CM-108

FundamentalsandInput/Outputstatements

1. ExerciseonstructureofCProgram
2. ExerciseonKeywordsandidentifiers
3. Exerciseonconstantsandvariables
4. ExecutionofsimpleCprogram
5. Exerciseonoperatorsandexpressions
6. Exerciseonspecialoperators
7. Exerciseoninputandoutputofcharacters
8. Exerciseonformattedinputandoutput
9. Exerciseonescapesequencecharacters

Controlstatements
(Note:Everystatementmustberepeatedwithatleast5differentapplications)

10. Exerciseonsimpleifstatement
11. Exerciseonif..elsestatement
12. Exerciseonif..else..ifladderstatement
13. Exerciseonswitchstatement
14. Exerciseonconditionaloperatorcomparingwithif-elsestatement
15. Exerciseonwhilestatement
16. Exerciseonforstatement
17. Exerciseondo.Whilestatement

Arrays,structuresandunions

18. Exerciseononedimensionalarrays
19. Exerciseontwodimensionalarrays
20. Exerciseonstrings
21. Exerciseonstructure
22. Exerciseonunion
23. Exerciseonarrayofstructures

Userdefinedfunctions,storageclasses,pointers,files,andmacros

24. Exerciseonuser-definedfunction
25. Exerciseonstorageclasses
26. Exerciseonparameterpassingtechniques
27. Exerciseonrecursion
28. Exerciseonpointers
29. Exerciseontextfiles
30. Exerciseonmacros

COMMON 109A

1.0 Practice with Vernier calipers to determine the volumes and areas of a cylinder and sphereandtheir comparisonetc.
2.0 Practice withScrew gauge to determine thickness of a glass plate, cross sectional areaofawireandvolumesof sphereandalsotheir comparisonetc
3.0 VerifytheparallelogramlawandTrianglelaw
4.0 Determine thevalueofaccelerationdueto gravityusingSimplePendulum
5.0 Determine the velocity of sound in air at room temperature and its value at zero degreecentigrade
6.0 Calculate the Focal length and focal power of convex lenses using distant object method , U-Vmethod,U-V graphand1/U–1 /Vgraphmethodsandtheircomparison.
7.0 Determinetherefractiveindexofasolidusingtravellingmicroscope
8.0 VerifytheBoyle'slawemployingaQuilltube
9.0 DeterminethespecificresistanceofmaterialofawirelusingMeterBridge
10.0 Drawingmagnetic linesofforce underN-SandN-Nmethodsandlocate nullpoints
11.0 Determinethesurfacetensionofaliquidusingtravelling Microscope(**Demo)**
12.0 Determinetheviscosityofaliquidusingcapillarymethod(**Demo)**

COMMON 109B

1.	a) Recognition of chemical substances and solutions used inthelaboratory by senses. b) FamiliarizationofmethodsforVolumetricanalysis
2.	Preparation of Std Na_2CO_3 and making solutions of different
3.	EstimationofHClsolutionusingStd.Na_2CO_3solution
4.	EstimationofNaOHusingStd.HCl solution
5.	EstimationofH_2SO_4usingStd.NaOHsolution
6.	EstimationofMohr'sSaltusingStd.$KMnO_4$
7.	Determinationof acidity ofwatersample

8.	Determinationofalkalinityofwatersample
9.	DeterminationoftotalhardnessofwaterusingStd.EDTA
10.	EstimationofChlorides presentinwatersample
11.	EstimationofDissolvedOxygen(D.O)inwatersample
12.	Determinationof pHusingpHmeter
13.	Determinationofconductivityofwater andadjustingionic
14.	Determinationofturbidityof water
15.	Estimationoftotal solidspresentinwatersample

CM-110

1.	ComputerhardwareBasics
2.	WindowsOperatingSystem
3.	MSWord
4.	MSExcel
5.	MSPowerPoint
6	AdobePhotoshop

CM-306

1	Identification of Digital ICs and noting down pin details from data sheets.Identify the given digital ICs and draw the pin diagrams. (Use TTL and CMOSICsofAND, OR,NOT, NAND,NORandXOR gateswith two andthreeinputs).
2	VerifythetruthtablesofAND, OR,NOT,NAND,NOR, XOR Gates.
3	Realize AND, OR,NOT,XORgates using2input NANDandNOR Gates.
4	VerifyDEMorgan'sLawsusinggivendigitaltrainer kitandgivenTTLgates.
5	ImplementHalfaddercircuitusingTTL/CMOSgates,andverifythetruthtables.
6	ImplementFulladdercircuitsusingTTL/CMOSgates,andverifythetruthtables.
7	Verifyparalleladderusingsimulatorsoftware.
8	Verifythe functionof4-bitmagnitude comparator7485IC.
9	Verifythe truthtablesRS,JK, T andD Flip-flops.
10	ConstructaripplecounterusingJK-FFsandobtainitstimingwaveforms.
11	Verifythefunctionof7490asdecadeandmoduluscounter,obtaintimingwaveforms.
12	verifythefunctionofup/downcounterusing74190/74193,changethemodulusofthe counterandverify.
13	To construct andverifythefunctionofmod-16Synchronouscounters.
14	Verifythefunctionofshiftregister(ICslike 7495,74194etc.).
15	VerifythetruthtableofMultiplexerIC74153.
16	Verifythe truthtableofBCD to7segmentDecoder7448IC.
17	Verifythe Truthtableof74148Encoder&74138DecoderIC.

