**Govt. Polytechnic, Manesar**

**Lesson Plan**

**Name of the Faculty** : - Manju

**Discipline** : - Electronics & Communication Engg.

**Semester** : - 6th

**Subject** : - Wireless and Mobile Communication

**Lesson Plan Duration** : - 15 weeks (From 15 March 2022 to 30 June 2022)

Work Load (Lecture/Practical) per Week (In Hours):- Lecture - **04**, Practical - **06**

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| **WEEK** | **THEORY** | **PRACTICAL** |
|  | **LECTURE DAY** | **TOPIC****(including assignment/test)** | **PRACTICAL DAY** | **TOPIC** |
| 1st | 1st | Wireless CommunicationBasics | 1stGroup-1 | Study about practical of wireless and mobile communication |
| 2nd | Advantages of wireless communication |
| 3rd |  Electromagnetic waves  | 2ndGroup-2 | Study about practical of wireless and mobile communication |
| 4th | Frequency Spectrum used |
| 2nd | 5th | Cellular Network Systems. | 1stGroup-1 | Study the features, specification and working of cellular mobile |
| 6th | Propagation considerationsRange |
| 7th | Atmospheric EffectGeographic Effect | 2ndGroup-2 | Study the features, specification and working of cellular mobile |
| 8th |  Fading |
| 3rd  | 9th | Doppler EffectMultipath Effect | 1stGroup-1 | Measurement of signal strength at various points from a transmitting antenna  |
| 10th | Cellular Concept Introduction to 1G and 2G |
| 11th | Cell areaCell Site structure | 2ndGroup-2 | Measurement of signal strength at various points from a transmitting antenna |
| 12th | Capacity of cellFrequency reuse (concept) |
| 4th  | 13th | Interference (Co-channel) | 1stGroup-1 | Revision |
| 14th | Adjacent channel Interference |
| 15th | Power Control for reducing Interference | 2ndGroup-2 | Revision |
| 16th | Fundamentals of cellular network planningCoverage planning |
| 5th  | 17th | Capacity planning | 1stGroup-1 | Demonstration of Base Trans Receiver(BTS) with nearby cellular tower |
| 18th | Cell splitting |
| 19th | Cell sectoring | 2ndGroup-2 | Demonstration of Base Trans Receiver(BTS) with nearby cellular tower  |
| 20th | **Assignment-1** |
| 6th  | 21st  | Multiple Access Techniques for Wireless Communication Introduction to Multiple Accesses | 1stGroup-1 | Observing call processing of GSM trainer kit. |
| 22nd | Introduction to Multiple Accesses contd. |
| 23rd  | Frequency Division Multiple Access(FDMA) | 2ndGroup-2 | Observing call processing of GSM trainer kit. |
| 24th | Frequency Division Multiple Access contd. |
| 7th | 25th | FDD | 1stGroup-1 | Observing call processing of GSM trainer Kit |
| 26th | TDD |
| 27th |  Time Division Multiple Access(TDMA) | 2ndGroup-2 | Observing call processing of GSM trainer Kit |
| 28th |  Time Division Multiple Access CONTD. |
| 8th | 29th | TDMA contd. | 1stGroup-1 | Visit to Mobile Switching Centre |
| 30th | Distinction between FDMA FDD |
| 31st  | Distinction between TDMA TDD | 2ndGroup-2 | Visit to Mobile Switching Centre |
| 32nd  |  Code Division Multiple Access (CDMA) |
| 9th | 33rd  | Code Division Multiple Access (CDMA) continue  | 1stGroup-1 | Repair of a GSM mobile phone  |
| 34th | CDMA contd. |
| 35th | WCDMA | 2ndGroup-2 | Repair of a GSM mobile phone  |
| 36th | Mobile Communication Systems Introduction of Global Systems for Mobile Communication (GSM) |
| 10th | 37th | GSM contd. | 1stGroup-1 | Repair of a GSM mobile phone  |
| 38th | GSM architecture |
| 39th | Introduction of CDMA | 2ndGroup-2 | Repair of a GSM mobile phone  |
| 40th | CDMA contd. |
| 11th | 41st  | comparison of CDMA and GSM Systems | 1stGroup-1 | Revision |
| 42nd  | Introduction of GPRS Systems |
| 43rd  | Introduction of EDGE | 2ndGroup-2 | Revision |
| 44th | Introduction to Blue tooth |
| 12th  | 45th | Introduction to Wi-Fi | 1stGroup-1 | Revision |
| 46th | **Assignment-2** |
| 47th | Introduction to 3G & 4GIntroduction to Architecture and Features of UMTS | 2ndGroup-2 | Revision |
| 48th | Introduction to Architecture and Features of UMTS contd. |
| 13th  | 49th | HSPA ( High Speed Packet Access ). | 1stGroup-1 |  Revision |
| 50th | Features of LTE (Long Term Evolution) |
| 51st  |  Architecture of LTE (Long Term Evolution) | 2ndGroup-2 | Revision |
| 52nd  | Troubleshooting GSM Mobile Phone |
| 14th | 53rd | Assembling and dissembling of GSM phone | 1stGroup-1 | Revision |
| 54th  | Assembling and dissembling of GSM phone contd. |
| 55th | Study parts of Mobile Phone | 2ndGroup-2 | Revision |
| 56th | Testing of various parts |
| 15th | 57th | **Assignment-3** | 1stGroup-1 | Viva |
| 58th | Revision |
| 59th | Revision | 2ndGroup-2 | Viva |
| 60th | Revision |