Faculty of Engineering and Technology
P. K. University Shivpuri (MP)

Evaluation Scheme & Syllabus for

Department of Computer Science Engineering & IT

Diploma CS III Year

(V Semester)

(Effective from session 2025-26)

FIFTH SEMESTER
(DIPLOMA COMPUTER SCIENCE AND ENGINEERING)

Sr.No.	CODE	SUBJECTS	STUDY SCHEME Periods/Week			Credits	MARKS IN EVALUATION SCHEME								Total Marks of Internal & External
							INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT					
			L	T	P		*Th*	Pr	Tot	Th	Hrs	Pr	Hrs	Tot	
5.1	DINDUCO501	Industrial Training	-	-	-	*2*	-	-	-	-	-		-	50	50
5.2	DSOFTCO502	Software Engineering	3	-		3	30		30	70			3	70	100
5.3	DWEBDCO503	Web Development using PHP	3	-		3	30		30	70			3	70	100
5.4	DCOMPCO504	Computer Programming using Python	4	-		4	30		30	70			3	70	100
5.5	DCOMPCO505	Computer Architecture and Hardware Maintenance	3	-		3	30		30	70			3	70	100
5.6	DINTECO506	Internet of Things	3	-		3	30		30	70			3	70	100
5.7	DSOFTCO507	Software Engineering LAB			2	*1*		25	25			25		25	50
5.8	DWEBDCO508	Web Development using PHP LAB			4	*1*		25	25			25		25	50
5.9	DCOMPCO509	Computer Programming using Python LAB			4	*1*		25	25			25		25	50
5.10	DCOMPCO510	Computer Architecture and Hardware Maintenance LAB			2	*1*		25	25			25		25	50
5.11	DINTECO511	Internet of Things LAB			4	*1*		25	25			25		25	50
5.12	DMINOCO512	Minor Project Work	-	-	4	2	-	25	25	-	-	25	-	25	50
	Total		*16*		20	*25*	*150*	150	300	350		150		550	850

Student Centred Activities will comprise of co-curricular activities like extension lectures, games, hobby clubs e.g. photography etc., seminars, declamation contests, educational field visits, N.C.C., NSS, Cultural Activities and self study etc

DINDUCO501 INDUSTRIAL TRAINING OF STUDENTS

L	T	P
-	-	-

It is needless to emphasize further the importance of Industrial Training of students during their 3 years of studies at Polytechnics. It is industrial training, which provides an opportunity to students to experience the environment and culture of industrial production units and commercial activities undertaken in field organizations. It prepares student for their future role as diploma engineers in the world of work and enables them to integrate theory with practice. Polytechnics have been arranging industrial training of students of various durations to meet the above objectives.

This document includes guided and supervised industrial training of 4 weeks

duration to be organised during the semester break starting after second year i.e. after 4th semester examinations. The concerned HODs along with other teachers will guide and help students in arranging appropriate training places relevant to their specific branch. It is suggested that a training schedule may be drawn for each student before starting of the training in consultation with the training providers. Students should also be briefed in advance about the organizational setup, product range, manufacturing process, important machines and materials used in the training organization.

Equally important with the guidance is supervision of students training in the industry/organization by the teachers. Students should be encouraged to write daily report in their diary to enable them to write final report and its presentation later on.

An external assessment of 50 marks has been provided in the study and evaluation scheme of 5th Semester. Evaluation of professional industrial training report through viva-voce/presentation aims at assessing students understanding of materials, industrial process, practices in industry/field organization and their ability to engage in activities related to problem solving in industrial setup as well as understanding of application of knowledge and skills learnt in real life situations.

Teachers and students are requested to see the footnote below the study and evaluation scheme of 4th semester for further details.

The teacher along with field supervisors will conduct performance assessment of students. The components of evaluation will include the following:

a) Punctuality and regularity 15%

b) Initiative in learning new things 15%

c) Presentation and VIVA 15%

d) Industrial training report 55%

DSOFTCO502 SOFTWARE ENGINEERING

L	T	P
3	-	-

RATIONALE

The system analysis and design is the backbone of Application software development. After studying the subject the students will be able to develop and design the system according to given requirements. It involves various steps in analysis and design of the system. It includes the knowledge of preparing project systematically. It is important to know about various aspects of the system analysis and design so that the students will be able to understand the responsibilities while designing and implementing the project.

