



V11: DIPLOMA FOR CIVIL SUPERVISOR (DFCS)

DCV 101: Theory Course – I: BASIC CIVIL CONSTRUCTION

1. Introduction to Building Construction.
Classification of Structure.
Components of a building.
2. Introduction to Engineering material.
Lime, Sand, Cement and Mortars etc.
3. Brick
Masonry.
Definition of brick, size of bricks, manufacturing of bricks, characteristics of good bricks.
Terms used in Brick masonry, Principles of construction in Brick masonry, Bonds – English band, Flemish bond.
Scaffolding, Types of Scaffolding.
4. Stone Masonry
Terms used in Stone Masonry.
Principles of Construction in stone masonry.
Types of Stone Masonry.
Comparison between Stone Masonry and Brick Masonry.
5. Foundation
Definition of Foundation, Purpose of Foundation, Causes of Failure of Foundation
Formula for determining width and depth of foundation.
Types of Foundation.





Examination of ground, General Inspection of Soil and methods.

6. Dampness and its prevention
Definition of Dampness, Causes of dampness.
Prevention of Dampness, Material used for D.P.C.
7. Floors.
Definition, Types of Floors, Construction of Different types of flooring, skirting & dado.
8. Arches and Lintels
Definition of Arches, Terms used in Arches, Types of Arches.
Definition of Lintels, Types of Lintels.
- 9 .Roofs
Definition, Types of Roofs – Pitched Roof & Flat Roofs.
Terms used in Roof.
Types of Pitched Roofs.
Types of Roof covering.
Flat Roof.
- 10 Stairs
Definition, Terms used in Stair, Types of Stairs, Requirement of good stairs.
- 11 R.C.C.
Definition, Material used in R.C.C.
Grade of Concrete, Water cement Ratio.
Working of Concrete – slump Test.
Formwork.
Reinforcement Detailing in R.C.C. work.





Preparation of Concrete.

Mixing and Planning concrete.

Cutting and bending of bar, length of hooks and bends laps kept, minimum cover space etc.,

Bar bending schedule.

12 Structural Steel work

Types of Rivets, Advantages and Disadvantages of Riveting and Welding.

Rolled steel sections.

Steel column, girder and beams.

Connection between columns and beams.

13 Domestic Services

Plumbing, Definition of Plumbing, Tools in Plumbing.

Sanitary Fittings.

Terms used in House plumbing, water supply system, House drainage System

Septic Tank, Soak Pit.

Sewers and drains.

Domestic water supply and installation of water supply system of building.

14 Field Activities

Agencies Associated in Building industry.

Plan Sanctioning Authorities.

Building rules and bye – laws, F.S.I., carpet area, Built – up area calculations.

Procedure of submitting plans for approval to plan sanctioning authority.

Planning of building.





15 Surveying and Leveling.

Brief idea of surveying and classification of Survey.

Chain Surveying, Instruments in chain Survey, field book.

Plane Table surveying, instrument used, Advantages and Disadvantages of plane tabling,

Methods of Plane Tabling.

Leveling, Terms used in leveling.

Different types of Levels, Dumpy level and leveling staff.

Contouring, Characteristics of contours, uses of contours.

16. Finishes

Surface Finishing, painting, varnishing, Polishing, Distempering, Cementing, Wall Papering, Plastering, Glazing work, white and color washing.

17 Units and Measurement.

Conversation of Units, Area & Volume (Rectangle, Square, Parallelogram, Rhombus, Triangle, Circle)

DCV 102: Theory Course II: BUILDING CONSTRUCTION & MANAGEMEN

1. ESTIMATING & COSTING

A) Introduction.

B) Different methods of taking out quantities – center line, out – put & in-in problems

On square, Rectangular & Circular Sections.

C) Units of measurement & unit of payment of different items of works.

D) Calculation of quantities of materials for,

1) Plain cement concrete of different proportions.

2) Brick & Stone Masonry in cement & lime mortar.