CM-307

1	BUBBLESORTINGusingFunctions.
2	SELECTIONSORTINGusingFunctions.
3	INSERTIONSORTINGusingFunctions.
4	MERGESORTINGontwo sortedlistusingFunctions.
5	QUICKSORTINGusingFunctions.
6	LINEARSEARCHINGusingFunctions.
7	BINARYSEARCHINGwith-outRECURSION.
8	BINARYSEARCHINGwithRECURSION.
9	SINGLYLINKEDLISTwithinsert,delete, display,sort,findandreplaceoperations.
10	SINGLYCIRCULARLINKEDLISTwithinsert,delete,display,sort,findandreplace operations.
11	DOUBLYLINKEDLISTwithinsert,delete,display,sort,findandreplace operations.
12	DOUBLYCIRCULARLINKEDLISTwithinsert,delete,display,sort,findandreplace operations
13	STACKwithinsertion,deletionanddisplayoperationsusingarrays.
14	STACKwithinsertion,deletionanddisplayoperationsusinglinkedlists.
15	ConversionofarithmeticexpressiontopostfixexpressionusingSTACKS.
16	EvaluationofpostfixexpressionusingSTACKS.
17	QUEUESwithinsertion,deletionanddisplayoperationsusingarrays.
18	QUEUESwithinsertion,deletionanddisplayoperationsusinglinkedlists.
19	CIRCULARQUEUEwithinsertion,deletionanddisplayoperationsusingarrays.
20	CIRCULARQUEUEwithinsertion,deletionanddisplayoperationsusingLinked List.
21	BINARYSEARCHTREEwithinsertion,deletion,varioustraversalsandsearch operations.

CM-308

1	Know installation of Oracle
2	Exerciseoncreatingtables.
3	Exerciseoninsertingrecords
4	Exerciseonupdatingrecords
5	Exerciseonmodifyingthe structureof thetable
6	ExerciseonSELECTcommand
7	Exercise on querying the table using clauses like WHERE, ORDER, IN,AND,OR,NOT,ISNULL
8	ExerciseonGROUPBY,HAVING
9	Exercise on Number functions, character functions, conversion functionsanddate functions, groupfunctions
10	ExerciseonSEToperators
11	Exerciseonsubqueries
12	ExerciseonJoins
13	Exerciseonvariousdateandnumberformatmodels
14	Exerciseoncreatingtableswithintegrityconstraints
14	WriteprogramsusingPL/SQLcontrolstatements
15	ExerciseonPL/SQL built-in exceptionhandling
16	ExerciseonPL/SQL inuserdefinedexceptionhandling
17	ExerciseonProcedures
18	Exerciseon Functions
19	ExerciseonRecursion
20	ExerciseonCursors
21	ExerciseonTriggers
22	ExerciseonInstallationofMongo DB
23	ExerciseonCreationandDroppingofDatabase
24	ExerciseonCreationandDroppingof Collections
25	Exercises on commands of Mongo DB

CM-309

1	Tocreate database
2	Tocreate table
3	To insert/delete/update recordsintotable
4	To implementqueries
5	Create relationships betweentables
6	Exercise on Installation,invoking and familiarizingAdobeSCRIBUS/PageMaker..
7	Exercise on SCRIBUS/ PageMaker.Tools.
8	Exercise on pallets andformattingpages
9	Exerciseontextformatting
10	Exercise on Advanced textformatting
11	ExerciseonGraphicstools
12	Exercise on objecttransformations.
13	Exerciseoncoloroptions.
14	Exercise on graphics with layersusing GIMP/ Photoshop. plug-ins
15	Exercise on import and exportoptions.
16	Exerciseoncreatingvisitingcard
17	Exercise on creating book coverpage
18	Exercise on creating hotel menucard
19	Exercise on creating invitationcard
20	Exerciseoncreatingbrochure
21	Exercise on Anu script forpreparing Visiting card,Brochure
22	Exercise on Anu script forpreparingteluguinvitationcard.
23	Exercise on Installation,invoking and familiarizingAdobe GIMP/ Photoshop.
24	ExerciseonImages
25	Exercise on RESIZING &CROPPINGIMAGES
26	Exercise on WORKING WITHBASICSELECTIONS
27	ExerciseonLAYERS
28	Exercise on PAINTING IN GIMP/ PHOTOSHOP.
29	Exercise on PHOTORETOUCHING
30	ExerciseonCOLORCORRECTION
31	ExerciseonQUICKMASKMODE
32	ExerciseonPENTOOL
33	Exercise on CREATING SPECIALEFFECTS
34	ExerciseonPhoto ShopCredits
35	ExerciseonLogoCreation