LEARNING OUTCOMES

After undergoing this subject, the students will be able to:

- understanding the problem and corresponding requirement for development of software.
- describe the various phases of the system development life cycle.
- identify the expected benefits and scope of the projects.
- prepare and develop data flow diagrams and decision tables.
- perform a feasibility study of the system.
- write detailed design specifications for programmes and database.
- select methods for evaluating the effectiveness and efficiency of a system.
- apply different testing techniques on simple programme.

DETAILED CONTENTS

1. Introduction to Software Engineering (10 periods)

   System Concepts: Types of systems : (open, closed, static and dynamic systems).

   Introduction, Programmes v/s Software Products

   Emergence of Software Engineering- Early Computer Programming, High-level

   Language Programming, Control flow based Design, Data Structure Oriented Design,Object Oriented Design

2. Software Life Cycle Models (12 periods)

   Requirement of Life Cycle Model, Classic Waterfall Model, Prototyping Model, Evolutionary Model, Spiral Model, introduction to agile methodology.

   Comparison of different Life Cycle Models

3. Software Planning (10 periods)

   Responsibilities of Software Project Manager

   - Metrics for Project Size Estimation- LOC(Lines of Code), Function Point Metric

   - Project estimation Techniques- Using COCOMO Model.

4. Requirement Analysis and Specification (06 periods)

Requirement gathering and Analysis, Software Requirement Specifications(SRS), Characteristics of good SRS

5. Software Design and Implementation (10 periods)

Characteristics and features of good Software Design Cohesion and Cupling, Software design Approaches- Function Oriented Design (Data flow diagrams, Data dictionary,

Decision Trees and tables), Object Oriented Design, Structured Coding Techniques,

Coding Styles, and documentation

6. Software Testing (08 periods)

Concept of Testing, Testing type cycle (V-Model), Verification v/s Validations, Unit Testing, Black Box Testing, White Box Testing, Integration testing, System testing, Configuration management, Overview of test cases.

MEANS OF ASSESSMENT

Assignments and quiz/class tests, mid-term and end-term written tests Software installation, operation, development and viva-voce

RECOMMENDED BOOKS

1. Software Engineering by Rajib Mall, PHI Publishers, New Delhi

2.An IntegratedApproach toSoftware Engineering by Pankaj Jalote, Narosa Publishing House Pvt Ltd, Darya Ganj, New Delhi 110002

3. Software Engineering, Sangeeta Sabharwal, New Age International, Delhi

4. Software Engineering by KK Aggarwal and Yogesh Singh

5. Software Engineering – A Practitioner's Approach by RS Pressman, Tata McGraw Hill Publishers, New Delhi

6. e-books/e-tools/relevant software to be used as recommended by AICTE/NITTTR, Chandigarh.

Websites for Reference:

http://swayam.gov.in

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	10	18
2	12	24
3	10	18
4	06	10
5	10	18
6	08	12
Total	**56**	**100**

DWEBDCO503 WEB DEVELOPMENT USING PHP

L	T	P
3	-	-

RATIONALE

This course will enable the students to understand and develop competency amongst the students to design professional database backed dynamic and feature based web sites. The course covers the use of programming with PHP and the concepts of database with MySQLStudents will be introduced to popular web application frameworks for building scalable web applications. The main objective for this course is to motivate student's interest in learning Web-app development by giving them an insight into its possibilities through practical applications. In addition, the course also provides a sufficiently broad but practical introduction to Server-side web technologies.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

- perform various logical operations in PHP
- create simple programmes to validate forms in PHP
- perform database connectivity using PHP
- apply the basic concepts, principles and practices of Web-site development using server-side technologies (PHP &MySQL)
- install Word Press
- create and manage Blogs,Websites using WordPress

DETAILED CONTENTS

1. PHP Introduction (20 Periods)

Introduction to PHP: How PHP Works , The php.ini File, Basic PHP Syntax, PHP variables, statements, operators, decision making, loops, arrays, strings, PHP OOPs concept, PHP forms (form handling , validation) , get and post methods, functions.

Introduction to cookies, storage of cookies at client side, Using information of cookies. Creating single or multiple server side sessions. Timeout in sessions.

2. PHP and MySQL (10 Periods)

Introduction to MySQL, connecting to MySQL, database, creation, insertion, deletion and retrieval of MySQL data using PHP.