- 3) Plastering & Painting with Cement Mortar in foundation & Super structure.
- 4) Woodwork for fully paneled doors & windows.
- 5) R.C.C. slab – Calculating Reinforcement & concrete.
- 6) Painting work for brick work & stone work.

E) Analysis of rates of the following items of work – includes labor, material rates etc

- 1) Earthwork in Excavation & filling.
- 2) Cement concrete in foundation.
- 3) R.C.C. & R.B. in roof slabs.
- 4) I Class burnt brick masonry in C.M.
- 5) Course viable stone masonry in C.M.
- 6) Cement plaster.
- 7) Cement pointing – flash & deep pointing.
- 8) White washing on new surface
- 9) Painting on new woodwork.
- 10) Cement concrete floor.
- 11) Paneled & glazed door.

F) Preparation of detailed estimate; complete with detailed reports, specification etc.

Preparation of complete estimate of proposed bungalow.

G) To prepare abstract sheet from given drawing.

H) Types of Contracts, Tender Notice, Documents required in Tendering conditions

Of contracts, adding % as contractor's profit.

I) Take out quantity for septic tank.

2. ROADS: BRIDGES & RAILWAYS.





Different types of Roads, Railway Gauges.
Materials used & Construction of Roads.
Construction of cement concrete road & different Machinery used, Classification
Of bridges.
Maintenance of different road, Types of R.C.C. bridges, Railway development in
India.

3. WATER PROOFING WORKS:

Materials for water proofing, tools and Methods used.
Water proofing to W/C, bathrooms, Kitchen, Window sills & walls.
Water proofing while casting slab.
Water proofing to old slab & methods used.

4. ELECTRIFICATION WORKS:

Different types of wiring Systems & Materials.
Tools & accessories used in Electrification works.
Specification & Importance of Electrification works & symbol in Electrification.

5. BUILDING MAINTENANCE WORK:

Old Plaster Repairing.
Repair R.C.C. Slab, Leakage through parapet wall, basements, side walls
Maintenance of different types of floorings.

6. CONSTRUCTION MANAGEMENT

A) Introduction:

Classification of construction into light, heavy & industrial. Importance of
Construction industry, Agencies Associated with construction works.

B) Construction Planning

:Necessity & Importance, Planning at different stages, methods of planning,





Scheduling, pretender & contract planning by contractor, types of schedules.

C) Construction Labour:

Introduction, Labour welfare, payment of wages act, minimum wages act.
Workmen compensation act, contract labor act, labour insurance act.

D) Inspection & Quality Control:

Introduction, stages of Inspection, Major items of control, Technical services
Required for inspection.

E) Safety in Civil Engineering:

Importance, terms used, Accident, Accident cost, safety – program.

7 ACCOUNT

A) Introduction:

Necessity of maintaining accounts, List of reference books, in accounts.

B) Stores & material Management:

Introduction, Material management, Stores, Necessity & Safely of stores,
Monthly balance return of stock, surpluses & shortages of stock, Action for
Rectification of stock register, Losses of stock, Recording the loss, estimates of
Loss of stock & writing off.

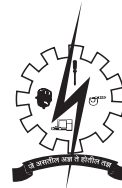
C) Different types of contract:

% rate contract as per C.S.R. Labour rate (% above or below) for various items
For covered area construction through rate basis, item rate contract. Types of
Contract.

D) Allotment of Works:

Concept of quotation, tender, contract agreement – brief reference, work order,
Rules & different types of forms, Deposit works.





DCV 103: PRACTICAL Course I: BUILDING DRAWING

Student is expected to complete following drawing sheets:

SR. NO.	TOPICS	MIN. NO. OF SHEETS
1	Lines, Lettering, Dimensioning	2
2	Plain scales and Isometric scales	1
3	Orthographic Projection	2
4	Isometric Projection	2
5	R.C.C. Drawing of : 1. Column Footing 2. One way and Two way slab 3. Dog-legged Stair 4. Lintel and Chajja	1
6	Different types of Doors and Windows	2
7	Different types of Stair and Staircases	1
8	Line Plan of Plumbing work and Sanitary & Water supply work	1
9	Symbols of Materials, Sanitary and Water supply Symbols	1
10	Electrical symbols and Wiring layouts	2
11	Structural Steel Work : 1. King Roof Truss 2. Queen Roof Truss 3. lean to Roof	3
12	Complete set of Drawings for : 1. Small & Medium Offices 2. Residential building 3. Residential and Double Storey building 4. Commercial Building & Complex	2 4 4 2
Total		30





