**Electronics & Comm. Engg.**

**ANALOG ELECTRONICS-I**

**Name of faculty** : VF

**Discipline** : ECE

**Semester** : 2nd sem

**Lesson plan duration** : 15 Weeks(from January, 2018 to April, 2018)

**Work load (lecture/practical) per week (in hours) : Lectures-03/Practicals- 02(PER GROUP)**

|  |  |  |
| --- | --- | --- |
| **Week** | **Theory** | **Practical** |
|  | **Lecture Day** | **Topic (including assignments/test)** | **Practical Day** |  **Topic** |
|  1st |  1 | **Semiconductor physics :** Review of basic atomic structure and energy levels |  1 | 1(a). Operation and use of Multimeter, CRO and Signal generator by way of taking readings of relevant quantities with their help |
|  2 | Concept of insulators, conductors and semiConductors |  2 |
|  3 | Atomic structure of Ge and Si, covalent bonds |  3 |
|  2nd  |  4  | Concept of intrinsic and extrinsic semi conductor |  4  | 1(b). Operation and use of LCR METER and Regulated Power Supply by taking readings of relevantquantities with their help |
|  5 | Process of doping  |  5 |
|  6  | Energy level diagram of conductors, insulators and semi conductors |  6  |
|  3rd  |  7 | Minority and majority chargecarriers |  7 | 2. Plot V-I characteristics for PN junction diode |
|  |  8  | P and N type semiconductors and their conductivity |  8  |
|  9  | Effect of temperature on conductivity ofIntrinsic semiconductor.  |  9  |
|  4th  |  10  | **Semiconductor diode**: PN junction diode, mechanism of current flow in PN junction |  10  | 3. Plot V-I characteristics of Zener diode |
|  |  11 | Forward and reverse biased PN junction, potential barrier |  11 |
|  12 | Drift and diffusion current |  12 |
|  5th  |  13  | Depletion layer, concept of junction capacitance in forward and reverse biased condition |  13  | 4. To observe output of clipping and clamping circuits  |
|  14 | V-I characteristics of PN junction diode |  14 |
|  15  | static and dynamic resistance and their calculation from diode characteristics |  15  |
|  6th  |  16  | Diode as half wave, full wave and bridge rectifier. |  16  | 5. Measurement of the voltage gain,input and output impedance in a single stage CE amplifier circuit |
|  17 | PIV, rectification efficiencies and ripple factor calculations,  |  17 |
|  18 | Shunt capacitor filter, series inductor filter,LC filter and pie filter  |  18 |
|  7th  |  19 | Clipping and clamping circuit |  19 | 6(a). Design of Half wave rectifier circuit using one diode on breadboard and observe the output |
|  20 | Types of diodes. Characteristics and applications of Zener diode. Zener breakdown and avalanche breakdown. |  20 |
|  21 | Test of Semiconductor physics and Semiconductor diode |  21 |
|  8th  |  22 | **Introduction to Bipolar** **Transistor**: Concept of bipolar transistor, structure, PNP and NPN transistor, their symbols and mechanism of current flow |  22 | 6(b). Design of Full wave rectifier circuit using two diodes on breadboard and observe the output |
|  |  23 |  Current relations in transistor, concept of leakage current |  23 |
|  24  | CB, CE, CC configuration of the transistor  |  24  |
|  9th  |  25 | Input and output characteristics in CB and CEconfigurations |  25 | 6(c). Design of Bridge rectifier circuit using four diodes on breadboard and observe the output |
|  26  | Input and output dynamic resistance in CB and CE configuration, current amplification factors |  26  |
|  27  | Comparison of CB, CE and CC configurations |  27  |
|  10th  |  28  | Transistor as an amplifier in CE configuration  |  28  | 7(a). Plotting the waveshape of Full wave rectifier with Shunt capacitor filter |
|  29 | Concept of DC load line and calculation of current gain and voltage gain usind DC load line  |  29 |
|  30 | **Transistor Biasing Circuits:** Concept of transistor biasing |  30 |
|  11th  |  31  | Selection of operating point |  31  | 7(b). Plotting the waveshape of Full wave rectifier with Series inductor filter |
|  32 | Need for stabilization of operating point  |  32 |
|  33  | Different types of biasing circuits . |  33  |
|  12th  |  34 | Test of Bipolar transistor and Transistor biasing circuits  |  34 | 8. Plotting of input and output characterstics and calculation of parameters of transistors in CE configuration |
|  35  | **Single stage transistor amplifier:**Single stage transistor amplifier circuit  |  35  |
|  36  | Concept of AC and DC load line and its uses  |  36  |
|  13th  |  37 | Explanation of phase reversal of output voltage withrespect to input voltage  |  37 | 9. Plotting of input and output characterstics and calculation of parameters of transistors in CB configuration |
|  38 | **Field Effect Transistors( FETs):** Construction and operation of FET  |  38 |
|  39  | Characterstics of FET  |  39  |
|  14th  |  40 | Applications of FET |  40 | 10. Measurement of voltage gain, input and output impedence in a single stage CE amplifier circuit |
|  |  41 | Construction, operation and characteristics of MOSFET in depletion mode and its applications |  41 |
|  |  42 | Construction, operation and characteristics of MOSFET in enhancement mode and its applications |  42 |
|  15th |  43 | C MOS - advantages and applications |  43 | 11. Plotting of V-I characterstics of a FET based amplifier |
|  |  44 | Comparison of JFET, MOSFET and BJT |  44 |
|  |  45 | Test of Single stage transistor amplifier and Field Effect Transistors |  45 |

**NFTL**

Name of faculty: VF

Discipline: ECE/Lecturer

Semester:4th

Lesson plan duration : 15 Weeks(from January,2018 to April,2018)

