

MANDATORY DISCLOSURES

Name of the Institution: M. N. TECHNICAL INSTITUTE, Kammagondanahalli,
Abbigere Main Road, Bangalore – 560015
Ph: 080-28388843, 080-28388844, Mob: 8095 555 141
Mail: mntioffice413@gmail.com

Name & Address of the Trust: Poorna Pragna Academy Trust (Regd.) / NBET
Abbigere Main Road, Kammagondanahalli, Bangalore – 560015
Ph: 080-28388843, 080-28388844, Mob: 8095 555 141
Mail: mntioffice413@gmail.com

Name & Address of the Principal: Lakshmi G K, No. 77/05 (293 New), 6th Main,
18th Cross, Malleshwaram, Bangalore – 560055
Ph: 080-28388843, Mob: 9880300438
Mail: lakshmigulur@ymail.com

Name of the Affiliating University: Directorate of Technical Education, Govt. of Karnataka.

Governance:

Managing Committee Members 2019-2022:

Sl. No.	Name	Designation
1.	Sri. D P Raghavendra Rao	Chairman
2.	Sri. D V Krishnamurthy	Vice Chairman
3.	Sri. K N Shama Prasad	Managing Trustee
4.	Sri. N Giriraju	Joint Secretary
5.	Sri. G Rajendra	Treasurer
6.	Sri. R H Raghavendra Rao	Internal Auditor
7.	Sri. M Manjunath	Director
8.	Sri. K V Suresh Babu	Director
9.	Smt. K Neerajakshi	Director
10.	Sri. J G Prasad	Director
11.	Sri. R Sham Sunder Lal	Director
12.	Sri. R Srinivasaiah	Director
13.	Sri. M Venkatesh	Director

Members of Academic Advisory Body:

Sl. No.	Name	Designation
1.	Dr. Gururaj Karjagi	Chairman Academy for Creative Teaching
2.	Sri. D V Guruprasad, I.P.S.,	Director General of Police, Karnataka (Retd.)
3.	Mr. Shiva Basavaiah, K.A.S	Additional Commissioner, BBMP (Retd.)
4.	Mr. Sham Sunder	CEO & President, Pajaka Consultancy Services.
5.	Mr. Hari Krishna S Holla	Advocate, Holla Associates
6.	Cdr. H C Guruprasad	Indian Navy (Retd.)
7.	Sri. R. Manjunath	MLA, Dasarahalli Constituency, Bangalore

Frequency of the Board Meeting and Academic Advisory Body: **Fortnightly**

Organizational chart and processes: **CHART**

Nature and Extent of involvement of Faculty and students in academic affairs/improvements:

- ❖ Counselling
- ❖ Guiding
- ❖ Interaction with Parents
- ❖ Identification of Slow Learners
- ❖ Upliftment of Slow Learners
- ❖ Sports Activities
- ❖ Endowment Lectures
- ❖ Workshops & Seminars
- ❖ Placement
- ❖ Industrial Visits
- ❖ Projects
- ❖ Start ups
- ❖ Industrial Training
- ❖ Cultural Activities

Mechanism/ Norms and Procedure for democratic/ good Governance: Attendance, Discipline, Punctuality, Code of Conduct within and outside the campus

Student Feedback on Institutional Governance/ Faculty performance: Taken twice during every semester.

Grievance Redressal mechanism for Faculty, staff and students: Available

Grievance Committee:

1. Sri. Harikrishna Holla, Advocate, Holla Associates.
2. Sri. T S Rajagopal, Educationist & Former Advisor, Bangalore University
3. Sri. J. Sreenivasamurthy, Retired Principal, MES College, Bangalore.

Anti-Ragging Committee: Available

- | | |
|-----------------------|------------------------|
| 1. Shama Prasad K N | Managing Trustee |
| 2. Manjunath M | Joint Managing Trustee |
| 3. Lakshmi G K | Principal |
| 4. Hemamala B R | Vice Principal |
| 5. Basappa D | HOD / CS |
| 6. Pramila C | SGL / CS |
| 7. Raghavendra N | HOD / ME |
| 8. Anjaneyamurthy G B | HOD / Civil |

Anti-Ragging Squad: Available

1. Lakshmi G K	Principal
2. Mahadevaiah J	SGL / E & C
3. Aruna V	SGL / E & C
4. MVS Prasanna	SGL / E & C
5. Shylaja A Kumar	SGL / E & C
6. Ramesha V	SGL / MECH
7. Nagabhushana	Office Supdt.

Establishment of Online Grievance Redressal Mechanism: Available

Appointment of OMBUDSMAN: Smt. K. Neerajakshi, Retd. Principal, KVS.

Establishment of Internal Complaint Committee (ICC): Available
ALL HOD'S

Establishment of Committee for SC/ST: Available

1. M Manjunath	Director
2. Anjaneyamurthy G B	HOD / Civil
3. Mahadevaiah J	SGL / E & C

Internal Quality Assurance Cell: Available, ALL HOD'S.

Programmes

• Name of Programmes approved by AICTE:

1. Civil Engineering [GL]
2. Computer Science & Engineering
3. Electronics & Communication Engineering
4. Electrical & Electronics Engineering
5. Mechanical Engineering [GL]

• Name of Programmes Accredited by NBA: NIL

• Status of Accreditation of the Courses: -----

• Total number of Courses: -----

• No. of Courses for which applied for Accreditation:-----

• Status of Accreditation – Preliminary/ Applied for SAR and results awaited/ Applied for SAR and visits completed/ Results of the visits awaited/ Rejected/ Approved for Courses (specify the number of courses) : -----

For each Programme the following details are to be given (Preferably in Tabular form):

Name	Number of seats	Duration	Cut off marks/rank of admission during the last three years	Fee (as approved by the state government)	Placement Facilities
Civil Engineering [GL]	32	3 years	Min. 35% (SSLC or Equivalent)	₹ 13405/-	Available
Computer Science & Engineering	48	3 years	Min. 35% (SSLC or Equivalent)	₹ 13405/-	Available
Electronics & Communication Engineering	96	3 years	Min. 35% (SSLC or Equivalent)	₹ 13405/-	Available
Electrical & Electronics Engineering	48	3 years	Min. 35% (SSLC or Equivalent)	₹ 13405/-	Available
Mechanical Engineering [GL]	96	3 years	Min. 35% (SSLC or Equivalent)	₹ 13405/-	Available

Name and duration of Programme(s) having Twinning and Collaboration with Foreign University(s) : NIL

Faculty

Branch	Permanent Faculty	Adjunct Faculty	Permanent Faculty: Student Ratio	Number of Faculty employed and left during the last three years
Civil Engineering [GL]	05	Nil	19.2	01
Computer Science & Engineering	07	Nil	20.5	-
Electronics & Communication Engineering	13	Nil	22.15	-
Electrical & Electronics Engineering	06	Nil	24	-
Mechanical Engineering [GL]	12	Nil	24	-
Science, Maths & Language	05	01	-	-

Profile of Principal / Faculty: Available in Website

Fee:

- Details of Fee, as approved by State Fee Committee, for the Institution:
For Karnataka Students - Rs. 13405/- per annum
For Karnataka Students - Rs. 20755/- per annum
- Time schedule for payment of Fee for the entire Programme:
As specified by Government of Karnataka
- No. of Fee waivers granted with amount and name of students: SNQ
- Number of scholarship offered by the Institution, duration and amount:
Social Welfare Department
- Criteria for Fee waivers/scholarship: SC/ST, EWS & OBC
- Estimated cost of boarding and Lodging in Hostels: 60000/- per annum (approx).
- Any other fee please specify: NIL

Admission

- Number of seats sanctioned with the year of approval: **320**
- Number of Students admitted under various categories each year in the last three years:
2018-2019 : 136
2019-2020 : 143
2020-2021 : 66
- Number of applications received during last two years for admission under Management Quota and number admitted:
2019-2020 : 186 / 105
2020-2021 : 98 / 49

Admission Procedure

- Mention the admission test being followed, name and address of the Test Agency/State Admission Authorities and its URL (website):
First Come First Serve basis
- Number of seats allotted to different Test Qualified candidate separately (AIEEEE/ CET (State conducted test/ University tests/ CMAT/ GPAT)/ Association conducted test etc.) :
NOT APPLICABLE
- **Calendar for admission against Management/vacant seats:**
As per Government of Karnataka Circulars

Criteria and Weightages for Admission:

Minimum 35% marks (SSLC or equivalent).