DCV 104:PRACTICAL Course II: - COMPUTER AIDED DRAFTING (CAD)
MENUS, TOOLBARS AND
TOOLPALETTES

Tools Palettes, Insert Blocks and Hatches Using Tool Palettes, Change Tool Palette Settings, Toolbars, The Menu Bar, Shortcut Menus.

2. DRAW GEOMETRIC
OBJECTS

Linear Objects, Lines, Poly lines, Polygons, Multiple-Line Objects, Freehand Sketches,

Curved Objects, Arcs, Circles, Poly line Arcs, Donuts, Ellipses, Splines,
Construction

And Reference Geometry, Reference Points, Construction Lines (and Rays), Create and

Combine Areas (Regions), Create 3D Objects, Overview of 3D Objects, Add Extruded

Thickness to Objects, Create Wireframe Models, Create Surfaces, Create 3D Solids.

3. CHANGE EXISTING OBJECTS

Selects Objects, Individually, Multiple Objects, Prevent Objects from Being Selected,

Mirror Objects, Change the Size and Shape of Objects, Create Fillets, Chamfers.

4. HATCHES, NOTES AND DIMENSIONS

Hatches, Fills and Wipeouts, Overview of Hatch Patterns and Fills, Define Hatch Boundaries, Overview of Hatch Boundaries, Choose Hatch Patterns and Solid Fill

5. NOTES AND LABELS

Overview of Notes and Labels, Create Text, Create Single-Line Text,

Create Multiline Text, Import Text from External Files, Work with Text Styles, Assign Text Fonts, Set Text Height, Set Horizontal or Vertical Text Orientation, Change Text, Check Spelling.



Indira Technical Institute, Nashik

(Government Recognized)



6. DIMENSIONS AND TOLERANCES

Understand Basic Concepts of Dimensioning, Overview of Dimension, Parts of a Dimension, Associative Dimensions, Use Dimension Styles, Overview of Dimension Styles,

Set the Scale for Dimensions, Create Dimensions, Create Linear Dimensions, Create

Radial Dimensions, Create Angular Dimensions, Create Ordinate Dimensions, Modify

Existing Dimensions, Apply a New Dimension Style to Existing Dimensions.

7. PLOT DRAWINGS

Set up a Layout, Overview of Layout Setup, Select a Paper Size for a Layout, Determine the Drawing Orientation of a Layout, Adjust the Plot Origin in a Layout, Set the

Plot Area of a Layout, Set the Plot Scale for a Layout, Set the Line weight Scale for a

Layout, Zoom and Pan in Nonrectangular Viewports, Plot Drawings, Overview of Plotting,

Set up a Page for Plotting, Set Paper Size, Position the Drawing on the Paper, Control

How Objects Are Plotted, Set Plot Scale, Preview a Plot.

8. STARTING AND SAVING A DRAWING

Find a drawing, Use a Setup Wizard, Use a Template File to Start a Drawing, Save a Drawing.

9. OPEN AN EXISTING DRAWING

Overview of Opening Drawings, Find a Drawing File, Specify Search Paths, File Names and

File Locations, To work with Multiple Open Drawings, Open Part of a Large Drawing (Partial Load), Identifying Information to Drawings, To Recover a Damaged File.



Indira Technical Institute, Nashik

(Government Recognized)



10. SPECIFY UNITS, ANGLES AND SCALE

Set Units of Measurement, Set Angle, Draw to Scale, Organize Drawings and Apply Standards.

11. SPECIFY A 3D VIEW

View a Parallel Projection in 3D, Overview of Viewing Parallel Projections in 3D, Choose

Preset 3D Views, Define a 3D View with Coordinate Values or Angles, Change to a View of

The XY Plane.