Work load (lecture/practical) per week (in hours) : 03 hrs/ 02 hrs(per Group)

|  |  |  |
| --- | --- | --- |
| Week | Theory | Practical |
|  | Lecture day | Topic (including assignments/test) | Practical day | Topic |
| 1st | 1st | **Networks:** Twoport network,symmetrical network,asymmetricalnetwork, Balanced network, Unbalanced network, T Network, Ladder network. | 1st | To measure the Characteristic Impedance of symmetrical T and Pai network. |
| 2nd | Lattice network, L network, Bridge network, Symmetrical network, Characteristics Impedance . | 2nd | To measure the Characteristic Impedance of symmetrical T and Pai network. |
| 3rd | Propagation Constant, attenuation Constant. | 3rd | To measure the Characteristic Impedance of symmetrical T and Pai network. |
| 2nd | 4th | Phase Shift Constant, Insertion loss of T network | 1st | To measure the image Impedance of given assymetrical T and Pai network. |
| 5th | Concept of iterative Impedance, Image Impedance. | 2nd | To measure the image Impedance of given assymetrical T and Pai network. |
| 6th | Image transfer Constant, Insertion loss. Half section, L section | 3rd | To measure the image Impedance of given assymetrical T and Pai network. |
| 3rd | 7th | REVISION/DOUBTS SESSION | 1st | Determine the Characteristic Impedance of low pass Filter. |
|  | 8th | Symmetrical T section, symmetrical pie section & it’s expression. | 2nd | Determine the Characteristic Impedance of low pass Filter. |
| 9th | Symmetrical T half section, Symmetrical pie half section concept, Applications of Networks. | 3rd | Determine the Characteristic Impedance of low pass Filter. |
| 4th | 10th | Attenuator, Types of attenuation, Units of attenuation, Decibel & Nepers. General Characteristics of Attenuation | 1st | To measure the attenuation of symmetrical T and Pai Attenuator. |
|  | 11th | Analysis of design of attenuators,Symmetrical T type Attenuator, Symmetrical L type Attenuator. | 2nd | To measure the attenuation of symmetrical T and Pai Attenuator. |
|  | 12th | REVISION/DOUBTS SESSION | 3rd | To measure the attenuation of symmetrical T and Pai Attenuator. |
| 5th | 13th | Filters, Uses of filters in different communication system. | 1st | To measure the Characteristic Impedance of high pass Filter. |
|  | 14th | Concept of Low pass Filter, it’s design and applications. | 2nd | To measure the Characteristic Impedance of high pass Filter. |
|  | 15th | Concept of High pass Filter,Cut off frequency, Design & application. | 3rd | To measure the Characteristic Impedance of high pass Filter. |
| 6th | 16th | Concept of band pass Filter, design & application. | 1st | To measure Impedance Characteristic and attenuation Characteristic of band pass Filter. |
|  | 17th | Concept of Band stop filter , it’s design & application. | 2nd | To measure Impedance Characteristic and attenuation Characteristic of band pass Filter. |
|  | 18th | Prototype filter section, Impedance Characteristics, Frequency Characteristics of low and high pass Filter. | 3rd | To measure Impedance Characteristic and attenuation Characteristic of band pass Filter. |
| 7th | 19th | Attenuation vs Frequency, Phase shift vs Frequency.Characterstics Impedance vs Frequency,its significance | 1st | To measure Impedance Characteristic and attenuation Characteristic of m derived low pass Filter . |
|  | 20th |  REVISION/DOUBTS SESSION | 2nd | To measure Impedance Characteristic and attenuation Characteristic of m derived low pass Filter . |
|  | 21th | Simple design of prototype low pass Filter and it’s application. | 3rd | To measure Impedance Characteristic and attenuation Characteristic of m derived low pass Filter . |
| 8th | 22th | M derived Filter, limitations of prototype filter , need of m derived Filter. | 1st | To observe the information of standing wave on transmission Line and measurement of SWR. |
|  | 23th | Crystal Filter, crystal and it’s equivalent ckt, property of piezo electric Filter and it’s uses | 2nd | To observe the information of standing wave on transmission Line and measurement of SWR. |
|  | 24th | Active Filters, basic concept of active filter, comparison of passive Filter. | 3rd | To observe the information of standing wave on transmission Line and measurement of SWR. |
| 9th | 25th | Transmission Line ,Types of transmission Line, it’s applications. | 1st | Draw attenuation Characteristic of Crystal Filter. |
|  | 26th | Distributed constants and pai representation of transmission Line , Characteristic Impedance of transmission Line | 2nd | Draw attenuation Characteristic of Crystal Filter. |
|  | 27th | REVISION/DOUBTS SESSION | 3rd | Draw attenuation Characteristic of Crystal Filter. |
| 10th | 28th | Propagation Constant, Attenuation Constant it’s expression. | 1st | Revision/uncovered practical |
|  | 29th | Phase Shift Constant, it’s mathematical expression. | 2nd | Revision/uncovered practical |
|  | 30th | Concept of infinite line,Draw the infinite line. | 3rd | Revision/uncovered practical |
| 11th | 31th | Condition for minimum distortion, minimum attenuation of signal on the line. | 1st | Revision/uncovered practical |
|  | 32th | Introduction to loading methods, Concept of Reflection. | 2nd | Revision/uncovered practical |
|  | 33th | Concept of standing wave, Reflection coefficient. | 3rd | Revision/uncovered practical |
| 12th | 34th | Concept of SWR, Concept of VSWR, Relation between SWR and VSWR | 1st | Revision/uncovered practical |
|  | 35th | REVISION/DOUBTS SESSION | 2nd | Revision/uncovered practical |
|  | 36th | Transmission Line equation and it’s mathematical expression. | 3rd | Revision/uncovered practical |
| 13th | 37th | Expression for voltage and current, Expression for Impedance at a line | 1st | Revision/uncovered practical |
|  | 38th | Concept of transmission Line at high frequency | 2nd | Revision/uncovered practical |
|  | 39th | REVISION/DOUBTS SESSION | 3rd | Revision/uncovered practical |
| 14th | 40th | Introduction to stubs and it’s types, What is single stub | 1st | Revision/uncovered practical |
|  | 41th | Double stub and it’s Applications. | 2nd | Revision/uncovered practical |
|  | 42th | What is open stub and Applications of open stub. | 3rd | Revision/uncovered practical |
| 15th | 43th | Short circuit stub , Applications and uses . | 1st | Revision/uncovered practical |
|  | 44th | Difference between open circuit stub and short circuit stub . | 2nd | Revision/uncovered practical |
|  | 45th | REVISION/DOUBTS SESSION | 3rd | Revision/uncovered practical |