List of Applicants:

NOT APPLICABLE

Results of Admission under Management seats/Vacant seats:

NOT APPLICABLE

Information of Infrastructure and Other Resources Available

- Number of Class Rooms and size of each:

CLASSROOMS:

05 nos. – 37.16	sqm.	Each
08 nos. – 94	sqm.	Each
01 nos. – 48.04	sqm.	
02 nos. – 65	sqm.	Each
01 nos. – 117	sqm.	
02 nos. – 57.62	sqm.	Each
01 nos. – 77.62	sqm.	Each
05 nos. – 40	sqm.	Each

- Number of Tutorial rooms and size of each

TUTORIAL ROOMS

05 nos. – 40	sqm.	Each
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- Number of Laboratories and size of each

LABORATORIES:

06 nos. – 37.16	sqm.	Each
01 no. – 151	sqm.	
01 no. – 63	sqm.	
01 no. – 126	sqm.	
01 no. – 100.33	sqm.	
01 no. – 50.16	sqm.	
02 nos. – 94	sqm.	Each
01 no. – 75	sqm.	
01 no. – 37.62	sqm.	
01 no. – 67	sqm.	
01 no. – 149	sqm.	
01 no. – 74	sqm.	
02 nos. – 56	sqm.	Each
01 no. – 84	sqm.	
01 no. – 150.66	sqm.	
01 no. – 50.16	sqm.	
01 no. – 149	sqm.	
01 no. – 67	sqm.	
01 no. – 54	sqm.	
01 no. – 55.74	sqm.	
01 no. – 75	sqm.	

- Number of Drawing Halls with capacity of each

DRAWING HALLS:

01 no. – 176	sqm.	100 capacity
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- Number of Computer Centres with capacity of each

COMPUTER CENTRES:

08 Nos. 30 capacity each

- Central Examination Facility, Number of rooms and capacity of each

EXAM ROOM:

1 no. - 150 seating capacity and all other Class Rooms.

- Online examination facility (Number of Nodes, Internet bandwidth, etc.): NOT APPLICABLE

- Barrier Free Built Environment for disabled and elderly persons: YES

- Occupancy Certificate: YES

- Fire and Safety Certificate: YES

- Hostel Facilities: YES

- **Library**

- Number of Library books/ Titles/ Journals available (Programme-wise) :

No. of Library books : 12000

No. of Titles : 4462

No. of Journals : 13

- List of online National/ International Journals subscribed.

- E- Library facilities: YES

- National Digital Library (NDL) subscription details.

- **Laboratory and Workshop**

- List of Major Equipment/Facilities in each Laboratory/Workshop

Basic Electronics Lab: Meters, Tag Boards, Wires, Transistors, Diodes & Etc.

CASP Lab : For All Branch, Ohp, Lcd Projector Set, Pcs.

Communication Lab : Cro 20, Fg & Sg 20, Dc Kits, Vlsi Kits, Plc Kits, Tdm Kits

Computer Lab – III : 30 Sys 1 Dot Matrix Printer, 2 Switches 24 Port Original Software

Computer Lab-1 : 30 Systems with relevant software

Computer Lab-2 : 30 Systems with relevant software

Construction Lab: Construction Equipment

Digital Lab: Dig Trainer Kits, Mc Kits, Power Supplies

Electrical Lab-I : Working Board, Conduit, Bend, Pipe, Junction, Tee, Lamp Set, Domestic Appliances, Supplies, Meters.

Electrical Lab-II : All Elect Machines With Meters

Electronics Circuits Lab : Meters 300, Power Supplies 60, CRO 30, Sg & Fg 30

Hydraulic / Environmental Lab : Chemicals, Burette, Pipettes, Conical Flask, Titration Setup, Distilled Water, Silver Nitrate, Etc.

Hydraulic & Pneumatics Lab: Pelton Wheel, Francis Turbine, Air Compressor, Venturimeter, Centrifugal Pump, Pneumatic Kits.

Language Lab: 20 Systems, 1 Printer, With Internet facility

Library: 30 Systems, 2 Switch 24 Port 2 Dot Matrix Printers.

Machine Shop: Lathe Shapers Milling M/C, Drilling M/C Bench Grinding M/C. Surface Grinding M/C, Cutting M/C
 MAT Lab : 30 Systems with internet facility
 Material Testing Lab: Compressor Testing M/C, Sieve Analysis, Mortar Grader, Etc.,
 Mechanical Testing Lab & Quality Control Lab: UTM impact Testing Machine Hardness Testing Machine Red Wood Viscos Meters Say Bolt Vis Digital Vernier meter.
 Motor Controller Lab: MC Kits 3 Sets.
 Multimedia Lab: 30 Sys, 2 Switches, 2 Printers.
 Networking Lab: Systems 10 Nos. Crimping Tool 10 Nos. Cables/Rj-45 Connecters Connecting Tester 1 No.
 Switch 1.
 PC Servicing Lab: Systems 10 Nos. SMPS 5 Mother Board 10 Nos. Scanner 1. Web Cam 3, Printers 2 Multimeters 3.
 Protective Relay Lab: Relay Kits.
 Soil & Material Testing Lab: Testing equipment, CTM, Furnace, Sieves, Graders, Mould Boxes, Vycat Apparatus
 Surveying Practice: Theodolite, Dumpy Level, Cross Staff, Levelling Staff Etc.,
 Thermal Engineering Lab: Morse Test Rig, Petrol Eng. Diesel Eng. Boys Calorimeter, Valve Timing, Port Timing, Cylinder, Refrigeration test rig.
 Video Engineering Lab: TV Monochrome & Colour
 W/S Carpentry, Fitting & Forging: Anvils, Bench Vices, Micro meters, Open hearth furnace, Height Gauge, Diff. Files, Mallets, Jackplane, Ton.
 W/S-II Foundry, Welding & Sheet Metal: Moulding Box, Arc Weld, Snipper, Mallets, Divider, Shovel, Patterns

- List of Experimental Setup in each Laboratory/Workshop

Civil Engineering:

SURVEYING LAB – II : 1. Theodolite

1. Study of parts of a Transit Theodolite and its temporary adjustments
2. Measurement of horizontal angle by Repetition method
3. Measurement of horizontal angle by Reiteration method
4. Measurement of vertical angle
5. Open traversing using theodolite and plotting
6. Conducting a Closed traverse of a given area and balancing it by Bowditch rule & Transit rule

2. Trigonometric Levelling

7. Determination of height of an object whose base is accessible
8. Determination of height of an object whose base is inaccessible (single plane method instrument axes at different levels only-two cases)

3. Tachometric Surveying

9. Determination of Stadia constants
10. Determine horizontal distance by Horizontal sight
11. Determine Horizontal distance and elevation for inclined sight with staff held vertical by Stadia hair method

4. Curves

12. Setting out simple curve by Offsets from Long chord method
13. Setting out simple curve by Rankines method using Theodolite and Total station
14. Setting out Compound curves given two Radii by Deflection angle method

5. Total Station

15. Total station-general commands used- instrument preparation and setting-reading distances and angles
16. Measurement of distances and coordinates of given points, using
 - a) EDM b) Total station
17. Measurement of altitudes of given elevated points, using total station
18. Run a closed traverse using Total station and plotting the traverse
19. Determination of areas of field (enclosed three or more points) by total station

6. Global Positioning System

20. Study of hand held GPS
21. Measurement of latitude, longitude and altitude using hand held GPS
22. Selection and marking of routes using hand held GPS

BASIC COMPUTER AIDED DRAFTING IN CIVIL ENGINEERING

1. Introduction to CADD

1 : General features of CADD, CADD work station, Hardware and Software requirements, Advantages of using CADD, Starting CADD, Understanding CADD Editor Screen- title bar, menu bar, dashboard, standard tool bar, drawing area, UCS, command prompt area, status bar.

2. Demonstration of commands in CADD

2: Commands- Command Entry Options using -Command
Line, Menus (File, Edit, View, Insert, Format, Tools, Draw, Dimension, Modify, Window, Help) and Dialog Boxes. Understanding the use of CADD Menus and Tool Bars, CADD Basic Entities- Drawing Line, Arc, Circle, Rectangle and polygons using different coordinate Systems such as Absolute Cartesian Coordinates, Relative Cartesian Coordinates, Absolute Polar coordinates, Relative Polar Coordinates, Direct distance entry and line command, Picking coordinates on the screen and line command.

3. Creating a new drawing

Using a wizard, using a template, starting from scratch. Selection of units, Selection of paper space, setting up of limits, Draw 2D drawings of simple building components and Print/ Plot the following drawings using Plot Settings.

- 3 Draw the Elevation and cross section of fully panelled Door
- 4 Draw the Elevation and cross section of fully panelled Window and glazed Window
5. Draw the Cross Section through Wall
6. Draw the sectional Elevation of Spread footing
7. Draw the sectional Elevation and Plan showing Reinforcement details of Column footing.
8. Draw the plan and sectional Elevation of Dog-Legged Staircase.

4. Developing 2D drawings of Buildings

Experiment 9 Draw Plan, Elevation and Sectional View of Single Room Building. Print/ Plot the above drawings using Plot Settings.

Experiment 10 Drawing Plan, Elevation and Sectional View of Two Room Residential Building. Print/ Plot the above drawings using Plot Settings.

5. Developing Isometric and 3D drawings

Experiment 11 Develop isometric drawings of Simple Objects such as Steps, Footings etc. Print/ Plot the above drawings using Plot Settings.