12. OVERVIEW OF LINE TYPES

Load Line types, Set the Current Line type, Change the Line type of an Objects, Control

Line Weights, Overview of Line weights, Control the Display of Poly lines, Hatches, Gradient Fills.

Study Material List

Civil Draftsman by R S Malik and P. H. Mayo
Asian Publishers , A Division of Computing Publication,
7/31, Ansari Road, Dariyaganj, New Delhi-110002
Ph: (011) 23280163, 23280164





V12: Diploma in Mechanical Techniques (DMT)

DMT 101: Theory Course 1: FITTING & WELDING

- Introduction, Safety & Precautions.
- Measures , Operating System
- Types of Metal (Materials)
- Cutting Tools (Hand Tools)
- Concepts of Mechanical
- Techniques of Welding (Arc & Gas Welding)
- Concept of Fitter Technology
- Introduction types of Engineering Drawing & Geometrical Constructions, Types of Steals
- Orthographic & Isometric Projection, Assembly Drawing.
- Orthographic & Isometric Projection, Assembly Drawing.
- Introduction to milling, shaping and CNC m/c & its Operations.
- Workshop Management, Units of Measurements, Menstruations.
- Drilling Machine - Types , Classification, Main parts & Operation performs on drilling machine
- Grinding Machine - Types, Classification, Operation, wheel balancing & dressing.
- Units of Measurements - Definition of Units types of units, System of Units, conversion of units

DMT 102: Theory Course 2: TURNING (LATHE OPERATOR)

- Safety rules, causes of accidents, First aid etc.
- Introduction to Lathe, Classification
- Lathe Accessories & attachment
- Techniques of Turning Operation





- Concept of Mechanical Engineering.
- Industrial Develop Skill
- Concept of Turner Technology
- Study of Cutting ,speed & feed
- Drilling Practical - Introduction to Drill m/c & its parts
- Maintenance Activities - Types of maintenance, importance of maintenance, planning of maintenance
- Hand Tools & Cutting Tools – Hammer, Screw drivers, Pliers, vice, clamps, files, drills, tap, scrapers, die marking tools, calipers, scriber, dot punch etc
- Measuring Instruments - Scale -Measuring Tape, venire, caliper micrometer, combination set, height gauge etc
- Engineering Fasteners - Threads & its types tern parry fasteners , various types of Nuts & bolts, screws, pin, cotters etc, rivets and method of riveting

DMT 103: PRACTICAL Course 1 -- FITTING & WELDING

- Fitting Practical - Introduction to various hand-tools and measuring instruments, Introduction arid use of various precision measuring instruments like venire Caliper, height gauge, dial test indicator etc Practical using various fitting operations drilling ,lapping, reaming etc
- Welding Practical - Introduction to various tools and equipments used for arc welding practical using arc welding and gas welding, gas cutting techniques.
- Types of Fitting & Welding Joints, Types of reaming drilling, Filling, Sawing, Chipping, Soldering

DMT 104: PRACTICAL Course 2 -- TURNING

- Machine Practical - Introduction to lathe machine and its parts. Study of tools & equipments used for lathe m/c operations .Preparing jobs using following lathe. Operations facing, turning, step turning, bearing, threading, grooving, eccentric filming, knurling, drillings, radius turning etc. Lathe tool-grinding





- Drilling Practical -Introduction to drill m/c and its parts
- Types of Turning Jobs , Blind Boarding , Internal Turning, Taper Turning , Job Failing & Facing
- Jobs using drilling operations -Drilling. Blind hole drilling , bearing , reaming , counter boring ,couter sinking, chamfering ,drill grinding

Study Material

Lathe Operator: YCMOU book set

Welding Technology by Dandgavhal, Anmol Prakashan

Fitting Technology by Dandgavhal

V13:Diploma For Fitter (DFF)DFT 101: Theory Course 1: Fitting-1

- Introduction to Fitting
- Safety and precaution measures
- Important of Fitting and Bench Work
- Hand tools I, II.
- Measuring Instruments
- Precision Tools
 - Ø In/out side Micro miter
 - Ø Venire caliper
 - Ø Dial test indicator
 - Ø Gages