SESSIONAL TEST CONDUCTED AS PER HSBTE TIME TABLE/SYLLABUS

**Microprocessor and Peripherial Devices**

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| Name of faculity member | SANJAY KUMAR |
| Discipline | ECE |
| Semester | 4th |
| Subject | MICROPROCESSORS AND PERIPHERAL DEVICES |
| Lession plan duration | 15 week ( January 2018 to April 2018) |
| WORK LOAD |  |  | THEORY 4HOURS)/PRACTICAL (2 HOURS PER GROUP) |  |  |
| **Week** | **Theory** | **Practical** |
|  | **Lecturer day** |  | **Topic ( including assignment/test)** | **Practical day** | **Topic** |
| 1st | 1 | **Unit 1 (Evolution of Microprocessor)** | Evolution of Microprocessor | 1 | Familiarization of  |
| 2 | Typical organization of a microcomputer system and functions of its various blocks | 2 | different keys of 8085 |
| 3 | Microprocessor, its evolution and function  |   | Microprocessor |
| 4 | Impact of Microprocessor on modern society | 3 |   |
| 2nd | 5 | **Unit 2 (Architecture of a Microprocessor) (With reference to 8085 microprocessor)** | Revision of unit 1 | 4 | Steps to enter, modify |
| 6 | Architecture of a Microprocessor (With reference to 8085 microprocessor) | 5 | data/program and to |
| 7 | Architecture of a Microprocessor (With reference to 8085 microprocessor) | 6 | execute a programme  |
| 8 | Concept of Bus, bus organization of 8085, |   | on 8085 kit |
| 3rd | 9 | Functional block diagram of 8085 and function of each block\*Assignment Topic  | 7 | ALP for Addition and  |
| 10 | Pin details of 8085 and related signals | 8 | Subtraction of two 8 bit  |
| 11 | Demultiplexing of address/data bus | 9 | numbers |
| 12 | Demultiplexing of address/data bus |   |   |
| 4th | 13 | Generation of read/write control signals | 10 | REVISION /UNCOVERED PRACTICAL |
| 14 | Steps to execute a stored programme | 11 |   |
| 15 | Revision of Unit 2  |   |   |
| 16 | Doubt session on topics Unit1, 2  | 12 |   |
| 5th | 17 | **Unit 3 (Instruction Timing and Cycles)** | Instruction Timing and Cycles ( Basic Introduction) | 13 | ALP for Multiplication and  |
| 18 | Instruction cycle | 14 | division of two 8 bit  |
| 19 | machine cycle | 15 | numbers |
| 20 | T-states |   |   |
| 6th | 21 | Fetch and execute cycle | 16 | ALP for Arranging 10  |
| 22 | Comparision between all the cyles  | 17 | numbers in ascending / |
| 23 | Revision of Unit 3 | 18 | descending order |
| 24 | **Unit 4(Programming with respect to 8085 microprocessor)** | Brief idea of machine and assembly languages |   |   |
| 7th | 25 | Machines and Mnemonic codes | 19 |  ALP for 0 to 9 BCD counters |
| 26 | Instruction format and Addressing mode | 20 |   |
| 27 | Identification of instructions as to which addressing mode they belong | 21 |   |
| 28 | Identification of instructions as to which addressing mode they belong |   |   |
| 8th | 29 | Concept of Instruction set | 22 | REVISION /UNCOVERED PRACTICAL |
| 30 | Explanation of the instructions of the following groups of instruction set | 23 |   |
| 31 | Explanation of the instructions of the following groups of instruction set | 24 |   |
| 32 | Explanation of the instructions of the following groups of instruction set |   |   |
| 9th | 33 | Data transfer group, Arithmetic Group, Logic Group | 25 | Interfacing exercise on 8255  |
| 34 | Stack, I/O and Machine Control Group | 26 | like LED display control |
| 35 | Programming exercises in assembly language (with the help of examples) | 27 |   |
| 36 | Programming exercises in assembly language (with the help of examples) |   |   |
| 10th | 37 | Revision of unit 4 | 28 | Interfacing exercise on  |
| 38 | Doubt session on topics Unit 3,4  | 29 | 8253 programmable interval  |
| 39 | Concept of memory mapping,  | 30 |   |
| 40 | partitioning of total memory space |   | timer |
| 11th | 41 | **Unit 5 (Memories and I/O interfacing)** | Address decoding | 31 | REVISION /UNCOVERED PRACTICAL |
| 42 | concept of peripheral mapped I/O and memory mapped I/O\* Assignment Topic | 32 |   |
| 43 | concept of peripheral mapped I/O and memory mapped I/O | 33 |   |
| 44 | Interfacing of memory mapped I/O devices |   |   |
| 12th | 45 | Interfacing of memory mapped I/O devices | 34 | Interfacing exercise on 8279  |
| 46 | Revision of unit 5 | 35 | programmable KB/display  |
| 47 | Concept of interrupt, Maskable and non-maskable | 36 | interface  |
| 48 | Edge triggered and level triggered interrupts, Software interrupt, Restart interrupts and its use |   |   |
| 13th | 49 | **Unit 6 (Interrupts)** | Various hardware interrupts of 8085 | 37 | Use of 8085 emulator for  |
| 50 | Servicing interrupts, extending interrupt system | 38 | hardware testing |
| 51 | Concept of programmed I/O operations, | 39 |   |
| 52 | sync data transfer, async data transfer (hand shaking) |   |   |
| 14th | 53 | **Unit 7 (Data Transfer Techniques)** | Interrupt driven data transfer, DMA and \* Assignment Topic | 40 | REVISION /UNCOVERED PRACTICAL |
| 54 | Serial output data, Serial input data | 41 |   |
| 55 | Revision of unit 6,7 | 42 |   |
| 56 | 8255 PPI and 8253 PIT |   |   |
| 15th | 57 | 8257 / 8237 DMA controller |   |   |
| 58 | **Unit 8 (Peripheral devices)** | 8279 Programmable KB/Display Interface | 43 | REVISION /UNCOVERED PRACTICAL |
| 59 | 8251 Communication Interface Adapter | 44 |   |
| 60 | Revision of unit 8 | 45 |   |
|  |  |  | Test conducted as per Annual Calendar |  |  |

**EDFT**

 Name of the faculty : Savita Sharma

Discipline : Electronics &Communication Engg.