3. Ajax (08 Periods)

AJAX Introduction, XMLHttp, Request object, server response, AJAX events, Validation, Interaction with API

4 .WordPress (CMS) (18 Periods)

WordPress Basics:

Introduction to content management systems based on PHP, Introduction to WordPress, How WordPress Works ,Installation of WordPress

Posts & Pages:

Introduction to Blogging, Creating Blogs, Using Images, Wrapping Text Around Images, Comments, Post Formats, Linking to Posts, Pages, and Categories, Using Smilies, Links Manager, WordPress Feeds, Using Password Protection,

Customizing Site Appearance and Themes:

Developing a Color Scheme, Designing Headers, CSS Horizontal Menus, Dynamic Menu Highlighting, Navigation Links, Next and Previous Links, Styling for Print, Designing Your Post Meta Data Section, Separating Categories in your Post Meta Data Section, Customizing the Read More, Formatting Date and Time, Finding CSS Styles, Creating Individual Pages, Uploading Files using WordPress Themes, Templates, Template Tags, Template Hierarchy, Validating a Website, Know Your Sources, WordPress Site Maintenance

RECOMMENDED BOOKS

1. Head First PHP &MySQL , O'Reilly Media, Inc , Michael Morrison, Lynn Beighley
2. Sams Teach Yourself PHP, MySQL, and Apache All in One" by Julie C. Meloni, Publisher: SAMS ,ISBN 0-672-32976-X
3. Web enabled development application by Ivan Byross: Commercial; TMH
1. PHP: The Complete Reference , by Steven HolznerMcgraw Higher Ed
2. PHP and MySQL Web Development , by Luke Welling , Pearson Education india
3. WordPress 3.5 Complete ,Packt Publishing , by karolkrol , Aaron hodge Silver
4. WordPress Web Application Development ,Packt Publishing
5. Professional WordPress: Design and Development, by Brad Williams, David Damstra, and Hal Stern, Wrox Publication
6. Building Web Apps with WordPress: WordPress as an Application Framework , by Brian Messenlehner and Jason Coleman , O'Reilly Media
7. e-books/e-tools/relevant software to be used as recommended by AICTE/UPBTE/NITTTR.

Websites for Reference:http://swayam.gov.in , http://spoken-tutorial.org

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	20	36
2	10	18
3	08	14
4	18	32
Total	**56**	**100**

DCOMPCO504 COMPUTER PROGRAMMING USING PYTHON

L	T	P
4	-	-

RATIONALE

This course introduces to the students the Python language. Upon completion of this course, the student will be able to write non trivial Python programs dealing with a wide variety of subject matter domains. Topics include language components, the IDLE/IDE environment, control flow constructs, strings, I/O, collections, classes, modules, and regular expressions.

LEARNING OUTCOMES

After undergoing the course, the students will be able to:

- execute Python code in a variety of environments
- use correct Python syntax in Python programs
- use the correct Python control flow construct
- write Python programs using various collection data types
- write home grown Python functions
- use standard Python modules such as os, sys, math, and time
- trap various errors via the Python Exception Handling model
- use the IO model in Python to read and write disk files
- create their own classes and use existing Python classes.
- understand and use the Object Oriented paradigm in Python programs
- use the Python Regular Expression capabilities for data verification

DETAILED CONTENTS

1. Introduction (04 Periods)
    - Brief History of Python
    - Python Versions
    - Installing Python
    - Environment Variables
    - Executing Python from the Command Line
    - IDLE
    - Editing Python Files
    - Python Documentation
    - Getting Help
    - Dynamic Types
    - Python Reserved Words
    - Naming Conventions

2. Basic Python Syntax (04 Periods)
    - Basic Syntax
    - Comments
    - String Values
    - String Methods
    - The format Method
    - String Operators
    - Numeric Data Types
    - Conversion Functions
    - Simple Output
    - Simple Input
    - The % Method
    - The print Function

3. Language Components (06 Periods)
    - Indenting Requirements
    - The if Statement
    - Relational and Logical Operators
    - Bit Wise Operators
    - The while Loop
    - break and continue
    - The for Loop

4. Collections (10 Periods)
    - Introduction
    - Lists
    - Tuples
    - Sets
    - Dictionaries
    - Sorting Dictionaries
    - Copying Collections
    - Summary

5. Functions (08 Periods)
- Introduction
- Defining Your Own Functions
- Parameters
- Function Documentation
- Keyword and Optional Parameters

- Passing Collections to a Function
- Variable Number of Arguments
- Scope
- Functions - "First Class Citizens"
- Passing Functions to a Function
- map
- filter
- Mapping Functions in a Dictionary
- Lambda
- Inner Functions
- Closures