Experiment 12 Develop a 3D Model for a Single Room Building.

SOIL & MATERIAL TESTING LAB:

Tests on Cement as per IS code 9

1. Determination of Fineness by Surface area (Blaine air Permeability apparatus / 90 micron sieve)
2. Determination of Specific gravity
3. Normal Consistency & Setting time
4. Test on Grade of Cement (Mortar Cube)

Tests on Aggregate as per IS code 9

1. Specific gravity of Fine Aggregate and Coarse Aggregate
2. Water absorption test of Fine Aggregate and Coarse Aggregate
3. Grading analysis of Fine and Coarse Aggregates
4. Bulking of sand.
5. Bulk Density of Coarse Aggregate

Tests on cement concrete as per IS code

1. Slump test
2. Compaction factor test
3. Compressive strength of Concrete cubes and Split Tensile test for cylinders.
4. Non-destructive testing (Rebound hammer or Ultra sonic pulse velocity)

Tests on Road Materials as per MORTH Specifications

1. Abrasion test on road aggregates by Los Angeles (Abrasion Testing Machine)
2. Impact test on road aggregates.

Tests on other Building Materials as per IS Code

1. Water absorption test & Compression test on bricks or building blocks
2. Tensile test on steel

Tests on Soils as per IS code

1. Grain Size analysis of soils
2. Atterberg limits a) Liquid limit b) Plastic limit c) Shrinkage limit
3. Tests on Moisture content of soil (Oven drying method)
4. Field Density of Soil By Core cutter
5. Standard Proctor Compaction Test on soil

COMPUTER AIDED BUILDING PLANNING AND DRAWING

Given the line diagram, draw the plan, Section and elevation of the following types of buildings.

1. Residential Building with Dog Legged Stairs
2. Two storied residential building.
3. Primary School
4. Hostel Building.
5. Primary Health Centre
6. Small work shop building / Canteen Building / Bus station
7. Post office Building/Bank Building.

Preparation of working / Service Drawings

Preparation of service drawing for a same given residential building as layers.

8. Introduction to layers Prepare Water supply layout & Sanitary Layout
9. Shallow well rain water harvesting & Solar water heater for terrace
10. Fire-fighting layout for college building/commercial building
11. Preparation of a foundation Plan for residential building & framed structures.
12. Preparation of detailed plan and section of a Dog legged Stair case.
13. Preparation of Plan and Section of a Manhole and Septic tank with soak pit.

Develop 3D Modelling of Buildings

14. Develop 3D model of a stair case.
15. Develop 3D model of a Residential Building / Public building from the given line diagram.
16. Suggested activities.

CONSTRUCTION PRACTICE

- 1 Study of construction tools, plumbing tools and sanitary fixtures.
- 2 Demonstration of safety kits and accessories used at construction site -Personal Protective Equipment (PPE).
- 3 Setting out center line for a small building, and estimate the quantity of earth work by LWS/Center line method
- 4 Construct One brick thick wall in English bond to a height of one meter in cement mortar including L-junction and T-junction (1 meter length) and also calculate the quantities.
- 5 Construct One and half thick brick wall in English bond to a height of one meter in cement mortar.
- 6 Construct One and half Brick thick pillar to a height of one meter in cement mortar.
- 7 Prepare Bar bending schedule & Fabrication of reinforcements for a Doubly Reinforced beam
- 8 Prepare Bar bending schedule & Fabrication of reinforcements for a Two way Slab
- 9 Prepare Bar bending schedule & Fabrication of reinforcements for a lintel with chejja
- 10 Prepare Bar bending schedule & Fabrication of reinforcements for a column with footing
- 11 Fabrication of timber or steel formwork for a monolithically casted beam and slab. (Procedure, Sketch, Tools, Observation Tabulation & Calculation of quantity of materials required only).
- 12 Plastering for a new masonry wall surface (1 square metre area) with CM (1:6)
- 13 Painting for a given area (1 square meter area).
- 14 Fixing of doors and windows
- 15 Prepare a plan for PVC pipe layout using valves, fixtures, adhesive solvents and fittings from over-head tank to wash basin/tap and execute it.

Demo only

- 16 Water proofing for roof & crack inhibition methods (Grouting) in buildings
- 17 Laying of floor tiles
- 18 Construction of Single and Double Scaffolding
- 19 Study of Symbols and sign conventions related to Architecture – Traffic – Electrical Circuits - Plumbing & welding

COMPUTER APPLICATION LAB RCC STRUCTURES

1. Introduction to detailing of RCC structural elements as per IS:456-2000 and SP-34. Detailing of steel structures as per IS:800-2007 and SP-6(1).

Drawing and Detailing of structural elements for given design data using CAD

2. Doubly reinforced beam
3. T-beam
4. Lintel with chejja
5. One-way slab and two way slab
6. One way continuous slab
7. RCC column with isolated footing (Rectangular only)
8. Dog-legged with waist slab and folded plate staircase
9. Cantilever Retaining wall.
10. Steel truss details with bolted/welded connection.
11. Beam to beam simple connection
12. Beam to column simple connection
13. Column with slab base
14. Column with gusseted base
15. Manhole
16. Septic Tank
17. Slab culvert
18. Simple Weir
19. Demo on any one of Building Information Module software like RIVET Architecture, ECHO SIM, STAAD PRO, ETAB and GIS (Free open source software)

COMPUTER LABS:

1. Programming with C lab
2. DBMS and GUI lab
3. Network Administration lab
4. Data Structures lab
5. OOP with Java Lab
6. Linux Lab
7. Web Programming Lab
8. Design and Analysis of Algorithms Lab
9. Software Testing Lab
10. Network Security Lab
11. C-Programming Lab
12. Microcontroller Lab
13. PCB Design & Fabrication Lab
14. Fundamentals of Electrical & Electronics Engineering
15. IT Skills
16. Computer Aided Engineering Graphics
17. Multimedia & Animation
18. ARM Controller Lab
19. Communication Skills Lab
20. Computer Aided Engineering Drawing
21. Mechanical Computer Aided Drafting (MCAD)
22. CNC Lab
23. Computer Aided Analysis and Simulation lab (CASA)
24. Computer Aided Electrical Drafting
25. Estimation Simulation Lab

ELECTRONICS & COMMUNICATION ENGINEERING

CIRCUITS LABS

Analog Electronics and Communication Lab:

1. Construct a regulated power supply to generate 12V and note down the voltage/waveform at each stage (Use discrete components/ ICs for sub circuits)
2. Construct voltage divider biased single-stage RC coupled CE amplifier and plot frequency response
3. Construct and verify Inverting or non-inverting amplifier using Op-amp
4. Construct and verify summing or difference amplifier using Op-amp
5. Construct and verify differentiator or integrator amplifier using Op-amp
6. Construct and verify RC phase-shift oscillator circuit using Op-amp
7. Construct and test a positive or negative clipper circuit
8. Construct and test positive or negative clamper circuit
9. Verification of maximum power transfer theorem.
10. Plot the frequency response of series resonant circuit and find its bandwidth and Q factor
11. Construct and test the passive low-pass T-type filter circuit for a given cut-off frequency
12. Construct and test active high-pass filter using Op-amp for a given cut-off frequency and gain
13. Construct and test PI type attenuator circuit for the given attenuation & Ro
14. Construct and verify amplitude modulation and demodulation using trainer kits
15. Construct and verify frequency modulation and demodulation using trainer kits

Electronics Components and Devices (ECD)

BASICS OF ELECTRONIC COMPONENTS

1. Identify and ascertain roles and values of components.
2. Use meters to assess values and to test components.
3. Identify terminals, packages and test the active components.
4. Identify terminals, packages and test the active components.
5. Identify specifications from component data-sheets and perform standard soldering.
6. Compare the features of conductors, insulators and semiconductors. Solder and de-solder the components on PCBs/Baseboards.
7. Use simulator for experimentation
8. Understand the current conduction in PN junction. Use CROs, RPS and Sig. generators.

BASICS OF SEMICONDUCTOR DEVICES

9. Plot VI characteristics of Diode and ascertain Ri and cut-in voltage using simulator.
10. Plot reverse VI characteristics of Zener ascertain Zener voltage using simulator.
11. VI characteristics of diode (expt. 9) in real environment. Plot reverse VI characteristics of Zener diode (expt.10) in real environment.
12. Experiment to obtain half-wave rectification under simulated environment: Obtain waveform, ripple factor, efficiency and PIV.
13. Experiment to obtain fullwave rectification (using bridge) and filtering under simulated environment: Obtain waveform, ripple factor, efficiency and PIV, without and Full wave rectifier with C-filter.
14. Show how Zener diode can be used as voltage regulator in simulated and real environments.
15. Understand the behaviour of BJT.

16. Experiment, graph and calculations.
17. Experiment BJT as a switch under simulation environment.
18. Use MOSFET as a voltage-controlled switch.
19. Forward VI characteristics of SCR simulation and real environment.