CM-406

1. Exercises on basic HTML tags.
2. Design a HTML page using suitable table tags and attributes.
3. Design a HTML page with a form containing various controls.
4. Design a HTML page on iframes.
5. Exercises on CSS.
6. Exercises on designing a XML document.
7. Exercises on JavaScript functions.
8. Exercises on JavaScript arrays.
9. Write a JavaScript program using Ajax, to send the request to server and receive theresponse from server with example program.
10. Write a program on mouse events using JQuery.
11. Design a webpage to apply the Effects of JQuery to HTML elements.
12. Exercises on changing background color using css() function in JQuery.
13. Write a JavaScript program using DatePickerJQuery UI plugin-(download from https://jqueryui.com/datepicker/)
14. Write a Java Script program using Responsive Slides Jquery plugin-(download fromresponsiveslides.com)
15. Exercises on Angular JS Directives.
16. Install the following on local machine:
    - Apache Web server
    - MySQL
    - PHP and configure it to work with Apache Web server and MySQL.
17. Exercises on PHP arrays.
18. Design a form and access the elements of form using PHP.
19. Write PHP program to perform various operations on a database table using functions.
20. Write a PHP program to set a cookie.

CM-407

1. Exercises on basic HTML tags.
2. Design a HTML page using suitable table tags and attributes.
3. Design a HTML page with a form containing various controls.
4. Design a HTML page on iframes.
5. Exercises on CSS.
6. Exercises on designing a XML document.
7. Exercises on JavaScript functions.
8. Exercises on JavaScript arrays.
9. Write a JavaScript program using Ajax, to send the request to server and receive theresponse from server with example program.
10. Write a program on mouse events using JQuery.
11. Design a webpage to apply the Effects of JQuery to HTML elements.
12. Exercises on changing background color using css() function in JQuery.
13. Write a JavaScript program using DatePickerJQuery UI plugin-(download from https://jqueryui.com/datepicker/)
14. Write a Java Script program using Responsive Slides Jquery plugin-(download from responsiveslides.com)
15. Exercises on Angular JS Directives.
16. Install the following on local machine:

- Apache Web server
- MySQL
- PHP and configure it to work with Apache Web server and MySQL.

17. Exercises on PHP arrays.
18. Design a form and access the elements of form using PHP.
19. Write PHP program to perform various operations on a database table using functions.
20. Write a PHP program to set a cookie.

COMMON 408

1	Listening Skills
2	Introducing Oneself
3	Short Presentation (JAM)
4	Group Discussion
5	Preparing Resume with Cover Letter
6	Interview Skills
7	Presentation Skills
8	Work place Etiquette

CM-409

1. Identify various mother board Components
2. Perform various operations and modifications required for CMOS setup.
3. Print the summary of your system Hardware and verify for correctness
4. Upgrading memory and verify the effect after upgrading.
5. Hard drive, optical drive installation.
6. How to recover lost data on hard drive.
7. Trouble shooting keyboard and monitor
8. Trouble shoot Printer Problems
9. Installation of Network card.
10. Dis-assembling and assembling of working desktop.
11. Preparing the Ethernet cable for cross and direct connections using crimping tool andtest using LAN tester.
12. Installation of a switch and connecting systems to a network switch.
13. Installation of a modem (internal, external or USB) and connecting to internet.
14. Using FTP for uploading and downloading files.
15. Installation and configuring the proxy server for internet access.
16. Setting of particular IP address to an existing terminal system
17. Installation of network operating system
18. Creating and managing user accounts through network server.
19. Configuration of DHCP and DNS
20. Exercise on File/Folder accessing rights for sharing
21. Exercise on remote desktop.
22. Exercise on setting up of VPN on network

CM-506

1. Exercise programs using Java built-in data types.
2. Exercise programs on conditional statements and loop statements.
3. Exercise programs on I/O Streams

Reading data through Keyboard
Reading and writing Primitive data types using DataInputStream andDataOutputStream.
Perform Reading and Writing operations on files using File Streams.