Semester : IVth

Subject : EDFT

Lesson : Jan-Apr-2018

Work Load (Lecture/Practical)Per week(in hours): 06 Hours

|  |  |  |
| --- | --- | --- |
| Week | Practical |  |
| Practical hours | Topic |  |
| 1st | 1 | Introduction About Subject |  |
| 2 | Study Of Different Electronics Components. |  |
| 2 nd | 3 | Physical Identification Of Electronics Components. |  |
| 4 | Testing OF Passive Components. |  |
| 3 rd | 5 | Testing OF Active Components. |  |
| 6 | Practice of Soldering and DeSoldering. |  |
| 4 th | 7 | Practice of Cabinet Making  |  |
| 8 | Revision |  |
| 5 th | 9 | Study About Different Types Of Printed Circuit Board, board material, their characteristics, drilling, soldering technique . Introduction to data sheets of electronics components  |  |
| 10 |  |
| 6 th | 11 |  |
| 12 |  |
| 7 th | 13 | Demonstration on different types of measuring instruments , connectors and connecting leads  |  |
| 14 |  |
| 8 th | 15 | Practice of CAD of electronic circuits using different software. |  |
| 16 |  |
| 9 th | 17 | Study about block diagram ,detailed diagram , testing and checking point in any electronic circuit. |  |
| 18 | Preparation for making a electronic project by students |  |
| 10 th | 19 | P CB layout designing ,Artwork, Etching process  |  |
| 20 |  |
| 11 th | 21 | PCB fabrication: Drilling, copper tracks checking ,component mounting  |  |
| 22 |  |
| 12 th | 23 | Assembly of prepared PCB on cabinet and their presentation. |  |
| 24 |  |
| 13 th  | 25 | Final stage of project it should be in working condition. If some faults occurs then try to remove it. |  |
| 26 |  |
| 14 th | 27 | Prepare a project report.(hard copy) and Project Submission. |  |
| 28 |  |
| 15 th | 29 | Revision ,Doubts clearance and viva . |  |
| 30 |  |

**Communication System**

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|   |  |  |
|  | Name of faculty | Suresh Jindal |  |  |
|  | Discipline | Electronics & Comm. |  |  |
|  | Semester | 4th |  |  |
|  | Subject | Communication Systems |  |  |
|  | Lesson Plan | 15 week |  |  |
|  | Work load | 3L Theory 3 Practical |  |  |
| Week | Lecture Day | Theory | Practical | Topic |
| Ist | 1 | Classification of transmitters | 1st | To observe the waveforms at differrent stage of a AM transmitter. |
| 2 | AM transmiiers |
| 3 | Reactance FET |
| 2nd | 4 | Armstorng FM transmitters |
| 5 | Super heterodyne AM receiver |
| 6 | Sensitivity, Selectivity |
| 3rd | 7 | Fidelity,S/N Ratio | 2nd | To observe the waveforms at differrent stage of a Radio Receiver. |
| 8 | Image Rejaction Ratio |
| 9 | Revision/Test |
| 4th | 10 | ISI standards |
| 11 | Intermediate frequency (IF) |
| 12 | FM receiver |
| 5th | 13 | Need for limiting and de-emphasis |
| 14 | Communication receviers | 3rd | To align AM broadcast radio recevier. |
| 15 | Broadcast receviers |
| 6th | 16 | Electromagnetic spectrum |
| 17 | Radiation of electromagnetic energy |
| 18 | Polarization of EM Waves |
| 7th | 19 | Revision/Test | 4th | To identify and study the various types of antennas used in different frequency ranges. |
| 20 | Point source, Gain directivity |
| 21 | Aperture,Effective area |
| 8th | 22 | Radiation pattern, beam width  | 5th | To plot the radiation pattern of a directional and omni directional antenna. |
| 23 | Radiation resistance, Loss resistance |
| 24 | Half wave dipole, medium wave (mast) antenna, folded dipole |
| 9th  | 25 | Patch, loop antenna, yagi and ferrite rod antenna |
| 26 | Broad-side and end fire arrays |
| 27 | Rhombic antenna and dish antenna |
| 10th | 28 | Different modes of wave propagation  | 6th | To plot the variation of field strength of a radiated wave, with distance from a transmitting antenna. |
| 29 | Ground wave propagation |
| 30 | Revision/Test |
| 11th | 31 | Space wave communication |
| 32 | Concept of effective earth radius range  |
| 33 | Duct propagation |
| 12th | 34 | sky wave propagation | 7th | Installation of Dish Antenna for best reception. |
| 35 | Virtual height, critical frequency  |
| 36 | Skins distance, maximum usable frequency |
| 13th | 37 | Multiple hop propagation |
| 38 | PCM |
| 39 | DPCM |
| 14th | 40 | DELTA Modulation | 8th | To observe waveforms at input and output of ASK and FSK modulaters. |
| 41 | ASK, FSK |
| 42 | PSK |
| 15th | 43 | QPSK |
| 44 | Spread spectrum techniques |
| 45 | Frequency hopping technique |