OPTO ELECTRONIC DEVICES

20. Switching to blink an LED using BJT or MOSFET.
21. Conduct a simple experiment to automatically control street-light using LDR and SCR in simulated environment.
22. Compare real and simulated results.

SENSORS AND ACTUATORS

23. Experiment any passive sensor- based simple application to under simulated environments to illustrate use of sensor for solving simple real world problem.
24. Use electronic components and/or devices (sensors) to solve simple real-world problem
25. Conduct a simple application involving actuator under simulated and/or real environment.

ANALOG AND DIGITAL LAB

1. Construct a suitable circuit to obtain the forward bias characteristics of Diode.
2. Rig up and test the Zener diode as Voltage regulator.
3. Construct and test the NPN transistor to obtain input and output characteristics in CE mode.
4. Build and test the circuit of Transistor as a Switch.
5. Construct and test the phototransistor (opto-isolator) as a switch.
6. Construct an experiment for full wave bridge rectifier circuit with and without C filter and measure ripple factor.
7. Build and test Single stage RC coupled amplifier and obtain frequency response on Semi-log graph sheet.
8. Construct and demonstrate OP-AMP as a Comparator.
9. Construct an experiment to test 555 Timer as Monostable multivibrator.
10. Construct a circuit to verify the truth tables of NOT, AND, OR, NOR and NAND gates.
11. Construct a circuit to verify the truth table of Full Adder using basic gates.
12. Construct a circuit to verify the truth table of JK Flip flop using IC 7476.
13. Construct a circuit to verify the truth table of 4:1 multiplexer using IC 74153 & 1:4 De-multiplexer using IC 74139.
14. Rig up and test the truth table of Decade Asynchronous Counter IC 7490.
15. Construct an experiment to display 0-9 digits using standard Seven segment display with the help of decoder/ driver IC 7446/ or 7447.
16. Construct and test interfacing of suitable CMOS IC to Switch, LED, 6V Relay and 12 V DC Motor (from Reference Book no. 3).
17. Construct and test Interfacing of suitable TTL IC to Buzzer and Solenoid.

Circuits Simulation Lab

1. Introduction to MATLAB/ SCI LAB
2. Desktop Tools
3. Getting started MATLAB
4. Mathematical functions
5. Working with matrices
6. Array operations

7. Introduction to programming in MATLAB
8. Control flow and operators
9. Debugging M-Files
1. Summary of Commands, Main Characteristics of MATLAB.

Digital Electronics Lab-2

Combinational Circuits

- 1 (i) Identify various IC (digital, analog, mixed) packages and families and learn to identify pin numbers in different packages.
- (ii) Practice handling of ICs with precautions and know IC soldering methods.
2. Verify the functionality of 2:1 or 4:1 multiplexer using suitable gates
3. Construct 4:1 multiplexer using 2:1 multiplexer IC and verify the operation.
4. Realise basic gates or simple logic expressions using multiplexer IC.
5. Verify the operation of 1:2 or 1:4 demultiplexer using suitable IC.
6. Verify the operation of BCD to Decimal decoder using suitable IC.
7. Construct and verify the circuit to translate BCD to decimal digits in seven segment display using suitable IC
8. Verify the operation of decimal to BCD encoder using suitable IC.
9. Illustrate the storing and retrieving of data in RAM using suitable IC.

Sequential Circuits:

1. Construct clocked SR FF using gates and verify its functionality.
2. Verify the TT of JK FF using IC 7476. Observe the role of preset and clear inputs.
3. Realize D-FF and T-FF using JK FF and observe the timing diagrams.
4. Move 3-bit or 4-bit data in SISO and PISO modes using FFs and tabulate the data movement in each mode.
5. Move or 4-bit data in SISO, SIPO, PIPO, PISO modes using suitable IC and tabulate the data movement in each mode.
6. Construct 3-bit ripple counter (both up and down separately) using flip-flop IC 7476 and verify its truth table
7. Configure IC 7490 as mod 10 counter and verify its truth table 3
8. Verify the operation of a 3-bit or 4-bit ring and Johnson's counter using suitable flip-flop IC
9. Construct astable multivibrator using timer IC 555 to generate square output waveform for a given frequency.
10. Construct monostable multivibrator using timer IC-555 to generate pulses of different ON periods.
11. Convert digital data to analog signal using suitable DAC IC and observe the output for various inputs and find the resolution and accuracy.
12. Convert analog signal to digital using suitable ADC IC and observe the output for various inputs and find the resolution and accuracy.

COMMUNICATION LAB

Digital Communication & N/W Lab

1. Prove sampling theorem for low-pass signals.
2. Conduct an experiment to study the effect of aliasing
3. Perform an experiment to study Pulse Code Modulation and Demodulation.

4. Generation of Delta modulated signal and adaptive delta modulation signal
5. Generation and detect of BASK signal
6. Generation and detect of BFSK signal
7. Perform an experiment to generate and detect BPSK signal using trainer kit.
8. Demonstrate TDM using Fiber Communication System.
9. Demonstrate PC to PC communication using Fiber Optic Digital Link.
10. Exercise on crimping Network Cable & Testing using Cable Tester
11. Configuration of TCP/IP Protocols settings in Windows or Linux.
12. Install a peer to peer network and test with Net meeting.
13. Install a network between 3 or more computers using network switch and test for sharing resources.
14. Establish LAN between Linux & Windows Systems & Share Printer
15. Install a Wireless network using Access Point and Wireless Network card between 3 or more computers and Test by Sharing a Printer
16. Setup Internet using modem, PSTN Line/WLL/Broad Band and Internet account share internet through LAN.

Electronics Servicing Lab

1. Identification of the different external components like spike busters, UPS, modem, printer, headphone, microphone, web camera, joystick, flash drives, external HD of a computer, discussion of their functions and configurations
2. Identification of the different parts of motherboard like CPU/processor, Socket CMOS, RAM, BIOS ROM, Memory Slots, Power Connectors, IDE Connectors, SATA Connectors, CMOS Battery, AGP, PCI, PCI express, Chipset, cache, Heat sink, discussion of their functions, types. SMPS
3. Study of ROM BIOS and CMOS setup utility
4. Rectify the faults in SMPS, Selection of wattage of SMPS. Study of different types of power connectors like molex, mini molex, ATX power connectors, CPU 4+4, power connectors for PCI, SATA, number of lines, colour codes and their corresponding voltages.
5. Study of beep codes for servicing a PC
6. Study of how a virus affects the PC, the features of a good antivirus program, the method of installing antivirus programs, updating their data bases.
7. Disassembling of PC: steps Involved in disassembly, necessary precautions
8. Assembling of PC: detailed study of installation of power supply, CPU heat sink, fan assembly, RAM modules, internal drives, adapter cards, power connectors, data cables and front panel connectors
9. Installation of windows 7 or windows10 operating system by partitioning the hard disk.
10. Installation of Linux OS on the computer as a standalone OS and also as a dual boot system, concept of live CD.
11. Discussion of the importance of motherboard disk (CD)-Installation of device drivers, updating of device drivers in both windows and Linux.
12. Understand the safety precautions to be taken while servicing. List the basic tools (electronic repair tools) required for servicing electronic equipment's and their purpose (uses) Identify the faults in Digital ICs and Troubleshoot using digital IC tester/ Logic Probe
13. Develop skill in assembly of components, wiring, revisiting soldering and de-soldering methods. ICs soldering practice.
14. Explain the basic steps of electronic equipment service and maintenance. a) Study of basic procedure of service and maintenance b) Circuit tracing techniques c) Concepts of

- shielding, grounding and power supply considerations in instruments d) Importance of functional diagram and servicing manuals e) Trouble shooting chart
15. Study of Regulated DC power supply and measurement of standard voltages at various stages of RPS. Identify and rectify the various faults in the Regulated DC power supply.
 16. Minor repair practices on Decade Boxes (Rotary switches, connectors, components connectivity etc.,)
 17. Troubleshoot Digital IC Trainer kits – practice minor repairs.

Industrial Automation Lab

Power electronics devices experiments

1. Determination of holding current and break-over voltage of an SCR.
2. Full-wave controlled rectifier circuit using R-C triggering circuit
3. Light dimmer circuit using DIAC and TRIAC.
4. SCR triggering by UJT relaxation oscillator (Using Kit)
5. Voltage commutated chopper both constant frequency & variable frequency. (Using Kit)
6. Single phase to single phase cycloconverter (Using Kit)
7. Speed control of Universal motor. (Using Kit)
8. Speed control of stepper motor using inverter in clockwise & anti-clockwise direction. (Using Kit)
9. Sequential timer using IC 555.
10. Servicing/Maintenance of UPS (Only study experiments)

PLC Programming experiments

11. Study of PLC kit, practicing of basic programs.
12. Write the ladder diagram to test digital logic gates (two, three and four inputs)
13. Write the ladder diagram for three variable Boolean expressions and test the output. Example: $Y = (\bar{A} + B + C) + (BC)$ and $Z = (\bar{A}B + C) + (B + C)$.
14. Write the ladder diagram to verify Demorgan's theorem.
15. Write the ladder diagram for DOL starter and test the output
16. Write the ladder diagram and execute the Stair case light application
17. Write the ladder diagram and execute the Water level controller application
18. Write the ladder diagram and execute the Conveyer control application
19. Write the ladder diagram and execute the Lift control application.