DFT 103: Theory Course 2: Fitting 2

- Mechanical Fasning
 - Ø Thread
 - Ø Taps
 - Ø Transmission of Power
 - Ø Tolerance, Limits & Fits
 - Ø Jig, Fixture



Indira Technical Institute, Nashik

(Government Recognized)



- Metal

Techniques of Fitting

DFT 102: Practical 1: Fitting 1

- Fitting workshop to Bench work, introduced
- Marking of fitting
- Center punching of fitting
- Sawing practice
- Chiseling work
- Drilling, Taping & die Threading
- Filing of metal
- Key way slot
- Open fitting work

DFT 104: Practical 2: Fitting 2

- Angular Square and Outer Fitting
- Scraping
- Composite Job
- Preventing Practice
- Use of bearing Pallor
- Preventing and corrective maintenance
- Machine foundation
- L P & Bypass valve cleaning & Fitting
- Types of fitting





**T93: Diploma in Electronic Equipment Maintenance and Repairs
(16 Credit points)**

1. Radio Tape Recorder- Theory 1 (4 CP)- DEM 101
 - Principles of Electricity
 - Radio Components (Passive)
 - Radio Communication
 - Radio Components (Active)
 - Radio Circuit's Part (Transistors)
 - Radio Repair and Maintenance
 - Tape Recorder Assembly and Operational Functions
 - Tape Recorder Repair and Maintenance
 - Electronic Circuitry
 - Electronic Assembly
 - Electronic Components
2. Television Electronics- Theory 2 (4 CP)- DEM 201
 - Television and Radio Electronics
 - Understanding Digital Technology
 - Digital Television
 - Digital Video Technology
 - Understanding VCD Technology
 - VCD Repair and Maintenance
 - DVD Repair and Maintenance
 - Understanding DVD Technology
 - Understanding MP3 Technology
 - MP3 Repair and Technology
 - Understanding DTH Technology
3. Radio Tape Recorder- Practical 1 : All practicals based on theory 1 (4CP)- DEM 102
4. Television Electronics- Practical 2: All practicals based on theory 2 (4CP)- DEM 202





T 94: Diploma in Fabrication (16CP)

1. Arc Welding (Theory 1)- DIF 101(4 CP)
 - Introduction
 - Techniques of Arc (Domestic and industrial) Welding joints and types,
 - Cutting safety and precaution measures
 - Hand tools 1 and 2 mechanical fastenings
2. Gas Welding (Theory 2)- DIF 201 (4 CP)
 - Introduction to gas (domestic and industrial) welding joints and types
 - Cutting safety and precaution measures
 - Physical characteristics of Matter
 - Pneumatics and hydraulics
3. Arc Welding (Practical 1) - DIF 102 (4 CP)
Types of Arc welding joints
4. Gas Welding (Practical 2)- DIF 202 (4 CP)
Types of Gas welding joints

T95: Diploma in AC and Refrigeration (16 CP)

1. Refrigeration systems, controlling devices and condensers (Theory 1)- DAC 101 (4 CP)
 - Introduction
 - Compressor and condenser
 - Electric motors and condensers
 - Refrigeration wiring
 - Application to the industry
 - Safety and precaution measures
2. Air Conditioning installation, faults and types of AC (Theory 2)- DAC 201 (4CP)
 - Window air conditioners
 - Room coolers
 - Insulating Materials





- Cold storage
 - ICE plant
 - Railway air conditioning
3. Refrigeration systems, controlling devices and condensers (Practical 1) - DAC 102 (4CP)
 - Electric meters
 - Electric Motors and tools
 - Refrigeration system
 4. Air Conditioning installation, faults and types of AC Installation (Practical 2)- DAC 202 (4CP)
 - Window, split, central air conditioning
 - Automobile air conditioning