6. Modules (04 Periods)
    - Modules
    - Standard Modules - sys
    - Standard Modules - math
    - Standard Modules - time
    - The dir Function

7. Exceptions (04 Periods)
    - Errors
    - Runtime Errors
    - The Exception Model
    - Exception Hierarchy
    - Handling Multiple Exceptions
    - Raise
    - assert

8. Input and Output (04 Periods)
    - Introduction
    - Data Streams
    - Creating Your Own Data Streams
    - Access Modes
    - Writing Data to a File
    - Reading Data From a File
    - Additional File Methods
    - Using Pipes as Data Streams
    - Handling IO Exceptions

9. Classes in Python (06 Periods)

- Classes in Python
- Principles of Object Orientation
- Creating Classes
- Instance Methods
- File Organization
- Special Methods
- Class Variables
- Inheritance
- Polymorphism

10. Regular Expressions (06 Periods)

- Introduction
- Simple Character Matches
- Special Characters
- Character Classes
- Quantifiers
- The Dot Character
- Greedy Matches
- Grouping
- Matching at Beginning or End
- Match Objects
- Substituting
- Splitting a String
- Compiling Regular Expressions
- Flags

RECOMMENDED BOOKS

1. Learning Python by Mark Lutz; Pratham Books, Bangalore

2.Foundations of Python Network Programming by John Goerzen and BrandeuRhodes; Apress-eBook distributed by Springer Science and Business Media, New York

1. Dive Into Python by Mark Pilgrim; Pratham Books, Bangalore
2. Think Python by Allen B. Downey; O'Reily Media
3. Python Programming For Beginners: A Must Read Introduction to Python Programming by Robert Richards; Pratham Books, Bangalore

6. e-books/e-tools/relevant software to be used as recommended by AICTE/NITTTR, Chandigarh.

Websites for Reference:http://swayam.gov.in

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1.	04	06
2.	04	06
3.	06	10
4.	10	20
5.	08	14
6.	04	06
7.	04	06
8.	04	08
9.	06	12
10.	06	12
Total	**56**	**100**

DCOMPCO505 COMPUTER ARCHITECTURE AND HARDWARE MAINTENANCE

L	T	P
3	-	-

RATIONALE

The subject provides the students with the knowledge of detailed organization of currently available personal computers in order to understand their functioning .The students will also get familiar with Architecture of multi processor systems.

LEARNING OUTCOMES

After undergoing the subject, students will be able to:

- use CPU, register and stack.
- compare micro programmed and hardwired control.
- compare RISC and CISC architecture.
- understand memory hierarchy and memory types.
- explain the function of BIOS.
- illustrate multi processor systems.
- set-up, diagnose problems troubleshoot & Maintained the computer components.

DETAILED CONTENTS

1. Hardware Organisation of computer system (10 periods)

CPU organisation: general register organisation, stack organisation, instruction formats(three address, two address, one address, zero address and RISC instruction). Addressing modes: Immediate, register, direct, in direct, relative, indexed.

CPU Design: Micro programmed vs hard wired control.

Reduced instruction set computers: CISC characteristics, RISC characteristics, and their comparison.

2. Memory organisation (10 periods)

Memory Hierarchy

RAM and ROM chips, Memory address map, Memory connections to CPU. Auxillarymemory: Magnetic disks and magnetic tapes.

Associative memory

Cache memory

Virtual memory

Memory management hardware

Read and Write operation

3. Arithmetic Operations (08 periods)

   3.1 Introduction, Addition, Subtraction, Multiplication and Division algorithm.

4. I/O Organization (10 periods)

Basis Input output system(BIOS)

- Function of BIOS

- Testing and initialization
- Configuring the system

Modes of Data Transfer

- Programmed I/O : Synchronous, asynchronous and interrupt initiated.
- DMA data transfer

5. 8085 Microprocessor: Introduction, Architecture, Pin diagram, Comparison with 8086. (6 periods)

6. Architecture of multi processor systems (12 periods)

Forms of parallel processing

Parallel processing and pipelines, basic characteristics of multiprocessor

General purpose multiprocessors

Interconnection networks: time shared common bus, multi port memory, cross bar switch, multi stage switching networks and hyper cube structures.

LIST OF RECOMENEDED BOOKS

Computer Architecture and Organisation by Moris Mano Computer Architecture by J.P.Hayes

Structured Computer Organisation by Tanenbaum Andrew S, PHI

e-books/e-tools/relevant software to be used as recommended by AICTE/NITTTR, Chandigarh.