Verilog Lab

1. Verilog Description for all two input basic gates.
2. Verilog Description for two input Arithmetic operations.
3. Verilog Description for three/four input Logical operations.
4. Compute the output for arithmetic expression. $y = (a + b * c) / (a + c)$
5. Compute the output for Logical expression. $y = (A \text{ and } B) \text{ or } (B \text{ and } C)$.
6. Verilog Description for 1-bit Full Adder
7. Verilog Description for 2:1 multiplexer using dataflow/ behavioral method.
8. Verilog Description for 1:2 De-multiplexer using dataflow/behavioral method.
9. Verilog Description for 2-bit parallel adder.
10. Verilog Description for 2-bit ALU with any 2 arithmetic and logical operations.
11. Verilog Code for D-flip flop.
12. Verilog Code for T-flip flop.
13. Verilog Description for mod-6 counter.

Power Electronics Lab For Electrical

1. Design and conduct an experiment to plot the V –I characteristics of DIAC.

2. Design and conduct an experiment to plot the forward biased V –I characteristics of SCR for different gate currents.
3. Design and conduct an experiment to plot the V–I characteristics TRIAC in preferred turn on modes
4. Construct R firing circuit and determine the maximum firing angle.
5. Construct R – C firing circuit and determine the maximum firing angle.
6. Construct and test UJT Relaxation oscillator
7. Construct UJT firing circuit and determine the range of firing angle
8. Construct a firing circuit using UJT and pulse transformer and trigger the SCR.
9. Construct a single phase half controlled bridge converter for resistive load/DC motor. Trace the waveforms across SCR and load.
10. Construct single phase full controlled bridge converter for resistive load. Trace the waveforms across SCR and load.
11. Construct and test a Triac- fan motor speed control circuit
12. Construct twilight relay using LDR and TRIAC
13. Construct time delay relay using SCR and UJT.
14. Construct and test a SCR battery charger circuit.
15. Construct a simple circuit to use opto coupler as an SSR
16. Construct AC static switch using SCR and observe the wave forms

MECHANICAL ENGINEERING

WORK SHOPS

Mechanical Workshop Practice-I

1. Basic artisan skills - carpentry
2. Basic artisan skills – fitting
3. Fabrication - ARC welding
4. Fabrication - Gas Welding
5. Gas Cutting

Basic Work Shop-II

1. Forging Practice
2. Sheet Metal Practice
3. Foundry Shop

MACHINE SHOP

1. Turning Practice
2. Drilling Practice
3. Shaping Practice
4. Milling Practice
5. Grinding Practice

MECHANICAL TESTING LAB

Mechanical Testing and Quality Control Lab

1. Determine co efficient of friction of ant two oil by using Thurston oil tester and compare their results
2. Determine flash and fire point of any two lubricants of different grade and compare their results

3. Determine viscosity of given oil by using Redwood viscometer/Saybolt viscometer.
4. Calculate Impact Value of Mild Steel, COPPER using CHARPY/ IZOD Impact Test & compare
5. Calculate hardness number by Brinell /Rockwell method Using hardness testing machine
6. Determination of yield stress, ultimate stress, breaking stress, percentage reduction in area, percentage elongation, Young's modulus by conducting tension test on Ductile Materials like Mild Steel, Aluminium in Universal testing machine. Draw Stress Strain Curve for both and compare
7. Find out Compressive Strength of C. I, M.S using Compression Testing Machine
8. Conducting bending test on wood specimen by UTM and evaluate the results
9. Conducting Shear test on mild steel specimen by UTM and evaluate the results
10. Standard use of basic measuring instruments: Surface plate, v-block, spirit level, combination set, filler gauge, plate gauge, wire gauge, screw pitch gauge, radius gauge, Vernier caliper, micrometer and slip gauges, Vernier height gauge, Vernier depth gauge to measure dimension of given jobs.
11. Determine unknown angle of component using sine bar and slip gauges.
12. Measurement of screw thread elements by using screw thread micro meter, screw pitch gauge.
13. Measurement of gear tooth elements by using gear tooth vernier caliper
14. Study on surface defects by Dye penetrant test/ ultrasonic portable equipment (Not for conduction)

HYDRAULICS LAB

HYDRAULICS AND PNEUMATIC LAB

1. Determination of Coefficient of discharge of Venturimeter
2. Determination of hydraulic coefficients of Rectangular and V-Notch and compare
3. Evaluate the major losses in pipes of varying diameter due to friction and interpret their results
4. Interpret the performance characteristics for Pelton wheel
5. Evaluate the performance characteristics for Kaplan turbine
6. Analyze the performance characteristics for Francis turbine
7. Draw the performance characteristics for Centrifugal pump and compare the same with reciprocating pump
8. Draw the performance characteristics for Reciprocating pump
9. Control of actuators by simple hydraulic circuits.
10. Control of actuators by simple Pneumatic circuits.
11. Create and Demonstration of meter in and meter out circuit.
12. Demonstration of sequencing circuit.
13. Demonstration of pneumatic circuit for speed control of double acting cylinders.
14. Demonstration of pneumatic circuit for speed control of pneumatic motor.

THERMAL LAB

THERMAL ENGINEERING LAB

1. Determination of calorific value of liquid and gaseous fuel by using Bomb calorimeter /Boy's gas calorimeter
2. Valve timing diagram of 4-stroke diesel engine

3. Plot the performance characteristics of single cylinder diesel engine for different loads
4. Heat balance sheet of single cylinder diesel engine
5. Plot the performance characteristics of single cylinder petrol engine for different loads
6. Find the indicated power of individual cylinders of an engine by using MORSE test
7. Determine the volumetric efficiency of air compressor
8. Determine the co efficient of performance of refrigerator
9. Determine thermal conductivity of thick slab
10. Determine thermal conductivity of composite wall
11. Determine thermal conductivity of thick cylinder
12. Study of I.C. Engine parts (Cylinder block, head, piston and piston ring Connecting rod & crank shaft, spark plug, Carburettor, fuel injector and fuel pump)
13. Study of Differential, rear axle and power steering mechanism
14. Case study on Dismantling and assembly of engines

MECHATRONICS LAB

PERFORMING EXPERIMENTS: i) Basic Logic Gates (ii) Demorgan's Theorem (iii) Combination Logic (iv) Encoders and Decoders (v) Flip-Flops

PERFORMING EXPERIMENTS (PLC):

1. Draw the ladder rungs to represent
2. Devise a timing circuit that will switch on for 20s and then switch it off.
3. Devise a timing circuit that will switch on 10s and off 20s and so on
4. Devise a circuit that can be used to start a motor and then to start a pump after delay of 50s. Then the motor is switched off 10s before the pump is switched off when the pump remains on for 50s.
5. Devise a circuit that can be used with the domestic washing machine to switch on a pump to pump water for 100s into the machine. Then switch on a heater for 50s to heat the water. The heater is switched off and another pump is switched on to empty the water for 100s.
6. Design and simulate of fluid power circuits to control (i) velocity (ii) direction of a single and double acting actuators
7. Design and Simulate a ladder diagram for car parking.

ELECTRICAL WIRING LAB

Residential Electrical Wiring Practice Lab:

1. Health & Safety practices at the work place
2. Planning & Design.
3. Installation & Testing.
4. Fault Location & Earthing.

MACHINES LAB

DC Machines and Alternators Lab

1. Draw the O.C.C (no-load or magnetization characteristics) of a Self-excited DC shunt generator. Determine the critical resistance.
- 2 Draw the load characteristics of DC Shunt generator.
- 3 Connect, start and run a DC. Motor using a 3 point starter.
4. Control the Speed of DC shunt motor by Flux Control Method. Plot the graph.
5. Control the Speed of DC shunt motor by Armature voltage control. Plot the graph.

6. Draw the Speed v/s armature current characteristics of a DC shunt motor by indirect loading method.
7. Draw the magnetization characteristics of 3-ph alternator. Determine the critical resistance.
8. Determine regulation of a 3-ph alternator by direct loading.
9. Determine regulation of 3-phase alternator by conducting O.C & S.C tests by EMF method.
10. Conduct parallel operation of 3-ph alternators by Dark Lamp OR Bright Lamp OR Synchroscope method.
11. Perform general preventive maintenance on DC Machines and 3 point starters.
12. Perform general preventive maintenance on Alternators and Panel Boards.
13. Perform general preventive maintenance on fuses, switches, rheostats, etc.