COURSES

- 01 Electrician
- 02 Turner
- 03 Fitter
- 04 Mason
- 05 Welder
- 06 Two Wheeler Mechanic
- 07 Four Wheeler Mechanic
- 08 Diesel Vehicle
- 09 Motor Mechanical Vehicle
- 10 Auto Electrician
- 11 Automobile Mechanic
- 12 Audio Radio Servicing
- 13 Television Servicing
- 14 Colour Television Servicing
- 15 Mobile Servicing
- 16 Computer Maintenance
- 17 Digital Electronic and Microprocessor
- 18 Computer Networking
- 19 Air Conditioning & Refrigeration Mechanic
- 20 Mechanical Draughtsman
- 21 Pipe Drafting Designing
- 22 CNC Programming
- 23 Civil Draughtsman
- 24 Architecture Draughtsman
- 25 Interior Designing
- 26 Account Tally
- 27 Advance Account Tally
- 28 Microsoft Office
- 29 C Programming





- 30 C + + Programming
- 31 Information Technology
- 32 DTP
- 33 Computer Programming
- 34 Computerse Taxation
- 35 Fashion Designing
- 36 Beautician
- 37 Tailoring
- 38 General Painter
- 39 Spry Painter
- 40 Montessori Teacher Training
- 41 Telephone Operator
- 42 Diploma in Electronics Engineering Services
- 43 Diploma in Electronics & Telecommunication Engg. Services
- 44 Diploma in Computer Hardware Engineering Services
- 45 Diploma Video Television Engineering Services
- 46 Diploma Electrical Engineering Services
- 47 Advance Diploma Electrical Services
- 48 Diploma Automobile Engineering Services
- 49 Auto Workshop Services Advisor
- 50 Advance Diploma Automobile Engineering Services
- 51 Diploma in Air Conditioning & Refrigeration Eng. Services
- 52 Advance Diploma Air Conditioning & Refrigeration Eng. Services
- 53 Diploma in Mechanical Eng. Services
- 54 Advance Diploma Mechanical Engineering Services
- 55 Diploma Piping Drafting & Designing
- 56 Diploma Piping Engineering Services
- 57 Diploma Civil Engineering Services
- 58 Advance Diploma Civil Engineering Services





- 59 Diploma Computer Application
- 60 Diploma Computerise Account Management
- 61 Diploma Advance Desk Top Publishing
- 62 Diploma In Fashion Designing
- 63 Diploma Hotel Management & Catering Services
- 64 Diploma in Office Automation
- 65 Diploma in computer Drafting & Designing
- 66 Diploma in Graphic Animation
- 67 Food Production
- 68 Food & Beverages
- 69 Web Designing
- 70 Web sit Designing
- 71 Carpenter

- * डिप्लोमा इन कॉम्प्युटर हार्डवेअर अँड नेटवर्किंग
- * डिप्लोमा इन कॉम्प्युटर सॉफ्टवेअर
- * डिप्लोमा इन मेकॅनिकल इंजिनियरिंग
- * डिप्लोमा इन इलेक्ट्रिकल इंजिनियरिंग
- * डिप्लोमा इन ऑटोमोबाईल इंजिनियरिंग
- * डिप्लोमा इन इलेक्ट्रॉनिक्स इंजिनियरिंग
- * डिप्लोमा इन अॅडव्हान्स मोबाईल रिपेअरिंग
- * डिप्लोमा इन रेफ्रिजरेशन अँड ए.सी. इंजिनियरिंग
- * डिप्लोमा इन सिव्हील सुपरवाइझर
- * डिप्लोमा इन फॅब्रिकेटर
- * डिप्लोमा इन ब्यूटीशियन
- * डिप्लोमा इन फॅशन डिझायनिंग
- * मोटार मेकॅनिक, मशिनिसट, डिझेल मेकॅनिक,
- * पेंटर (जनरल), टर्नर, सी.एन.सी., ऑपरेटर, फिटर,
- * वेल्डर, प्लंबर, कारपेंटर, इत्यादी.