4. Exercise programs on Strings.
5. Exercise program to create class and objects and adding methods.
6. Exercise programs using constructors and construction over loading.
7. Exercise programs on command line arguments.
   Input as command line arguments and perform operation on that data.
   Input as command line arguments and update manipulated data in Files.
8. Exercise programs using concept of overloading methods.
9. Exercise programs on inheritance.
10. Write a program using the concept of method overriding.
11. Exercise on packages.
    Creation of packages
    Design module to importing packages from other packages.
12. Exercise programs on interfaces.
13. Exercise programs on Collections.

i) Write a java program to search a student mark percentage based on pin numberusing Array list.

ii) Write a java program to create linked list to perform delete, insert, and update datain linked list with any application.
iii) Write a java program to search an element from hash table.
iv) Write a java program to sorting employee details using hash map.

14. Exercise on exception handling.

i) Programs on try, catch and finally.
ii) Programs on multiple catch statements
iii) Programs on nested try statements.

15. Exercise on multithreading

i) Programs on creation of single and multiple threads.
ii) Programs on adding priorities to multiple threads.
iii) Programs on Inter thread communication.

16. Exercise on applets

i) Programs on Graphics and colors.
ii) Simple animations using threads and graphics.

17. Exercise on AWT controls

i) Program to handle mouse events.
ii) Program to handle keyboard events.
iii) Programs to illustrate Text Fields and Button control.
iv) Programs to illustrate Check Box and List control.
v) Write an application program to illustrate multiple controls.

CM-507

1.	Write and execute simple python Program.
2.	Write /execute simple 'Python' program: Develop minimum 2 programs usingdifferent data types (numbers, string, tuple, list, dictionary).
3.	Write /execute simple 'Python' program: Develop minimum 2 programs usingArithmetic Operators, exhibiting data type conversion.
4.	(i) Write simple programs to convert U.S. dollars to Indian rupees. (ii) Write simple programs to convert bits to Megabytes, Gigabytes and Terabytes.
5.	Write simple programs to calculate the area and perimeter of the square, and thevolume & perimeter of the cone.
6.	Write program to: (i) Determine whether a given number is odd or even. (ii) Findthe greatest of the three numbers using conditional operators.
7.	Write a program to: i) Find factorial of a given number. ii) Generate multiplicationtable up to 10 for numbers 1 to 5.
8.	Write a program to: i) Find factorial of a given number. ii) Generate multiplicationtable up to 10 for numbers 1 to 5 using functions.
9.	Write a program to: i) Find factorial of a given number using recursion. ii) GenerateFibonacci sequence up to 100 using recursion.
10.	Write a program to: To print Factors of a given Number.
11.	Write a program to: Create a list, add element to list, delete element from the lists.
12.	Write a program to: Sort the list, reverse the list and counting elements in a list.
13.	Write a program to: Create dictionary, add element to dictionary, delete elementfrom the dictionary.
14.	Write a program to: To calculate average, mean, median, and standard deviation ofnumbers in a list.
15.	File Input/output: Write a program to: i) To create simple file and write "Hello World" in it. ii) To open a file in write mode and append Hello world at the end of a file.
16.	Write a program to :i) To open a file in read mode and write its contents to another file but replace every occurrence of character 'h' ii) To open a file in read mode and print the number of occurrences of a character 'a'.
17.	Write a Program to: Add two complex number using classes and objects.
18.	Write a Program to: Subtract two complex number using classes and objects
19.	Write a Program to: Create a package and accessing a package.

COMMON 508

1	Attitude
2	Adaptability
3	Goal Setting
4	Motivation
5	Time Management
6	Critical thinking
7	Creativity
8	Problem Solving
9	Team Work
10	Leadership
11	Stress Management

EC-108

Soldering practice and Preparation of PCB

1. Identifying different components R, L, C, Diodes, Transistors, JFETs,MOSFETs,Relays,Switches etc.
2. Technique of using soldering iron, Soldering different components and ICs
3. Soldering components on to general PCB as per the given circuit diagram
4. Technique of de-soldering using de-soldering pump and wick.
5. Draw PCB for simple circuits and etch them on to a copper clad sheet
6. Preparing PCB for soldering and soldering components on the PCB

Study and use of Electronic equipment

1. Study of RPS units, CROs, Function Generators, Digital Multi meters, Analogmultimetersand other meters using their manuals and write down the steps in using each equipment.
2. i)Measure Resistance using multimeterand compare with the calculated value using thecolour code.

ii) Measure L and C using digital LCR meter and compare with the calculated value usingthecode.