TRANSFORMERS AND AC MOTORS LAB

1. Conduct Polarity and Ratio tests on 1-ph transformer.
2. Determine the efficiency and regulation of 1-ph transformer by direct loading.
3. Pre-Determine the Regulation and Efficiency of 1-ph transformer by conducting O.C. and S.C. tests.
4. Parallel operation of two single phase transformers and analyse load sharing pattern for a given KVA rating.
5. Measure Phase & Line Voltage and Phase & Line Current for the Star-Star. (Y-Y Connection) transformer bank using 3 single phase transformers.
6. Measure Phase & Line Voltage and Phase & Line Current for the Star-Delta. (Y- Δ Connection) transformer bank using 3 single phase transformers.
7. Connect, Start, Run and Reverse the direction of rotation of 3-phase Induction Motor using DOL starter.
8. Trace the start terminals and end terminals of three phase windings and mark the terminals u1, v1, w1 and u2, v2, w2 Connect, Start, Run and Reverse the direction of rotation of 3-phase Induction Motor using star delta starter.
9. Start and run 3 ph Induction Motor using Autotransformer starter. Measure the speed for different voltages.
10. Plot the Speed-Torque (Slip Vs Torque) Characteristics of 3-Phase Induction motor by mechanical loading (Brake-drum apparatus).
11. Start, Run and Reverse the direction of rotation of synchronous motor.
12. Identify and connect the starting winding, running winding, capacitor and centrifugal switch terminals rotation of 1-ph capacitor start Induction Motor. Start, Run and Reverse the direction of rotation.
13. Perform general preventive maintenance on transformers and synchronous Motors in the Electrical laboratory.
14. Perform general preventive maintenance on 3ph Induction motor and 1ph Induction Motors in the Electrical laboratory.
15. Perform general preventive maintenance on different types of motor starters.

MEASUREMENTS LAB

ELECTRICAL MEASUREMENT & MEASURING INSTRUMENTS LAB

1. Extend the range of D.C. ammeter by using shunt resistances (low range to high range)
2. Extend the range of D.C. voltmeter by using series multiplier (low range to high range)
3. Extend the range of A.C. ammeter by using C.T. (high range to low range)
4. Extend the range of A.C. voltmeter by using P.T. (high range to low range)
5. Calibrate a D.C. voltmeter by standard method.
6. Calibrate a A.C. ammeter by standard method.
7. Measure power and p.f. of single phase circuit using wattmeter by indirect method
8. Measure p.f. of single phase circuit by direct method using digital p.f. meter and compare the same with indirect method.
9. Measure power and p.f. of three phase circuit using 2-wattmeters by indirect method.
10. Measure p.f. of three –phase circuit using digital p.f. meter and compare the same with indirect method.
11. Calibrate a wattmeter by standard method.
12. Measure energy consumed by single- phase circuit using analog single-phase energy meter.
13. Measure energy consumed by single- phase circuit using digital single- phase energy meter and compare the same with analog single-phase energy meter readings.
14. Measure energy consumed by three phase circuit using analog three- phase energy meter.
15. Measure energy consumed by three- phase circuit using digital three- phase energy meter and compare the same with analog three-phase energy meter readings.
16. Calibrate single phase energy meter by standard method.
17. Conduct an experiment to determine unknown: 1. Resistance using Wheat stone's bridge. 2. Inductance by Maxwell's bridge. 3. Capacitance by Schering Bridge.
18. Conduct an experiments to determine physical & electrical parameters using LVDT, STRAIN GUAGES, RVDT, PYROMETERS, THERMOCOUPLES, BOLOMETER, OPTO SENSORS, PIEZO-ELECTRIC SENSORS
19. Measure RLC by using digital LCR meter and current flowing in any phase a.c. circuit using digital tong tester.

PROTECTIVE RELAYS AND SERVICING LAB

1. Plot the operating characteristics of (a) Fuse. (b) MCB
2. Test the operation of a digital or static type Earth leakage relay with CBCT (Adjust mA sensitivity and trip time using DIP switches).
3. Plot the operating characteristics of the following electromechanical IDMT relays. a) Over voltage relay b) Under voltage relay. c) Over current and d) Earth Fault Relay.
4. Plot the operating characteristics of the following: microprocessor / microcontroller based over or under voltage relay for Normal inverse time setting and definite time setting.
5. Program, Test and Plot the operating characteristics of the following numerical / digital relays: a) Over Voltage and Under Voltage Relay. b) Over Current Relay.
6. Conduct Break Down Voltage Test on transformer oil (dielectric strength test)
7. Trouble shoot and suggest suitable remedies for: Fluorescent lamp fitting, high pressure mercury vapour lamp and High pressure sodium vapour lamp sets.
8. Dismantle, Identify the parts and assemble:- Electric iron box (non-automatic and automatic) .Trouble shoot and suggest suitable remedies for the above.
9. Dismantle, Identify the parts and assemble:- Table fan and Ceiling fan Trouble shoot and suggest suitable remedies for the above.
10. Dismantle, Identify the parts and assemble:- food mixer Trouble shoot and suggest suitable remedies for the above.

11. Install and test the UPS with Batteries.
12. Panel wiring practice.
13. Automatic water level controller

MOTOR CONTROL AND PLC LAB

1. Rig up and test the following applications of logic gates using push button switches, contactor and indicators.

- a) Starting from two different locations (OR Function)
- b) Stopping from one position (NOT Function)
- c) Two hand operation (AND Function)
- d) Stopping from two different locations (NOT+OR or NOR Functions)
- e) Stopping if both signals are given (NOT+AND or NAND functions)
- f) Memory function (Signal is maintained or holding)

2. DOL Starter:

- (a) Rig up and test Direct On Line Starter.
- (b) Rig up and test Direct On Line Starter with local and remote start stop.
- (c) Rig up and test Direct On Line Starter with inching operation.

3. Rig up and test the control circuit for forward and reverse operation of a motor with interlocking function using auxiliary contact.

4. Rig up and test the control circuit for forward and reverse operation of a motor with interlocking function using combined auxiliary contact and push buttons.

5. Rig up and test the control circuit for semi-automatic star delta starter.

6. Rig up and test the control circuit for fully automatic star delta starter.

7. Rig up and test the control circuit for sequence operation of two motors.

8. Rig up and test the control circuit for automatic changeover of supply from EB to DG set when the EB supply fails.

9. Understand - The Operation modes of PLC - program, run and test modes. Data files and program files, Configuration of I/Os and Addressing I/Os.

10. Develop and test the ladder programs for the following motor controls:

- a) Starting from two different locations (OR Function)
- b) Stopping from one position (NOT Function)
- c) Two hand operation (AND Function)
- d) Stopping from two different locations (NOT+OR or NOR Functions)
- e) Stopping if both signals are given (NOT+AND or NAND functions)
- f) Memory function (Signal is maintained or holding)

11. Develop and test the ladder program of Alarm system for the following conditions: If one input is ON- nothing happens, If any two inputs are ON- a red light turns ON, If any three inputs are ON- a Hooter/Alarm turns ON.

12. Develop and test the ladder program for DOL starter. Develop and test the ladder program for DOL starter with local and remote controls.

13. Develop and test the ladder program for interlocking two motors.

14. Develop a ladder programs to study ON delay. Application: Develop and test ladder program for switching ON motor1, motor 2 and motor 3 in sequence with some time delay.

15. Develop and test ladder Program for Automatic fully Star-Delta starter.

16. Develop and test ladder program for water level controller using latch and unlatch instructions.

17. Interface and test PLC based DOL starter and run the motor.

18. Interface and test PLC based Star-Delta starter and run the motor.

Computing Facilities

- Internet Bandwidth : 75 mbps × 10
- Number and configuration of System : 240 (Dual core, Corei3, i5 & i7)
- Total number of system connected by LAN : 240
- Total number of system connected by WAN : 04
- **Major software packages available** :
- Special purpose facilities available : YES
(Conduct of online Meetings/Webinars/Workshops, etc.)
- Facilities for conduct of classes/courses in : YES
online mode (Theory & Practical)
- Innovation Cell : YES
- Social Media Cell : YES
- Compliance of the National Academic Depository (NAD), applicable to PGCM/ PGDM
Institutions and University Departments : NOT APPLICABLE

List of facilities available

- Games and Sports Facilities
 - ❖ Cricket
 - ❖ Table tennis
 - ❖ Chess
 - ❖ Badminton
 - ❖ Carom
 - ❖ Volley Ball
 - ❖ Throw Ball
 - ❖ Shuttle badminton
 - ❖ Kabbadi
 - ❖ Athletic events
 - ❖ Javelin throw
 - ❖ Shot put
 - ❖ Discus throw

- Extra-Curricular Activities
 - ❖ Food fest
 - ❖ Talents day
 - ❖ Fresher's day
 - ❖ Valedictory function
 - ❖ Festivals
 - ❖ Seminars
 - ❖ Workshops
 - ❖ Endowment lectures
 - ❖ Technical quiz
 - ❖ Alumni Meet
 - ❖ Sports day

- Soft Skill Development Facilities: YES

• **Teaching Learning Process**

• Curricula and syllabus for each of the Programmes as approved by the University: [SYLLABUS](#)

• Academic Calendar of the University:



ಕರ್ನಾಟಕ ಸರ್ಕಾರ
ತಾಂತ್ರಿಕ ಶಿಕ್ಷಣ ಇಲಾಖೆ

File No: DTE-ADMI0ACM2/69/2021

ಆಯುಕ್ತರ ಕಛೇರಿ,
ತಾಂತ್ರಿಕ ಶಿಕ್ಷಣ ಭವನ,
ಅರಮನೆ ರಸ್ತೆ, ಬೆಂಗಳೂರು-560 001.
ದಿನಾಂಕ:02-03-2021.