**DE-II**

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| --- | --- |
|  | Name of the Faculty : Smt. Anita Kumari |
|  | Discipline : Electronics and Communication Engg.  |
|  | Semester : IVth |
|  | Subject : Digital Electronics-II |
|  | Lesson Plan Duration : Jan-Apr-2018 |
|  | Work Load (Lecture/ Practical) per week (in hours): 03 HOURS (Lecture) |
|  |  |  |  |  |
|  |  |  |  |  |
| **Week** | **Theory** |  | **Practical** |
| **Lecture day** | **Topic (including assignment/ test)** | **Lecture Day** |  | **Topic** |
| **1st** | **1** | Introduction about syllabus and scheme of subject. | 1 | Introduction about Practical. |
| **2** | D/A Converters : Performance characteristics of D/A converters. | 2 |
| **3** | Binary resister network DAC. | 3 |
| **2nd** | **4** | Resistance ladder network methods of D/A converters and applications. | 4 | Design and implement full adder and full subtractor. |
| **5** | A/D Converters : Performance characteristics of A/D converters. | 5 |
| **6** | Single slope, dual slope ADC. | 6 |
| **3rd** | **7** | Successive approximation ADC. | 7 | Verify the operation of D/A converter. |
| **8** | Parallel A/D converters and application. | 8 |
| **9** | Logic family: Classification: TTL, ECL. | 9 |
| **4th** | **10** | MOS, CMOS. Types of integration SSI,MSI, LSI, VLSI. | 10 | Verify the operation of A/D converter. |
| **11** | Characteristics of TTL and CMOS and the comparison. Propagation delay. Speed, noise margin. Logic levels. | 11 |
| **12** | Power dissipation, fan-in, fan-out, Power supply requirements. | 12 |
| **5th** | **13** | Open collector and totem pole output circuits, operation of a standard TTL. | 13 | Revision/Uncovered Practical |
| **14** | CMOS, NAND, NOR gates. | 14 |
| **15** | CMOS to TTL interfacing and TTL to CMOS interfacing. | 15 |
| **6th** | **16** | Introduction to tri-state devices, tri-state buffer and inverter circuits. | 16 | Design J-K Flip-flop counter and verify its truth table. |
| **17** | Memory : Memory organisation, classification of semi conductor memories. | 17 |
| **18** | ROM, PROM, DROM, EPROM, EEPROM. | 18 |
| **7th** | **19** | EPROM Programing and UV index. | 19 | Verify the writing and reading operation of RAM IC. |
| **20** | RAM, expansion of memory. | 20 |
| **21** | CCD memories. | 21 |
| **8th** | **22** | Content addressable memory, programmable logic devices. | 22 | Revision/Uncovered Practical |
| **23** | PROM at PLD, programmable logic array (PLA). | 23 |
| **24** | Programmable array logic (PAL). | 24 |
| **9th** | **25** | Examples of PAL. | 25 | Familiarity with the use of EPROM programmes and UV index. |
| **26** | Field programmable gate array (FPGA). | 26 |
| **27** | Familiarization with common ICs. | 27 |
| **10th** | **28** | Combinational Circuits: Minimization of Boolean expressions using Quine Mcclaaskey method. | 28 | Exercise on programming of EPROM |
| **29** | Examples on QM method. | 29 |
| **30** | Examples on QM method. | 30 |
| **11th** | **31** | Sequential Circuits: Essential components of sequential circuit. Recap of flip-flop and truth tables. | 31 | Verify the logical operation, arithmetic operation of binary numbers using IC74181. |
| **32** | Excited tables of different flip-flops. | 32 |
| **33** | Synchronous sequential circuits. | 33 |
| **12th** | **34** | Asynchronous sequential circuits. | 34 | Revision/Uncovered Practical |
| **35** | Classification of sequential circuits (Mealy and Moore Machine). | 35 |
| **36** | Design of counters using J-K and R-S flip-flops for Mealy machine. | 36 |
| **13th** | **37** | Design of counters using J-K and R-S flip-flops for Moore machine. | 37 | Revision/Uncovered Practical |
| **38** | Arithmetic and Logic Unit: Basic idea about arithmetic logic unit w.r.t. IC 74181 and applications. | 38 |
| **39** | Implementation of binary multiplication, division.  | 39 |
| **14th** | **40** | Subtraction and addition. | 40 | Revision/Uncovered Practical |
| **41** | Examples on ALU operations. | 41 |
| **42** | Introduction to Fuzzy logic: Fuzzy sets and classical sets and their operations. | 42 |
| **15th** | **43** | Fuzzy relations. | 43 | Revision/Uncovered Practical |
| **44** | Properties of membership functions, Fuzzification. |  44 |
| **45** |  Defuzzification,Fuzzy control system  |  45 |
|  | SESSIONAL TEST CONDUCTED AS PER HSBTE TIME TABLE AND SYLLABUS |  |  |

**MOCS**

|  |  |
| --- | --- |
| **Name of faculity member** | Jwala Prasad and VF |
| **Discipline** | **ECE** |
| **Semester** | **6th** |
| **Subject** | **MAINTENANCE OF COMPUTER SYSTEM** |
| **Lession plan duration** | **15 week ( January 2018 to April 2018)** |
| work Load per Week | Theory (4 Hours) Practical (3 Hours per group) |   |   |
|   | **Theory** | **Practical**  |
| **Week** | **Lecturer day** | **Topic ( including assignment/test)** | **Practical day** | **Topic (covered operation maintenance , intallation and testing)** |
| 1st | 1 | Basic Introduction of Subject, Discussion on Lession Plan  | 1 | Identification of Various components on AT and ATX types of motherboard |
| 2 | Introduction to different type of mother boards | 2 |
| 3 | Single board based system |   |
| 4 | Block diagram of motherboard (AT Type) | 3 |
| 2nd | 5 | Block diagram of motherboard (ATX Type) | 4 | Motherboard based |
| 6 | Components of Motherboard (Integrated) | 5 | On latest microprocessor |
| 7 | Components of Motherboard (External) | 6 | And chipset CMOS set up |
| 8 | Installation of Computer system |   |   |
| 3rd | 9 | Faults Related To Motherboard | 7 | Connector and cables |
| 10 | Revision /Doubt Session | 8 |
| 11 | Different types of buses | 9 |
| 12 | PCI/SCSI |   |
| 4th | 13 | Serial and parallel ports,Ports COM 1 | 10 | HDD, partitioning and Formatting |
| 14 | LPTI,USB | 11 |
| 15 | RS 232 C |   |
| 16 | Use of Computer for instrumentation | 12 |
| 5th | 17 | Revision /Doubt Session | 13 | DVD -ROM/ DVD writer |
| 18 | Principle and construction of Hard Disk Drive | 14 |
| 19 |  Hard Disk Controller | 15 |
| 20 | Common faults with hard disk drive |   |
| 6th | 21 | Principle and construction of Floppy Disk Drive | 16 | Fault Finding with Keyboard/Mouse |
| 22 | Floppy Disk Controller | 17 |
| 23 | Common faults with floppy disk drive | 18 |
| 24 | Pen Drives |   |
| 7th | 25 | RAM Module | 19 | Revision/Uncovered practical |
| 26 | Revision /Doubt Session | 20 |
| 27 | Block Diagram of Keyboard Controller | 21 |
| 28 | Keyboard switchs |   |
| 8th | 29 | Keyboard faults | 22 | Monitor(LCD and led) |
| 30 | Mouse | 23 |
| 31 | Common faults with mouse | 24 |
| 32 | Common faults with optical mouse |   |
| 9th | 33 | Introduction to scanner | 25 | Dot Matrix and Ink jet Printer |
| 34 | Introduction to digitizer | 26 |
| 35 | Revision and Doubts session | 27 |
| 36 | Block diagram of Computer monitor |   |
| 10th | 37 | Principle of operation of Computer monitor | 28 | Laser Printer |
| 38 | Difference between TV and computer Monitor | 29 |
| 39 | Video display adaptors (1) | 30 |
| 40 | Video display adaptors (2) |   |
| 11th | 41 | Introduction to solid state displays | 31 | MODEM / ROUTER/ SWITCH |
| 42 | Re | 32 |
| 43 | Printer Mechanism | 33 |
| 44 | Construction and working principles of Dot matrix printer |   |
| 12th | 45 | Construction and working principles of Ink Jet Printer | 34 | Installation of any operating |
| 46 | Construction and working principles of laser Printer | 35 |
| 47 | Faults Related To Printers | 36 |
| 48 | Printer controller, centronics interface |   |
| 13th | 49 | Signals from PC to printer and printer to PC | 37 | Revision/Uncovered practical |
| 50 | Revision and Doubts session | 38 |
| 51 | Introduction to networking devices | 39 |
| 52 | LAN,WAN,WiFi,WLAN |   |
| 14th | 53 |  ROUTER, SWITCH,HUB | 40 | Establish LAN,WAN, using Network Devices |
| 54 | Revision and Doubts session | 41 |
| 55 | Modems: Need and functions of modems | 42 |
| 56 | Laptop: Their need , function  |   |
| 15th | 57 | Applications of Modem and Laptop |   | Study of laptop, IPAD,smart phone |
| 58 | Revision and Doubts session | 43 |
| 59 | Assembly Of Computer Systems | 44 |
| 60 | Common Faults of Computer System | 45 |
| Sessional Test conducted as per annual calender time table and syllabus |