Testing and obtaining characteristics of electronic devices

1. Identify different terminals of diode, zener diode, BJT, FET using multimeter
2. i)Obtain VI characteristics of diode ii)Obtain VI characteristics of zener diode
3. Obtain i/p and o/p characteristics of a transistor in CB and CE configurations
4. Control a load using relay
   i) Turn On and Off DC load (LED/Buzzer/DC motor)
   ii) Turn On and Off AC load (Bulb/Tube light/Fan)
5. Arrange PA system with multi speakers and microphones (with cord and cordless)
6. Obtain drain & transfer characteristics of JFET
7. Measure the primary and secondary voltages of step down transformer
8. Wind manually single air core inductor using available wire and measure inductance usingLCR meter

Electrical wiring

1. Identifying and working with the following tools used in Electrical Wiring
   i) Wire stripper
   ii) Insulation remover
   iii) Pocket knife
   iv) Electrical Tester
   v) Phillips Head Screwdrivers
   vi) Mallet
   vii) Rawl plug jumper
   viii) Standard wire Gauge
2. Identifying and Working with Pliers
   a. Identify and Know the various functions of cutting pliers
   i. Nose pliers
   ii. Pipe pliers

iii. Flush cutter
iv. Top cutting pliers
v. Electronics pliers
vi. Insulated cutting pliers

b. perform the following operations

i. Holding
ii. Wire cutting
iii. Component bending
iv. Twisting the wire

3. Identification of different wires and cables

i) Hookup wires
ii) PVC wire
iii) Teflon wires
iv) single strand
v) multi strand

Wires used for electrical wiring

i. Service wire
ii. TRS wires /PVC Wires (Al and Cu)
iii. single strand
iv. Multi strand
v. twisted Flexible pair wires
vi. Enameled copper wire
vii. Power cord

Cables used for communication

i. UTP cable,
ii. Co axial cables
iii. Flat ribbon cable for antennas,
iv. Telephone cable
v. Ethernet cable
vi. Ribbon cables
vii. Optical fiber

4. Practice of wire joints

Perform the following wire joints operations

i) Twisting
ii) Splicing
iii) Insulating
iv) Western union joint
v) Married joint
vi) Britania (straight Joint)
vii) Tee joint
viii) Joining running cables
ix) Pigtail or rat tail joint
x) Removing the insulation
xi) Taping the joint
xii) Make the joint professionally and tape

5. Identifying the Electrical accessories

i) SPST Switch
ii) SPDT switch
iii) Two pin and 3pin Sockets and plugs
iv) Power Socket
v) Power plugs
vi) Lamp holders
vii) Ceiling rose
viii) Mains Switch
ix) MCB
x) Kitkat Fuse
xi) Fuse wire ratings

6. Know the mains supply Phase ,Neutral and Ground

i) identification Phase and Neutral terminals in mains supply,
ii) Know the purpose of earthing
iii) 2pin and 3pin Plug connections

7. Make simple switch connections using low voltage transformer
i) Connecting a 6V lamp to a switch (toggle)
ii) 2 way switch connections
iii) Series and parallel connection of lamps
iv) know the use of two way switch for stair case wiring

8. Tube light connections (To be done in the presence of Instructor)
Make the tube light connections as per the circuit and Test

EC-307

S.No	Major Topics
1.	Semiconductor Devices
2.	Power Supplies
3.	Amplifiers
4.	Oscillators
5.	Linear Integrated Circuits

Rectifiers and Power supplies

1. Obtain output waveforms and measure DC o/p voltage, ripple voltage of a Half- wave rectifierwith/ without filter at different loads and compare with that of theoretical values
2. Obtain output waveforms and measure DC o/p voltage, ripple voltage of a centre-tapped full- wave rectifier with/ without filter at different loads and compare with that of theoretical values
3. Obtain output waveforms and measure DC o/p voltage, ripple voltage of a Bridge rectifier with/ without filter at different loads and compare with that of theoretical values
4. Obtain the voltage regulation characteristics ofZener regulator
5. Obtain the voltage regulation characteristics of IC regulator(78XX,79XX,LM317)
6. Construct regulated power supply using 78XX/79XX

Amplifiers

1. Plot the frequency response characteristics of a transformer coupled CE Amplifier
2. Plot the frequency response characteristics of a RC coupled Amplifier.

Oscillators

1. Implement Colpitt's oscillator and verify the effect of varying the tank circuit componentvalues and observe output waveforms on CRO.
2. Implement Hartley oscillator and verify the effect of varying the tank circuit componentvalues and observe output waveforms on CRO.
3. Implement Crystal oscillator and observe output waveforms on CRO
4. Implement RC Phase shift oscillator and verify the effect of varying the RC component valuesand observe output waveforms on CRO

Circuit simulation using PSPICE or equivalent software

1. Simulate half wave and full wave rectifier circuits
2. Simulate Zener regulator circuit and assess the performance for various loads
3. Simulate of CE amplifier and observe the effect of disconnecting bypass capacitor
4. Simulate RC phase shift oscillator circuit and observe the effect of change in componentvalues
5. Simulate Hartley oscillator circuit and observe the effect of change in component values

EC-308

Logic Gates

1. Verify the truth tables of AND, OR,NOT, NAND, NOR, XOR Gates
2. Realize AND, OR, NOT, XOR gates using 2 input NAND and NOR Gates