Diploma in Computer Hardware maintenance and Network Technologies

Duration : One yearr including 3 months industrial Training

The examination and evaluation pattern : Same as BTE

The Structure of the DCHMNT program (Total 32 CP)

Digital computer Electronics, Theory (4CP)

Digital computer Electronics, Practical (4CP)

How computer works? Theory (4CP)

How computer works? Practical (4CP)

How computer is maintained? Practical (4CP)

Networking Techologies, Theory (4CP)

Networking Techologies, Practical (4CP)

Detail Syllabus of the DCHMNT program:

Course 1) Digital Computer Electronics, Theory (4CP)

1. Number Systems - Decimal and Binary
Why binary system is preferred?
Decimal to Binary and vice versa conversion
Hexadecimal Numbers-Hexa to Binary and Binary to Decimal vice versa conversion
BCD numbers and ASCII code
2. Gates -
OR-AND gates-Basic Boolean Algrbra-Invertors
NOR-NAND gates - D' morgan Theorem (1 and 2)
Exclusive OR gates, Exclusive NOR gates
Controlled Invertors



Indira Technical Institute, Nashik

(Government Recognized)



3. TTL -

Digital Intergrated Circuits (ICs)

TTL characteristics, AND/OR gates using TTL, Open collector Application and Advantages

MOS, CMOS

Multiplexer

IC devices like 74.....Family

4. Boolean Algebra and Karnaugh Maps-

Boolean Relaion, Sum of products method, Algebrai speification

Karnaugh Map, Pairs, Quads, Octets, No care condition (4 variables)

5. Logic Units -

Binary addition and subtraction - Half and full address (Binary adders)

2's and it's compliment - Addres and Subtractors, Signed Binary numbers

MOS, DMOS encoder

6. Flip-Flops-

Simple flip-flop action-RS latch-De latching level checks

Edge triggering advantages - D and JK flip-flops edge triggering

JK matter and slave flip-flops

7. Registers, Counters -

Register meaning - Buffer - Shift and controlled shift registers three state registers - devices

Counters - It's necessity, Simple circuits, Ripple, Synchronous, Ring counters, Devices.

Bus organized computers.





8. Memories :
ROM, PROM & EPROM - RAM - Constructing a small memory and its Hexadecimal Address.
Flash, DVR memories

Course 2) Digital Computer Electronics, Practical Course (4CP)

1. Identification and Testing of computer electronic components
2. Soldering and De-soldering practice, Assembling and testing of Bridge rectifier
3. Activity on NO systems - Hexa Decimal
4. Study of Homkit manual and study of logic gates with switches.
5. Study of logic gate operations (AND, OR) circuit diagram
6. Study of basic gates and derived gates.
7. XOR gate as comparator.
8. Study of Demorgan's Theorem.
9. Use of K map.
10. Ripple counter
11. Up/Down Counter synchronous.
12. Programmable counter
13. Decade Counter 7490
14. Shift Registers.
15. Combination of Logic gates.
16. Timing diagrams
17. Responses of NAND gate.
18. Assembly of OSC with gates.
19. Study of Decoder.
20. Synchronous decade counter.
21. Eight bit reversible counter.
22. Ring counter.





23. Understanding Block diagram of a PC.
24. a) Study and verification of truth tables of AND, OR, NOR, NOT and NAND logic gates.
b) Construct and test NOT and NAND gates using NOR logic.
25. Construct and test a full adder using IC logic blocks.
26. Construct and verify action of R-S flip-flop and D flip-flop.
27. Construct and verify action of T flip-flop and J-K flip-flop.
28. Construct and verify Johnson's Counter and Ring counter.

Course 3) How computers work. Theory Course (4CP)

1. Boot-up process
Getting to know the hardware
How a computer wakes up
How a disk boot works
How an operating system controls hardware
Computers of the next millenium
2. How software works
How porgramming languages work
How windows works
How software applications work
How software will work
3. Microchips
How a transistor works
How RAM works
How a microprocessor works
How microchips will work
4. Data Storage
How disk storage works
How a floppy drive works

