                                                                                                                                                                                                                                                                   | Explain UMTS ?                                                                       |        |          |                          |                 |     |         |
| Evaluation method                                                                                                                                                                                                                                                                                                                   |                                                                                      |        |          |                          |                 |     |         |
| <b>UNIT III WIRELESS NETWORKS</b>                                                                                                                                                                                                                                                                                                   |                                                                                      |        |          |                          |                 |     |         |
| 30                                                                                                                                                                                                                                                                                                                                  | Wireless LANs and PANs                                                               | T      | 1        | BB                       | L1              | CO3 | PO1-PO3 |
| 31                                                                                                                                                                                                                                                                                                                                  | IEEE 802.11 Standard – System Architecture                                           | T      | 1        | BB                       | L1              | CO3 | PO1     |
| 32                                                                                                                                                                                                                                                                                                                                  | IEEE 802.11 Standard – Protocol Architecture                                         | T      | 1        | BB                       | L2              | CO3 | PO1     |
| 33                                                                                                                                                                                                                                                                                                                                  | IEEE 802.11 Standard – Services                                                      | T      | 2        | BB                       | L2              | CO3 | PO2     |
| 34                                                                                                                                                                                                                                                                                                                                  | Bluetooth Technology                                                                 | T      | 2        | BB                       | L3              | CO3 | PO3     |
| 35                                                                                                                                                                                                                                                                                                                                  | Wi-Fi – Wi-MAX                                                                       | T      | 1        | BB                       | L3              | CO3 | PO3     |
| Suggested Activity: Assignment / Case Studies / Tutorials/ Quiz / Mini Projects / Model Developed/others Planned if any                                                                                                                                                                                                             |                                                                                      |        |          |                          |                 |     |         |
| 1                                                                                                                                                                                                                                                                                                                                   | Case study on Zigbee technology                                                      |        |          |                          |                 |     |         |
| Evaluation method                                                                                                                                                                                                                                                                                                                   |                                                                                      |        |          |                          |                 |     |         |
| <b>UNIT IV MOBILE NETWORK LAYER</b>                                                                                                                                                                                                                                                                                                 |                                                                                      |        |          |                          |                 |     |         |
| 17                                                                                                                                                                                                                                                                                                                                  | Mobile IP – DHCP                                                                     | T      | 1        | BB                       | L1              | CO4 | PO1     |
| 18                                                                                                                                                                                                                                                                                                                                  | AdHoc– Proactive protocol-DSDV                                                       | T      | 1        | BB                       | L1              | CO4 | PO1     |
| 19                                                                                                                                                                                                                                                                                                                                  | Reactive Routing Protocols – DSR, AODV                                               | T      | 2        | BB                       | L2              | CO4 | PO2     |
| 20                                                                                                                                                                                                                                                                                                                                  | Hybrid routing –ZRP                                                                  | T      | 1        | BB                       | L2              | CO4 | PO2     |
| 21                                                                                                                                                                                                                                                                                                                                  | Multicast Routing- ODMRP                                                             | T      | 1        | BB                       | L2              | CO4 | PO2     |
| 22                                                                                                                                                                                                                                                                                                                                  | Vehicular Ad Hoc networks ( VANET)                                                   | T      | 1        | BB                       | L2              | CO4 | PO2     |
| 23                                                                                                                                                                                                                                                                                                                                  | MANET Vs VANET                                                                       | T      | 1        | BB                       | L2              | CO4 | PO3     |
| 24                                                                                                                                                                                                                                                                                                                                  | Security                                                                             | T      | 1        | BB                       | L4              | CO4 | PO4     |
| Suggested Activity: Assignment / Case Studies / Tutorials/ Quiz / Mini Projects / Model Developed/others Planned if any                                                                                                                                                                                                             |                                                                                      |        |          |                          |                 |     |         |
| 1                                                                                                                                                                                                                                                                                                                                   | Seminar on topic "Challenges in Mobile Adhoc Network"                                |        |          |                          |                 |     |         |
| <b>UNIT V MOBILE TRANSPORT AND APPLICATION LAYER</b>                                                                                                                                                                                                                                                                                |                                                                                      |        |          |                          |                 |     |         |
| 24                                                                                                                                                                                                                                                                                                                                  | Mobile TCP                                                                           | T      | 1        | BB                       | L1              | CO5 | PO1-PO3 |
| 25                                                                                                                                                                                                                                                                                                                                  | WAP , Architecture                                                                   | T      | 1        | BB                       | L2              | CO5 | PO1     |
| 26                                                                                                                                                                                                                                                                                                                                  | WDP , WTLS                                                                           | T      | 1        | BB                       | L2              | CO5 | PO1     |
| 27                                                                                                                                                                                                                                                                                                                                  | WTP ,WSP                                                                             | T      | 1        | BB                       | L2              | CO5 | PO2     |
| 28                                                                                                                                                                                                                                                                                                                                  | WAE , WTA Architecture                                                               | T      | 2        | BB                       | L3              | CO5 | PO2     |
| 29                                                                                                                                                                                                                                                                                                                                  | WML                                                                                  | T      | 1        | BB                       | L3              | CO5 | PO2     |