Combinational logic circuits

1. Implement Half adder and full adder circuits using TTL/CMOS gates, and verify the truthtables
2. Verify the function of 4-bit magnitude comparator 7485 IC
3. Verify the truth table of Multiplexer IC 74153
4. Verify the truth table of BCD to 7 segment Decoder 7448 IC
5. Verify the Truth table of 74148 Encoder & 74138 Decoder IC

Sequential Logic Circuits

1. Verify the truth tables RS, JK, T and D Flip-flops
2. Construct a ripple counter using JK-FFs and obtain its timing waveforms
3. Verify the function of 7490 as decade and modulus counter, obtain timing waveforms.
4. verify the function of up/down counter using 74190/ 74193, change the modulus of thecounter and verify
5. Verify the function of shift register (ICs like 7495, 74194 etc.)

Practice Using PSPICE Software

1. Simulate AND, OR, NOT, EX-OR Gates Using Universal Gates (ICs 7400 and 7402).
2. Simulate Half Adder And Full Adder Circuits Using ICs 7408,7486, and 7432
3. Simulate 8 × 1 Multiplexer Using IC 74153

EC-309

ANALOG COMMUNICATION

1. Conduct an experiment to observe AM waveform and determine Modulation index using CRO.
2. Conduct an experiment to observe FM waveform.
3. Verify and observe Pulse amplitude modulation and demodulation waveforms on CRO
4. Verify and observe Pulse Width modulation and demodulation waveforms on CRO
5. Observe pulse position modulation and demodulation waveforms on CRO

DIGITAL COMMUNICATION

6. Set up a Pulse code modulator/ Demodulator circuit and observe the waveforms.
7. Set up an ASK modulator and demodulator and observe the waveforms.
8. Set up an FSK modulator and demodulator and observe the waveforms
9. Set up a PSK modulator and demodulator and observe the waveforms
10. Perform an experiment on Time Division Multiplexing/ De-multiplexing circuit and observe thewaveforms.
11. Perform an experiment on Frequency Division Multiplexing/ De-multiplexing circuit andobserve the waveforms.

Simulation using PSPICE or equivalent software

12. Connect a circuit to generate AM waveform and determine Modulation index
13. Connect a circuit to generate Pulse amplitude modulation and observe waveforms
14. Connect a circuit to generate Pulse Width modulation and observe waveforms
15. Set up an ASK modulator and demodulator and observe the waveforms.
16. Set up an FSK modulator and demodulator and observe the waveforms

EC-310

Measurements

1. Measure L,C and R values using LCR meter
2. Test some digital ICs using IC tester
3. Measure frequency of a given signal using digital frequency meter

Resonance and Network theorems

4. Perform an experiment to verify series resonance.
5. Perform an experiment to verify parallel resonance.
6. Perform an experiment to verify Thevenin's theorem.
7. Perform an experiment to verify super position theorem.
8. Perform an experiment to verify maximum power transfer theorem.

Cathode ray Oscilloscope

9. Measure AC and DC voltages using CRO
10. Measure pulse parameters using CRO
11. Measure frequency of an unknown signal using Lissajous figures on CRO

Audio & Video Systems

12. Arrange PA system
13. Use different features of Smart TV
14. Record and reproduce voice digitally
15. Arrange LCD Projector
16. Setup and test 5.1 channel or 7.1 channel audio system

EC-406

I. Wave shaping circuits

1. Construct different Positive and negative clipper circuits and obtain output waveforms withsinusoidal input
2 Realize a Clamper circuit and observe the input and output waveforms on CRO

II. Operational Amplifier Circuits

3 Implement and test 741 Op-Amp as a) inverting amplifier, b) Non Inverting amplifier and c) Voltage follower (Buffer) – observe wave forms
4. Implement and test 741 Operation amplifier as a) Summer b) Differentiator c) Integrator d) Scale changer
5. Implement Monostable multi vibrator using Op-Amp and observe output waveform on CRO

6 Implement Astablemultivibrator using Op-Amp and observe output waveform on CRO
7. Implement Schmitt trigger using Op-Amp and observe output waveform on CRO
8. Implement RC-phase shift oscillator Circuit using Op-Amp and observe output waveform onCRO
9. Implement Wien bridge oscillator Circuit using Op-Amp and observe output waveform onCRO

III. 555 Timer

10. Implement Monostable multi vibrator using 555 IC and observe output waveform on CRO
11. Implement Astable multi vibrator using 555 IC and observe output waveform on CRO

IV. PSpiceor equivalent software simulation

12 Simulate a) Summer b) Differentiator c) Integrator and c) Scale changer using Op-Amp
13 Simulate Monostablemultivibrator using Op-Amp
14 Simulate Astablemultivibrator using Op-Amp
15 Simulate Monostableand Astablemultivibrator using 555 IC