--: ಸು ತ್ತೋಲೆ :-

ವಿಷಯ: 2020-21ನೇ ಸಾಲಿನ ಡಿಪ್ಲೋಮಾ ತರಗತಿಗಳ ಮರು ನಿಗದಿಪಡಿಸಲಾಗಿರುವ ತಾತ್ಕಾಲಿಕ ಶೈಕ್ಷಣಿಕ ವೇಳಾಪಟ್ಟಿಯ ಕುರಿತು.

ಉಲ್ಲೇಖ: 1. ಈ ಕಛೇರಿ ಸಮಸಂಖ್ಯೆ ಸುತ್ತೋಲೆ ದಿನಾಂಕ:15-12-2020.
2. ಹಲವು ಪಾಲಿಟೆಕ್ನಿಕ್ ಪ್ರಾಂಶುಪಾಲರುಗಳ ಮನವಿ ಪತ್ರಗಳು.

-0000000-

2020-21ನೇ ಸಾಲಿನಲ್ಲಿ ರಾಜ್ಯದ ಎಲ್ಲಾ ಡಿಪ್ಲೋಮಾ ಕಾಲೇಜುಗಳಲ್ಲಿ ಸರ್ಕಾರದ ಆದೇಶದಲ್ಲಿನ ಪ್ರಮಾಣಿತ ಕಾರ್ಯಚರಣಾ ವಿಧಾನಗಳನ್ನು ಅಳವಡಿಸಿಕೊಂಡು ಶೈಕ್ಷಣಿಕ ಚಟುವಟಿಕೆಗಳನ್ನು ಪ್ರಾರಂಭಿಸಿ, ಪ್ರವೇಶ ಪಡೆದ ಅಭ್ಯರ್ಥಿಗಳಿಗೆ ನಿಗದಿತ ಅವಧಿಯೊಳಗೆ ಪಾಠ ಪ್ರವಚನಗಳನ್ನು ಪೂರ್ಣಗೊಳಿಸುವ ನಿಟ್ಟಿನಲ್ಲಿ ತಾತ್ಕಾಲಿಕ ಶೈಕ್ಷಣಿಕ ವೇಳಾಪಟ್ಟಿಯನ್ನು ಉಲ್ಲೇಖ(1)ರ ಈ ಕಛೇರಿ ಸುತ್ತೋಲೆಯಲ್ಲಿ ನಿಗದಿಪಡಿಸಲಾಗಿತ್ತು. ಆದರೆ, ಉಲ್ಲೇಖ(2)ರ ಹಲವು ಪಾಲಿಟೆಕ್ನಿಕ್ ಪ್ರಾಂಶುಪಾಲರುಗಳ ಮನವಿ ಪತ್ರದಲ್ಲಿ ಪ್ರಥಮ ವರ್ಷದ ಡಿಪ್ಲೋಮಾ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ತರಗತಿಗಳನ್ನು ನಡೆಸಲು ನೀಡಿರುವ ಅಂತಿಮ ದಿನಾಂಕವನ್ನು ವಿಸ್ತರಿಸುವ ಕುರಿತು ಮನವಿ ಸಲ್ಲಿಸಿರುತ್ತಾರೆ. ಪರಿಶೀಲಿಸಲಾಗಿ, ನಿಗದಿಪಡಿಸಲಾಗಿದ್ದ ವೇಳಾಪಟ್ಟಿಯನ್ನು ಪರಿಷ್ಕರಿಸಿ ಈ ಕೆಳಕಂಡಂತೆ ತಾತ್ಕಾಲಿಕ ವೇಳಾಪಟ್ಟಿಯನ್ನು ಮರು ನಿಗದಿಪಡಿಸಲಾಗಿದೆ.

-: 2020-21ನೇ ಸಾಲಿನ ತಾತ್ಕಾಲಿಕ ಶೈಕ್ಷಣಿಕ ವೇಳಾಪಟ್ಟಿ :-

ಕ್ರ.ಸಂ.	ಶೈಕ್ಷಣಿಕ ಕಾರ್ಯಕ್ರಮ	ಅವಧಿ/ದಿನಾಂಕ	
		ಪ್ರಾರಂಭ	ಮುಕ್ತಾಯ
01.	01ನೇ ಮತ್ತು 03ನೇ ಸೆಮಿಸ್ಟರ್‌ನ ಆನ್‌ಲೈನ್ ಮತ್ತು ಭೌತಿಕ ಸಂಪರ್ಕ ತರಗತಿಗಳ (contact classes) ಪ್ರಾರಂಭ ಹಾಗೂ ಮುಕ್ತಾಯ	17-11-2020	31-03-2021* (Extended Term days Because of pandemic)
02.	ಅಂತಿಮ ವರ್ಷದ 05ನೇ ಸೆಮಿಸ್ಟರ್‌ನ ಭೌತಿಕ ತರಗತಿಗಳ ಅಥವಾ ಆನ್‌ಲೈನ್ ಮತ್ತು ಭೌತಿಕ ಸಂಪರ್ಕ ತರಗತಿಗಳ (contact classes) ಪ್ರಾರಂಭ ಹಾಗೂ ಮುಕ್ತಾಯ		
03.	01, 03 ಮತ್ತು 05ನೇ ಸೆಮಿಸ್ಟರ್ ಪರೀಕ್ಷೆಗಳು	05-04-2021	16-04-2021
	ಅ) ಪ್ರಾಯೋಗಿಕ ಆ) ಥಿಯರಿ	21-04-2021	12-05-2021
04.	02, 04 ಮತ್ತು 06ನೇ ಸೆಮಿಸ್ಟರ್‌ನ ತರಗತಿಗಳ ಪ್ರಾರಂಭ ಹಾಗೂ ಮುಕ್ತಾಯ	13-05-2021	02-09-2021

05.	02, 04 ಮತ್ತು 06ನೇ ಸೆಮಿಸ್ಟರ್ ಪರೀಕ್ಷೆಗಳು		
	ಅ) ಪ್ರಾಯೋಗಿಕ	06-09-2021	18-09-2021
	ಆ) ಥಿಯರಿ	22-09-2021	18-10-2021
06.	ಆಂತರಿಕ ಪರೀಕ್ಷೆಗಳು		
	(1) ಮೊದಲನೆಯ	06ನೇ ವಾರದಲ್ಲಿ	
	(2) ಎರಡನೆಯ	10ನೇ ವಾರದಲ್ಲಿ	
	(3) ಮೂರನೆಯ	14ನೇ ವಾರದಲ್ಲಿ	
07	ಆಂತರಿಕ ಪರೀಕ್ಷೆಗಳ ಅಂಕಗಳ ಪರಿಶೀಲನೆ		15ನೇ ವಾರದಲ್ಲಿ
08	ಹಾಜರಾತಿ ಕೊರತೆ ಹಾಗೂ ಮತ್ತಿತರ ಶೈಕ್ಷಣಿಕ ಚಟುವಟಿಕೆಗಳ ಬಗ್ಗೆ ವಿದ್ಯಾರ್ಥಿಗಳು ಮತ್ತು ಪೋಷಕರ ಜೊತೆ ಸಾಂಪನ್ಮೂಲ ಕಾರ್ಯಕ್ರಮ		08ನೇ ವಾರದಲ್ಲಿ

(*2020-21ನೇ ಸಾಲಿನ ತಾತ್ಕಾಲಿಕ ಶೈಕ್ಷಣಿಕ ವೇಳಾಪಟ್ಟಿಯ, ತುರ್ತು ಅಗತ್ಯ ನೈಸರ್ಗಿಕ ಪರಿಸ್ಥಿತಿಗೆ ಅನುಗುಣವಾಗಿ, ಅಲ್ಪ ಬದಲಾವಣೆಗೆ ಒಳಪಟ್ಟಿರುತ್ತದೆ*)