| Suggested Activity: Assignment / Case Studies / Tutorials/ Quiz / Mini Projects / Model Developed/others Planned if any                                                                                                                                                                                                             |                                                                                      |        |          |                          |                 |     |         |
| 1                                                                                                                                                                                                                                                                                                                                   | Explain TCP in detail ?                                                              |        |          |                          |                 |     |         |
| 2                                                                                                                                                                                                                                                                                                                                   | Draw the architecture of WSP Session establishment, Suspension, resume, termination. |        |          |                          |                 |     |         |
| 3                                                                                                                                                                                                                                                                                                                                   | Explain in detail WSP as connectionless session service.                             |        |          |                          |                 |     |         |
| Evaluation method                                                                                                                                                                                                                                                                                                                   |                                                                                      |        |          |                          |                 |     |         |
| Website / URL References                                                                                                                                                                                                                                                                                                            |                                                                                      |        |          |                          |                 |     |         |

|                                                    |                                                                                                                                                           |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|----------------------|------------------|---------------------------|---------|----------------|------|------|-----------------------|--------------------------|-------|
| 2                                                  | <a href="https://www.geeksforgeeks.org/wireless-mobile-computing-technologies/">https://www.geeksforgeeks.org/wireless-mobile-computing-technologies/</a> |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
| 3                                                  | <a href="https://www.javatpoint.com/mobile-computing">https://www.javatpoint.com/mobile-computing</a>                                                     |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
| Blooms Level                                       |                                                                                                                                                           |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
| Level 1 (L1) : Remembering                         |                                                                                                                                                           |     |     |     | Lower Order Thinking | Fixed Hour Exams | Level 4 (L4) : Analysing  |         |                |      |      | Higher Order Thinking | Projects / Mini Projects |       |
| Level 2 (L2) : Understanding                       |                                                                                                                                                           |     |     |     |                      |                  | Level 5 (L5) : Evaluating |         |                |      |      |                       |                          |       |
| Level 3 (L3) : Applying                            |                                                                                                                                                           |     |     |     |                      |                  | Level 6 (L6) : Creating   |         |                |      |      |                       |                          |       |
| Mapping syllabus with Bloom's Taxonomy LOT and HOT |                                                                                                                                                           |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
| Unit No                                            | Unit Name                                                                                                                                                 |     |     |     |                      | L1               | L2                        | L3      | L4             | L5   | L6   | LOT                   | HOT                      | Total |
| Unit 1                                             | INTRODUCTION                                                                                                                                              |     |     |     |                      | 4                | 3                         | 2       | 0              | 0    | 0    | 9                     | 0                        | 9     |
| Unit 2                                             | MOBILE TELECOMMUNICATION SYSTEM                                                                                                                           |     |     |     |                      | 4                | 2                         | 3       | 0              | 0    | 0    | 9                     | 0                        | 9     |
| Unit 3                                             | WIRELESS NETWORKS                                                                                                                                         |     |     |     |                      | 2                | 5                         | 1       | 1              | 0    | 0    | 8                     | 1                        | 9     |
| Unit 4                                             | MOBILE NETWORK LAYER                                                                                                                                      |     |     |     |                      | 1                | 4                         | 4       | 0              | 0    | 0    | 9                     | 0                        | 9     |
| Unit 5                                             | MOBILE TRANSPORT AND APPLICATION LAYER                                                                                                                    |     |     |     |                      | 0                | 0                         | 8       | 2              | 0    | 0    | 8                     | 2                        | 10    |
| Total                                              |                                                                                                                                                           |     |     |     |                      | 11               | 14                        | 18      | 3              | 0    | 0    | 43                    | 3                        | 46    |
| Total Percentage                                   |                                                                                                                                                           |     |     |     |                      | 23.913           | 30.43                     | 39.1304 | 6.52173913     | 0    | 0    | 93.478                | 6.52174                  | 100   |
| CO PO Mapping                                      |                                                                                                                                                           |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
|                                                    | PO1                                                                                                                                                       | PO2 | PO3 | PO4 | PO5                  | PO6              | PO7                       | PO8     | PO9            | PO10 | PO11 | PO12                  | PSO1                     | PSO2  |
| CO1                                                | 3                                                                                                                                                         | 2   | 3   | 2   | 0                    | 0                | 0                         | 0       | 0              | 0    | 0    | 0                     | 3                        | 3     |
| CO2                                                | 3                                                                                                                                                         | 3   | 2   | 3   | 3                    | 0                | 0                         | 0       | 0              | 0    | 0    | 0                     | 3                        | 3     |
| CO3                                                | 2                                                                                                                                                         | 3   | 3   | 3   | 3                    | 0                | 0                         | 0       | 0              | 0    | 0    | 0                     | 3                        | 3     |
| CO4                                                | 3                                                                                                                                                         | 3   | 3   | 3   | 3                    | 0                | 0                         | 0       | 0              | 0    | 0    | 0                     | 3                        | 3     |
| CO5                                                | 3                                                                                                                                                         | 3   | 3   | 3   | 3                    | 0                | 0                         | 0       | 0              | 0    | 0    | 0                     | 3                        | 3     |
| Avg                                                | 2.8                                                                                                                                                       | 2.8 | 2.8 | 2.8 | 2.4                  | 0                | 0                         | 0       | 0              | 0    | 0    | 0                     | 3                        | 3     |
| Justification for CO-PO mapping                    |                                                                                                                                                           |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
| CO1                                                | Understanding the concept of cellular wireless networks and how the different protocols work in mobile environment                                        |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
| CO2                                                | Understanding the GSM System architecture and also the various functions involved in GPRS                                                                 |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
| CO3                                                | Understanding wireless standards and analysing various mobile technologies like zigbee                                                                    |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
| CO4                                                | Understanding the working, properties, applications and functions of Mobile Networks Layer                                                                |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
| CO5                                                | Understanding Transport layer protocols and analysing various mobile applications                                                                         |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
| 3                                                  | High level                                                                                                                                                |     |     |     | 2                    |                  |                           |         | Moderate level |      |      | Low level             |                          |       |
| Name & Sign of Subject Expert :                    |                                                                                                                                                           |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
| Head of the Department :                           |                                                                                                                                                           |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |
| Format No :231                                     |                                                                                                                                                           |     |     |     |                      |                  |                           |         |                |      |      |                       |                          |       |