EC-407

1	Familiarization of Assembler (TASM /MASM/EMU8086)
2	8086 programs to practice data transfer instructions
3	8086 programs to practice Arithmetic instructions
4	8086 programs to practice logical/bitmanipulation instructions
5	8086 programs to practice branching instructions

EC-409

1	C compiler Basics, programs on Decision & Loop Control Statements
2	Programs on functions, Arrays, Strings in C
3	Programs on Pointers, Structures and Unions in C
4	MAT Lab Practice

EC-410

Microwave Communications

1. Study of microwave components such as rectangular wave guide, fixed attenuators (x-5000series), tunable probe, wave guide detectable mount (tunable),
2. Study of Klystron mount, circulators, slide screw tuners, multitone directional couplers,
3. Study of E-plane Tee, H-plane Tee, Magic Tee, Movable short, matched termination,pyramidal wave guide horn antenna,
4. Conduct an experiment to plot the Characteristics of Reflex Klystron
5. Conduct an experiment to plot the Characteristics of Gunn diode
6. Conduct an experiment to measure VSWR
7. Conduct an experiment to determine the unknown impedance of a rectangular wave guide
8. Conduct an experiment to determine the frequency in a rectangular wave guide

Antennas

1. Plot the radiation pattern of simple dipole antenna
2. Plot the radiation pattern of simple half wave dipole antenna
3. Plot the radiation pattern of simple folded dipole antenna Study the radiation pattern of parabolic antenna

EC-506

1	Familiarization with Keil software andMicrocontroller Kit
2	Basic programming using Microcontrollerkit/Keil
3	Interfacing IO devices with 8051
4	Application development using Proteus
5	Dumping/Burning into Microcontrollerchip

EC-507

I. Power electronic devices

1. Perform an experiment to obtain VI characteristics of SCR
2. Perform an experiment to obtain VI characteristics of TRIAC
3. Perform an experiment to obtain VI characteristics of DIAC
4. Perform an experiment to obtain VI characteristics of UJT
5. construct UJT relaxation oscillator circuit and observe the output waveforms on CRO
6. Construct a circuit to trigger SCR by UJT and control output Power

II. Optoelectronic devices

1. Perform an experiment to plot the characteristics of Photodiode
2. Perform an experiment to plot the characteristics of Photo transistor
3. Perform an experiment to plot the VI characteristics of different colour LEDs & determinetheir cut-in voltages
4. Perform an experiment to plot the characteristics of LDR
5. Perform an experiment to plot the characteristics of Opto-coupler

III. Transducers

1. Obtain the performance characteristics of LVDT by conducting an experiment
2. Obtain the performance characteristics of thermocouple by conducting an experiment

IV. Programmable Logic Controllers

1. Familiarize with PLC tutor or PSIM
2. Implement basic gates and universal gates using PLC
3. Implement XOR, XNOR gates using PLC

EC-509

Mobile Communications

1. Study of Global System for Mobile Communication (GSM) trainer

Fiber Optics

1. Set up fiber optic analogue link and demonstrate voice communication
2. Set up a fiber optic digital link and demonstrate digital data communication

Computer Hardware

1. A) Identify and note down mother board, components and chips
   B) Identify various Internal and external slots in the mother board and clean them withblower/brush
   C) Practice Inserting and Removing RAM with care
2. Measure the Output voltages of SMPS
3. Disassemble the PC
4. Assemble the PC
5. Change the CMOS Setup
6. Install Windows Operating system
7. Perform Partition and format of hard disks.

Computer Networking

1. Identify and note down the specifications of various networking devices & Cables, Jacks ,Connectors, tools etc used in local area networks
2. Prepare the UTP cable for cross and direct connections using crimping tool
3. Configure Host IP, Subnet Mask and Default Gateway in a system in LAN (TCP/IPConfiguration).
4. Setup LAN and a) transfer files between systems in LAN b)share the printer in a network
5. Test the network using ipconfig, ping / tracert and netstat utilities and debug the networkissues
6. Install and Configure wireless NIC and transfer files between systems in LAN and wirelessLAN
7. Test the WIFI network performance using WIFI analyzer

Advanced communication gadgets/apps

1. i) Perform bluetooth pairing between smartphone and bluetooth headset/speaker andtransfer audio signal
   ii) Perform video transfer from smart phone to internet connected desktop PC/Laptopthrough IP based streaming
   iii) Perform file transfer from one smart phone to another through bluetooth based Shareit application
   iv) Perform Remote login using Team viewer
   v) Perform scanning QR code/Bar code using scanner App in smart phone
   vi) now the usage and features of health band by performing an experiment
   vii) Perform audio conference through googleduo

EE-108

S.no	Chapter Title
1	Wiring tools and Accessories
2	Electrical Wiring Joints and SolderingPractice
3	Lamp Circuits
4	Earthing
5	DC and AC circuits
6	Resistance Measurement
7	Capacitance Measurement
8	Battery voltagemeasurement
9	Test and repair the Domestic appliances