ಕೋವಿಡ್-19 ಸಾಂಕ್ರಾಮಿಕ ರೋಗದ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ಮುನ್ನೆಚರಿಕೆ ಕ್ರಮಗಳನ್ನು ಅನುಸರಿಸಿ ಪ್ರವೇಶ ಪಡೆದ ಅಭ್ಯರ್ಥಿಗಳಿಗೆ ನಿಯಮಾನುಸಾರ ಪಾಠ ಪ್ರವಚನಗಳನ್ನು ನಡೆಸಲು ಸೂಕ್ತ ವ್ಯವಸ್ಥೆ ಮಾಡುವುದಲ್ಲದೆ, ವಿದ್ಯಾರ್ಥಿಗಳ ಶೈಕ್ಷಣಿಕ ಹಿತದೃಷ್ಟಿಯಿಂದ ಮೇಲ್ಕಂಡಂತೆ ಮರು ನಿಗದಿಪಡಿಸಲಾಗಿರುವ ತಾತ್ಕಾಲಿಕ ಶೈಕ್ಷಣಿಕ ವೇಳಾಪಟ್ಟಿಯನುಸಾರ ಡಿಪ್ಲೋಮಾ ಪ್ರವೇಶ ಪಡೆದ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಪ್ರಮಾಣಿತ ಕಾರ್ಯಚರಣಾ ವಿಧಾನಗಳನ್ನು ಅಳವಡಿಸಿಕೊಂಡು ವಿಶೇಷ ತರಗತಿಗಳನ್ನು ತೆಗೆದುಕೊಳ್ಳುವುದರ ಮೂಲಕ ಪಠ್ಯಕ್ರಮದನ್ವಯ ನಿಗದಿತ ಪಾಠ ಪ್ರವಚನಗಳನ್ನು ಮುಗಿಸುವಲ್ಲಿ ಕ್ರಮತೆಗೆದುಕೊಂಡು ಕಾರ್ಯದರ್ಶಿಗಳು, ತಾಂತ್ರಿಕ ಪರೀಕ್ಷಾ ಮಂಡಳಿ, ಬೆಂಗಳೂರು ಇವರಿಗೆ ವರದಿ ಮಾಡುವುದು. ಪ್ರಯುಕ್ತ, ಇದನ್ನು ರಾಜ್ಯದ ಎಲ್ಲಾ ಪಾಲಿಟೆಕ್ನಿಕ್‌ಗಳ ಪ್ರಿನ್ಸಿಪಾಲರುಗಳು ಗಮನದಲ್ಲಿರಿಸಿಕೊಂಡು ನಿಯಮಗಳ ಪ್ರಕಾರ ಪಾಠ ಪ್ರವಚನಗಳನ್ನು ಮುಕ್ತಾಯಗೊಳಿಸುವಲ್ಲಿ ಕ್ರಮ ತೆಗೆದುಕೊಳ್ಳಬೇಕೆಂದು ತಿಳಿಸಲಾಗಿದೆ.


ಆಯುಕ್ತರು

ಕಾಲೇಜು ಮತ್ತು ತಾಂತ್ರಿಕ ಶಿಕ್ಷಣ ಇಲಾಖೆ

ಇವರಿಗೆ,

ರಾಜ್ಯದ ಎಲ್ಲಾ ಸರ್ಕಾರಿ, ಅನುದಾನಿತ ಮತ್ತು ಖಾಸಗಿ ಪಾಲಿಟೆಕ್ನಿಕ್‌ಗಳ ಪ್ರಾಂಶುಪಾಲರುಗಳಿಗೆ - ಸೂಕ್ತ ಕ್ರಮಕ್ಕಾಗಿ ಹಾಗೂ ಅನುಸರಣೆಗಾಗಿ.

ಪ್ರತಿ:-

1. ಮಾನ್ಯ ಆಯುಕ್ತರ ಆಪ್ತಶಾಖೆಗೆ.
2. ಮಾನ್ಯ ನಿರ್ದೇಶಕರ ಆಪ್ತಶಾಖೆಗೆ.
3. ಜಂಟಿ ನಿರ್ದೇಶಕರು(ಆಡಳಿತ), ಕಾಲೇಜು&ತಾಂತ್ರಿಕ ಶಿಕ್ಷಣ ಇಲಾಖೆ, ಬೆಂಗಳೂರು.
4. ಜಂಟಿ ನಿರ್ದೇಶಕರು(ಪರೀಕ್ಷೆ), ಕಾಲೇಜು&ತಾಂತ್ರಿಕ ಶಿಕ್ಷಣ ಇಲಾಖೆ, ಬೆಂಗಳೂರು.
5. ಆಡಳಿತಾಧಿಕಾರಿಗಳು, ಕಾಲೇಜು&ತಾಂತ್ರಿಕ ಶಿಕ್ಷಣ ಇಲಾಖೆ, ಬೆಂಗಳೂರು
6. ಸಾರ್ವಜನಿಕ ಸಂಪರ್ಕಾಧಿಕಾರಿಗಳು, ಕಾಲೇಜು&ತಾಂತ್ರಿಕ ಶಿಕ್ಷಣ ಇಲಾಖೆ, ಬೆಂಗಳೂರು.
7. ಇ-ಆಡಳಿತ ವಿಭಾಗಕ್ಕೆ - ಸದರಿ ಸುತ್ತೋಲೆಯನ್ನು ಇಲಾಖೆಯ ವೆಬ್‌ಸೈಟ್‌ನಲ್ಲಿ ಪ್ರಚುರಪಡಿಸುವುದು.
8. ರಿಜಿಸ್ಟ್ರಾರ್(ಪರೀಕ್ಷೆ), ಕಾಲೇಜು&ತಾಂತ್ರಿಕ ಶಿಕ್ಷಣ ಇಲಾಖೆ, ಬೆಂಗಳೂರು.
9. ಕಛೇರಿ ಪ್ರತಿ.

- Academic Time Table with the name of the Faculty members handling the Course
- Teaching Load of each Faculty
- Internal Continuous Evaluation System and place: As stated in the curriculum.

Assessment Method	What		To Whom	Assessment mode /Frequency /timing	Max. Marks	Evidence Collected	Course Outcomes
Direct assessment	CIE	IA	Students	Three tests [†]	20	Blue Books	1 to 6
				Activity*	05	Activity Sheets	1 to 6
	SEE	End exam		End of the course	100	Answer Scripts at BTE	1 to 6
				Total	125		
Indirect assessment	Student feedback on course		Students	Middle of the Course	Nil	Feedback Forms	1 to 3 Delivery of course
	End of course survey			End of the Course	Nil	Questionnaires	1 to 6, Effectiveness of delivery instructions & assessment methods

Legends: CIE-Continuous Internal Evaluation, SEE- Semester End-exam Evaluation

[†] Every CIE/IA test shall be conducted for 20 marks. Average of three tests, by rounding off any fractional part thereof to next higher integer, shall be considered for CIE/IA.

*Students should do activity as per the list of suggested activities/ similar activities with prior approval of the teacher. Activity process must be initiated well in advance so that it can be completed well before the end of the term.

Questions for CIE and SEE will be designed to evaluate the various CLs as per the weightage shown in the following table.

Sl. No.	Cognitive Levels (CL)	Weightage (%)
1	Remembering	25
2	Understanding	35
3	Applying	40
Total		100

Continuous internal evaluation (CIE) pattern

(ii) Model of rubrics for assessing student activity (for every student)

Dimension	Scale					Marks (Example)
	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Good	5 Exemplary	
1. Research and gathering information	Does not collect information relate to topic	Collects very limited information, some relate to topic	Collects basic information, most refer to the topic	Collects more information, most refer to the topic	Collects a great deals of information, all refer to the topic	3
2. Full-fills team roles and duties	Does not perform any duties assigned to the team role	Performs very little duties	Performs nearly all duties	Performs almost all duties	Performs all duties of assigned team roles	2
3. Shares work equality	Always relies on others to do the work	Rarely does the assigned work, often needs reminding	Usually does the assigned work, rarely needs reminding	Always does the assigned work, rarely needs reminding.	Always does the assigned work, without needing reminding	5
4. Listen to other team mates	Is always talking, never allows anyone to else to speak	Usually does most of the talking, rarely allows others to speak	Listens, but sometimes talk too much,	Listens and talks a little more than needed.	Listens and talks a fare amount	3
Total marks						ceil(13/4)= 4

(iii) CIE/IA Tests (20 Marks)

Three tests have to be conducted, during specified schedule, in accordance with the test pattern given below and their average-marks shall be considered for CIE/IA.

- Student's assessment of Faculty, System in place: Student feedback provided twice in a semester
- **For each Post Graduate Courses give the following:** NOT APPLICABLE
- Title of the Course
- Curricula and Syllabi
- Laboratory facilities exclusive to the Post Graduate Course
- Software, all design tools in case
- Academic Calendar and framework

Enrolment and placement details of students in the last 3years: Available

List of Research Projects/ Consultancy Works

- Number of Projects carried out, funding agency, Grant received
- Publications (if any) out of research in last three years out of masters projects
- Industry Linkage
- MoUs with Industries (minimum3(10))

LoA and subsequent EoA till the current Academic Year: WEBSITE LINK

**Accounted audited statement for the last three years:
Best Practices adopted, if any :**

Note: Suppression and/or misrepresentation of information shall invite appropriate penal action. The Website shall be dynamically updated with regard to Mandatory Disclosures