**EDM**

Name of faculty : PARITOSH PARASHAR

Discipline : ECE/Senior Lecturer

Semester :6th

Subject : **EDM**

Lesson plan duration : 15 Weeks(from January,2018 to April,2018)

Work load (lecture) per week (in hours) : 03 hrs

|  |  |
| --- | --- |
| **Week** | **Theory** |
|  | **Lecture day** | **Topic (including assignments/test)** |
| **1st** | **1st** | Concept/meaning and its need |
| **2nd** | Qualities and functions of entrepreneur and barriers in entrepreneurship |
| **3rd** | Sole proprietorship and partnership forms of business organisations |
| **2nd** | **4th** | Scheme of assistance by entrepreneurial support agencies at national and district level |
| **5th** | NSIC, NRDC, DC:MSME, SIDBI, NABARD, COMMERCIAL BANKS, SFC’S DIC, TBI and STEP |
| **6th** | REVISION/DOUBTS SESSION |
| **3rd** | **7th** | Scanning of business environment |
| **8th** | Salient features of national and state industrial opportunities |
| **9th** | Types and conduct of market survey |
| **4th** | **10th** | Assessment of demand and supply in potential areas of growth |
| **11th** | Identifying business opportunities |
| **12th** | Consideration of product selection |
| **5th** | **13th** | REVISION/DOUBTS SESSION |
| **14th** | REVISION/Test |
| **15th** | Visit from market survey |
| **6th** | **16th** | Visit from market survey |
| **17th** | Preliminary project report |
| **18th** | Detailed project report including technical, economic and market feasibility |
| **7th** | **19th** | Common errors in project report preparation  |
| **20th** |  Exercises on preparation of project report |
| **21th** | Project reports collection from internet for different products  |
| **8th** | **22th** | Definition and importance of management |
| **23th** | Functions of management: Importance of planning, organising, staffing, directing and controlling |
| **24th** | Principles of management, concept and structure of an organisation |
| **9th** | **25th** | Line organisation, line and staff organisation, functional organisation |
| **26th** | REVISION/Test |
| **27th** | Definition and need of leadership, qualities and function of a leader |
| **10th** | **28th** | Manager Vs leader, types of leadership |
| **29th** | Definition, characterstic of motivation |
| **30th** | Factors affecting motivation, theories of motivation |
| **11th** | **31th** | Introduction and objective of human resource management, manpower planning, recruitment and selection |
| **32th** | Introduction to performance appraisal method |
| **33th** | Interactive session and test |
| **12th** | **34th** | Introduction and objectives of material and store management |
| **35th** | ABC analysis and EOQ |
| **36th** | Interactive session and test |
| **13th** | **37th** | Introduction, importance and functions of marketing and sales |
| **38th** | Physical distribution, introduction to promotion mix and sales promotion |
| **39th** | Introduction, importance and functions of financial management. Elementary knowledge of income tax, sales tax, excise, custom duty and VAT |
| **14th** | **40th** | Definition, need and types of customer relation management |
| **41th** | Statistical process control, total employees involvement, JIT |
| **42th** | REVISION/Test |
| **15th** | **43th** | Introduction, definition and importance of IPR |
| **44th** | Infringement related to patents, copyrights, trademarks |
| **45th** | REVISION/Test |

SESSIONAL TEST CONDUCTED AS PER HSBTE TIME TABLE/SYLLABUS

**WMC**

Name of faculty: ATUL KUMAR

Discipline: ECE/Lecturer

Semester:6th

Subject : **Wireless and Mobile Communication**

Lesson plan duration : 15 Weeks(from January,2018 to April,2018)

Work load (lecture/practical) per week (in hours) : 03 hrs/ 02 hrs(per Group)