EE-308

S.No	Unit Title
1.	Basics of 'C' Programming
2.	Decision & Loop Control Statements
3.	Arrays& Strings
4	User defined Functions
5.	Structures , Unions & Pointers

EE-309A

S. No.	Experiment title
1	OCC of a DC shunt Generator at below,rated and above rated speeds.
2, 3,4	Internal and Externalcharacteristics of DC shunt generatorDC series generatorDC compound generator
5	Identify the terminalsof the following DC Machines (a) DC Shuntmotor (b) DC SeriesMotor (c) DC Compound Motor.
6	Identify various parts of the following DC Machines (d) DC Shuntmotor (e) DC SeriesMotor DC Compound Motor
7,8,9	Performance characteristics of DC (Shunt, Series, Compound) Motors by conducting Brake Test
10	Speed control of DC Shunt Motor by (a) Rheostatic control method (b) Field control method
11	Performance of a DC Shunt Motor by conducting Swinburne's test.

EE-309B

S.No	Unit Title
1.	Exercise on various tool bars, menus and standard commands
2.	Practice on 2D drawing commands and modify tools
3.	Practice on dimensioning commands and formatting commands
4	Practice on Insert commands and view commands
5.	Exercise on drawing isometric drawings in 2D and introduction to 3D
6	Exercise on drawing Electrical symbols
7	Drawing related to electrical wiring (house wiring , multi storied buiding , commercial complex, godown wiring)
8	Exercise on drawing electrical poles and towers
9	Exercise on drawing earthing systems withdimensions
10	Exercise on drawing of the core section oftransformer
11	Exercise on pole mounted and plinth mounted substations
12	Drawing the end view of induction motor

EE-310

S.No	Unit Titles
1.	Verification of Circuit Laws
2.	Verification of Circuit Theorems
3.	Calibration of Measuring Instruments
4	Determination of Circuit Parameters
5	Measurement of Power

EE-408

S. No.	Unit Title
1	Listening Skills
2	Introducing Oneself
3	Short Presentation (JAM)
4	Group Discussion
5	Preparing Resume with Cover Letter
6	Interview Skills
7	Presentation Skills
8	Work place Etiquette

EE-409A

S.No	Experiment title
1	Test the givensingle phase transformer i) Loadtest ii) O.C.test iii) S.C.test
2	(i) Conduct Sumpner's test (ii) Perform Scott connection (iii) Conduct Parallel operation of the given single phase transformers (iv) Testing of transformer oil
3	Test the Performance of Alternators

EE-409B

S.No.	Unit Title
1.	Maintenance /Charging of the Batteries
2.	Rewinding of single phase induction motors
3.	Installation and Testing of UPS . Installation and trouble shooting of CC camera wiring at domestic/commercial places.
4.	Installation and Testing of solar panels
5.	Estimation of Power loads
6.	Usage of fire extinguishers for different fireaccidents.
7.	Industrial Visit to distribution substation
8.	Industrial visit to Solar power plant
9	Industrial visit to any Manufacturing/Processingindustry

EE-410

S.No	Experiment Title
1	Brake test on 3-phasesquirrel cage induction motor.
2	Brake test on 3-phaseslip ring induction motor.

EE-507

3,4	Load test on a) splitphase inductionmotor. b) capacitor type induction motor
5	Load test onsingle-phaseUniversal motor.
6,7	Conduct suitable tests and draw circle diagram of a) Squirrel cage Induction motor b) Slip ring Induction motor
8	Conduct load test on synchronousmotor and draw V and inverted V curves
9	Identify and rectify faults in AC motors
10	Identify and rectify faults in AC starters

EE-508

S. No.	Unit Title
1	Attitude
2	Adaptability
3	Goal Setting
4	Motivation
5	Time Management
6	Critical thinking
7	Creativity
8	Problem Solving
9	Team Work
10	Leadership
11	Stress Management

EE-509A

S.No	Unit Title
1.	Basics of PLC
2.	Ladder Diagrams for logic gates, timers and counters
3.	Ladder Diagrams for domestic applications
4.	Ladder Diagrams for industrial applications

EE-509B

S.No	Major Topics
1.	Characteristics of different Power Electronic Devices
2.	Study the working of different Power Electroniccircuits
3.	Speed control of the electrical motors using the PowerElectronic Devices
4	Fundamentals of Simulation using MATLAB
5.	Simulation of Converter and Inverter using MATLAB
6.	Simulation of AC Voltage Controller and Chopperusing MATLAB

EE-510

S.No	Major Topics
1.	Logic Gates
2.	Combinational Logic Circuits
3.	Sequential Logic Circuits
4	Basics of Microcontrollers
5	Programming on Microcontrollers