|  |  |  |
| --- | --- | --- |
| week | Theory | Practical |
|  | Lecture day | Topic(including assignment/test) | Practical day | topic |
| 1st | 1st | Basics about Wreless communication and its applications | 1st | Study the features, specification and working of cellular mobile |
| 2nd | Advantages of wireless communication | 2nd | Study the features, specification and working of cellular mobile |
| 3rd | Electromagnetic waves | 3rd | Study the features, specification and working of cellular mobile |
| 4th | Frequency Spectrum used |
| 2nd | 5th | Paging system | 4th | strength measurement of various points from a transmitting antenna/cordless phone |
| 6th | Paging system | 5th | strength measurement of various points from a transmitting antenna/cordless phone |
|  | 7th | Cordless Telephone System | 6th | strength measurement of various points from a transmitting antenna/cordless phone |
| 8th | Cordless Telephone System |
| 3rd | 9th | Cellular Telephone System | 7th | Visit of a Mobile Switching Centre(MSC) in the nearest M.S. facility provider |
| 10th | Cellular Telephone System | 8th | Visit of a Mobile Switching Centre(MSC) in the nearest M.S. facility provider |
| 11th | Comparison of above wireless communication systems | 9th | Visit of a Mobile Switching Centre(MSC) in the nearest M.S. facility provider |
| 12th | Comparison of above wireless communication systems |
| 4th | 13th | Introduction to Cellular telephone system First Generation | 10th | Demonstration of Base Trans Receiver(BTS) with nearby cellular tower 134 |
| 14th | Second Generation | 11th | Demonstration of Base Trans Receiver(BTS) with nearby cellular tower 134 |
| 15th | Third Generation | 12th | Demonstration of Base Trans Receiver(BTS) with nearby cellular tower 134 |
| 16th | Fourth Generation of cellular telephone system |
| 5th | 17th | Cell area | 13th | Observing call processing of GSM trainer Kit |
| 18th | Capacity of cell | 14th | Observing call processing of GSM trainer Kit |
|  | 19th | Frequency Response 133 | 15th | Observing call processing of GSM trainer Kit |
| 20th | Co-channel Interference |
| 6th | 21st | Adjacent channel Interference | 16th | Observing call processing of CDMA trainer Kit |
| 22th | Power Control for reducing Interference | 17th | Observing call processing of CDMA trainer Kit |
| 23rd | Power Control for reducing Interference | 18th | Observing call processing of CDMA trainer Kit |
| 24th | Improving coverage and capacity in cellular system a) Cell Splitting |
| 7th | 25th | b) Sectoring | 19th | Pairing of two devices using Bluetooth |
| 26th | b) Sectoring | 20th | Pairing of two devices using Bluetooth |
| 27th | c) Repeater for Range Extension | 21st | Pairing of two devices using Bluetooth |
| 28th | c) Repeater for Range Extension |
| 8th | 29th | Introduction to Multiple Accesses | 22nd | Data transfer using WI-FI |
| 30th | Introduction to Multiple Accesses | 23rd | Data transfer using WI |
| 31st | Frequency Division Multiple Access (FDMA) | 24th | Data transfer using WI |
| 32nd | Frequency Division Multiple Access (FDMA) |
| 9th | 33rd | Time Division Multiple Access (TDMA) | 25th | Revision/uncovered practical if any |
| 34th | Time Division Multiple Access (TDMA) | 26th | Revision/uncovered practical if any |
| 35th | Code Division Multiple Access (CDMA) | 27th | Revision/uncovered practical if any |
| 36th | Code Division Multiple Access (CDMA) |  |  |
| 10th | 37th | Spread Spectrum Multiple Access (SSMA) | 28th | Revision/uncovered practical if any |
| 38th | Spread Spectrum Multiple Access (SSMA) | 29th | Revision/uncovered practical if any |
| 39th | Frequency Hopping spread Spectrum (FHSS) | 3oth | Revision/uncovered practical if any |
| 40th | Frequency Hopping spread Spectrum (FHSS) |
| 11th | 41st | Comparison of FDMA/TDMA/CDMA | 31st | Revision/uncovered practical if any |
| 42nd | Comparison of FDMA/TDMA/CDMA | 32nd | Revision/uncovered practical if any |
| 43rd | Introduction of Global Systems for Mobile Communication (GSM) and its architecture | 33rd  | Revision/uncovered practical if any |
| 44th | Introduction of Global Systems for Mobile Communication (GSM) and its architecture |
| 12th | 45th | Introduction of CDMA System | 34th | Revision/uncovered practical if any |
| 46th | comparison of CDMA and GSM Systems | 35th | Revision/uncovered practical if any |
| 47th | comparison of CDMA and GSM Systems | 36th | Revision/uncovered practical if any |
| 48th | Introduction of GPRS and GPS System. |
| 13th | 49th | Introduction of GPRS and GPS System. | 37th | Revision/uncovered practical if any |
| 50th | Introduction to Blue tooth | 38th | Revision/uncovered practical if any |
| 51st |  Wi-Fi | 39th | Revision/uncovered practical if any |
|  | 52nd | Wi-Fi |
| 14th | 53rd | Basic block diagram of digital and data communication system | 30th | Revision/uncovered practical if any |
| 54th | Basic block diagram of digital and data communication system | 41st | Revision/uncovered practical if any |
| 55th | Their comparison with data analog communication systems | 42nd | Revision/uncovered practical if any |
| 56th | Their comparison with data analog communication systems |
| 15th | 57th | Revision/Doubts session | 43rd | Revision/uncovered practical if any |
| 58th | Revision/Doubts session | 44th | Revision/uncovered practical if any |
| 59th | Revision/Doubts session | 45th | Revision/uncovered practical if any |

**Medical Electronics**

Name of the Faculty : Pawan Verma

[Discipline :](#bookmark2) Electronics and Communication Engineering

[Semester :](#bookmark3) 4th

Subject : Medical Electronics

Lesson Plan Duration : 15 weeks (from January, 2018 to April, 2018)

Work Load (Lecture / Practical) per week (in hours): Lectures-03, Practical-03

| **Week** | **Theory** | **Practical** |
| --- | --- | --- |
| **Lecture day** | **Topic(including assignment / test)** | **PracticalDay** | **Topic** |
| **1st** | **1st** | Introduction to Anatomy and Physiology | 1st | Operate and Feminization with B.P Apparatus and ECG Machine |
| **2nd** | Elementary ideas of Cell Structure  |
| **3rd** | Heart and Circulatory System |
| **4th** | Central Nervous System |
| **2nd** | **5th** | Muscle Action | 2nd | To measure the Concentration of Blood sugar with Glucometer |
| **6th** | Respiratory System |
| **7th** | Body temperature and Reproduction System |
| **8th** | Overview of Medical Electronics Equipments |
| **3rd** | **9th** | Classification, application and specification of laboratory Equipments |
| **10th** | Classification, application and specification of therapeutic Equipments |
| **11th** | Classification, application and specification of clinical Equipments |
| **12th** | Method of operation of these instruments |
| **4th** | **13th** | Revision for 1st Sessional, Classwork check and Assignment evaluation |  3rd | Measuring of Respiration Rate  |
| **14th** | Introduction to Electrodes |
| **15th** | Bioelectric Signals |
| **16th** | Bio electrodes |
| **5th** | **17th** | Electrode |
| **18th** | Electrode Tissue Interface |
| **19th** | Contact Impedance |
| **20th** | Types of Electrodes |
| **6th** | **21st** | Electrodes used for ECG | 4th | Measuring of Pulse Rate |
| **22nd**  | Electrodes used for EEG |
| **23rd** | Introduction to Transducers |
| **24th** | Typical Signals from Physiological Parameters |
| **7th`** | **25th** | Concept of Pressure Transducer |
| **26th** | Concept of Flow Transducer |
| **27th** | Concept of Temperature Transducer |
| **28th** | Concept of Pulse Sensor  | 5th | Study of Large Medical Equipments in Hospitals |
| **8th** | **29th** | Study of Respiration Sensor | 6th | Installation of Small Medical Equipments in Hospitals  |
| **30th** | Introduction to Biomedical Recorders |
| **31st** | ECG Machine and its diagram description and application |
| **32nd**  | EEG Machine and its diagram description and application |
| **9th** | **33rd** | EMG Machine and its diagram description and application |
| **34th** | Sessional 2nd , revision , Classwork check and assignment evaluation |
| **35th** | Introduction to Patient Monitoring System |
| **36th** | Heart rate Measurement |
| **10th** | **37th** | Pulse rate Measurement | 7th | Operation and use of Electro-physiotherapy  |
| **38th** | Respiration rate Measurement |
| **39th** | Blood Pressure Measurement |
| **40th** | Principle of defibrillator and Pace Mark |
| **11th** | **41st** | Use of Microprocessor in Patent Monitoring  |
| **42nd** | Blood Sugar Measurement |
| **43rd**  | Study of Safety Aspects of Medical Instruments |
| **44th** | Concept of Gross current Shock |
| **12th`** | **45th** | Concept of Micro current Shock |
| **46th** | Study about special design from safety consideration |
| **47th** | Concept of Safety Standards |
| **48th** | Revision of Monitoring System for Various Measurements |
| **13th** | **49th** | Instrumentaion Handling Methods  | 8th | Maintenance Schedule for different equipment and their records in Hospital |
| **50th** | Revision for 3rd Sessional , Classwork check and Assignment evaluation |
| **51st** | Classwork check |
| **52nd** | Assignment Evaluation |
| **14th** | **53rd** | Revision of full syllabus |
| **54th** | Old question papers Solved |
| **55th** | Final question Answers Evaluation from students |
| **56th** | Examination Attemptation Techniques |
| **15th** | **57rd** | Revision of full syllabus |
| **58th** | Old question papers Solved |
| **59th** | Final question Answers Evaluation from students |
| **60th** | Examination Attemptation Techniques |

**Major Project**

|  |  |  |
| --- | --- | --- |
|  |  | **NAME OF THE FACULTY : Sh Paritosh Parashar/Sh Pawan Kumar/Sh Mahavir/Smt SONI MEHTA/Smt savita** |
|  |  | **DISCIPLINE : ELECTRONICS AND COMMUNICATION ENGINEERING** |
|  |  | **SEMESTER : SIXTH** |
|  |  | **SUBJECT : MAJOR PROJECT WORK** |
|  |  | **LESSON PLAN DURATION : 15 WEEKS (FROM JANUARY, 2018 TO APRIL, 2018)** |
|  |  | **WORK LOAD DURATION PRACTICAL PER WEEK (IN HOURS) PRACTICAL -09(per group)** |
|  |  |  |  |
|  | **WEEK**  | **Practical Day** | **TOPIC** |
|  | IST | 1 | Develop abilities likes interpersonal skills, communication skills, positive attitudes and values etc. |
|  | 2 | Develop first hand experience and confidence to solve practical problems related to the work |
|  | 3 | Revision of Identification /Testing of components/instruments |
|  | 2nd | 4 | Discussion on project assignment  |
|  | 5 | Discussion on project assignment  |
|  | 6 | Problem/topics assigned to the students |
|  | 3rd | 7 | Selection/Finalisation of major project  |
|  | 8 | Selection/Finalisation of major project  |
|  | 9 | Synopsis presentation  |
|  | 4th | 10 | Project planning and execution of consideration ,over all knowledge of particular project working  |
|  | 11 | Project planning and execution of consideration ,over all knowledge of particular project working  |
|  | 12 | Project planning and execution of consideration ,over all knowledge of particular project working  |
|  | 5th | 13 | Activities including Schematic Design,prepration of list of components and devices, and working concept. |
|  | 14 | Activities including Schematic Design,prepration of list of components and devices, and working concept. |
|  | 15 | Activities including Schematic Design,prepration of list of components and devices, and working concept. |
|  | 6th | 16 | Activities including Schematic Design,prepration of list of components and devices, and working concept. |
|  | 17 | Submission of complete list of componets by the student for procurement |
|  | 18 | Schematic Design Using PCB Software  |
|  | 7th | 19 | Schematic Design Using PCB Software  |
|  | 20 | Schematic Design Using PCB Software  |
|  | 21 | Schematic Design Using PCB Software  |
|  | 8th | 22 | Perform PCB fabrication activity (circuit tracing, tracking, etching and drilling) |
|  | 23 | Perform PCB fabrication activity (circuit tracing, tracking, etching and drilling) |
|  | 24 | Perform PCB fabrication activity (circuit tracing, tracking, etching and drilling) |
|  | 9th | 25 | Perform PCB fabrication activity (circuit tracing, tracking, etching and drilling) |
|  | 26 | Perform PCB fabrication activity (circuit tracing, tracking, etching and drilling) |
|  | 27 | Perform PCB fabrication activity (circuit tracing, tracking, etching and drilling) |
|  | 10th | 28 | Perform Electronics component/devices mounting , soldering and testing activity |
|  | 29 | Perform Electronics component/devices mounting , soldering and testing activity |
|  | 30 | Perform Electronics component/devices mounting , soldering and testing activity |
|  | 11th | 31 | Perform Electronics component/devices mounting , soldering and testing activity |
|  | 32 | Perform Electronics component/devices mounting , soldering and testing activity |
|  | 33 | Perform Electronics component/devices mounting , soldering and testing activity |
|  | 12th | 34 | Point to Point testing and fault removing activities |
|  | 35 | Point to Point testing and fault removing activities |
|  | 36 | Point to Point testing and fault removing activities |
|  | 13th | 37 | Point to Point testing and fault removing activities |
|  | 38 | Point to Point testing and fault removing activities |
|  | 39 | Point to Point testing and fault removing activities |
|  | 14th | 40 | Final circuit assemble in a cabinet for presentation of minor project |
|  | 41 | Prepration for Final Output Testing andto bring it in presentable form |
|  | 42 | Prepration for Final Output Testing andto bring it in presentable form |
|  | 15th | 43 | Prepration for Final Output Testing andto bring it in presentable form |
|  | 44 | Finalization of project report |
|  | 45 | Seminar cum Presentation of final prepared Major Project |