Websites for Reference:

http://swayam.gov.in

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (in periods)	Marks Allotted (%)
1.	10	20
2.	10	20
3.	08	10
4.	10	20
5.	06	10
6	12	20
Total	**56**	**100**

DINTECO506 INTERNET OF THINGS

L	T	P
3	-	-

RATIONALE

Internet of Things (IoT) is presently a hot technology worldwide. Government, academia, and industry are involved in different aspects of research, implementation, and business with IoT. IoT cuts across different application domain like agriculture, space, healthcare, manufacturing, construction, water, and mining. IoT-based applications such as innovative shopping system, infrastructure management in both urban and rural areas, remote health monitoring and emergency notification systems, and transportation systems, are gradually relying on IoT based systems. Therefore, it is very important to learn the fundamentals of this emerging technology. This introductory syllabus will enable learners to leverage their business and/or technical knowledge across IoT-related functions in the workplace.

LEARNING OUTCOMES

After undergoing the subject, students will be able to:

- understand the concepts of Internet of Things.
- understand what constitutes an IoT design solution
- identify the sensors and other devices needed for different IoT solutions
- understand the component parts of an IoT network and its connections
- build small IoT applications.

DETAILED CONTENTS

1. Introductionto Internet Of Things (IoT) (10 Periods(

   Introduction to IoT, Defining IoT, Things in IoT, Characteristics of IoT, Physical design of

   IoT, Logical design of IoT, Functional blocks of IoT,IoTProtocols,IoT communication Models, IoT communication API's,IoT enabling Technologies.

2. IoT Devices (12 Periods(

   How electronic devices fit with the Internet of Things, and why they are important

: Breadboard and its internal connections, LED ,Resistor ,,LED and its connections ,Tri-color

   Introduction to the many 'end devices', sensors and actuators, differentiate between different sensor types

3. IoT Networks (**12** Periods(

   Introduction to the components of basic IoT networks, the types of network connections and how data travels through them, and the role of Internet

   Protocols.understanding of microcontrollers/Arduino and communication protocols

4. (**12** Periods) **,**feature of arduino device ,Ardunino device introduction, Components of Arduino boardC)Arduino Programming Language ,Understanding of basic of Arduino IDE**,** function ,control statement, loops, datatype, variables: (Language

5. IoT and M2M (**1**0 Periods(

Introduction, M2M, Difference between IoT and M2M, SDN and NFV for IoT- Software defined networking, network function virtualization, IoT and WoT.

RECOMMENDED BOOKS

1. The Internet of Things: Connecting Objects to the Web,Wiley PublisherHakimaChaouchi
2. Internet of Things: A Hands On Approach, University Press,VijayMadisetti, ArshdeepBahga.
3. 21 Internet Of Things (IOT) Experiments,BPB Publications YashavantKanetkar
4. Arduino Projects For Engineers ,BPB Publications ,Neerparaj Rai
5. Internet of Things – A Hands on Approach, By ArshdeepBahga and Vijay Madisetti Universities Press, ISBN: 9788173719547
6. The Internet of Things , Pearson, By Michael Miller ISBN: 9789332552456
7. e-books/e-tools/relevant software to be used as recommended by AICTE/UPBTE/NITTTR, Chandigarh.

Websites for Reference:http://www.spoken-tutorial.org , http://swayam.gov.in

LIST OF COMPONENTS

1. One kit for 3-4 students : Arduino Uno, sensors(Bluetooth module(HC05), MQ135, DHT11, breadboard , LCD, 2-relay module etc)
2. Consumables : LED, button, connecting wires, LDR, LM35, battery, etc

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1.	10	16
2.	12	22
3.	12	22
4.	12	22
5.	10	18
Total	**56**	**100**

DSOFTCO507 Software Engineering LAB

LIST OF PRACTICALS

L	T	P
-	-	2

1. Develop a SRS on a given topic/project/problem.
2. Develop DFD Model (level 0 and level 1 DFD) of the problem.
3. Develop sequence diagram
4. Develop class diagrams
5. Use testing tools such as J-meter, Canoo Web Test
6. Use a project management tool such as Microsoft project or Gantt project etc (Team week, Target process, Gantt project)
7. Write test cases for any known application
8. Take any system and study its system specification and report the various bugs.

DWEBDCO508 Web Development using PHP LAB

LIST OF PRACTICALS

L	T	P
-	-	4

1. Design PHP based web pages using correct PHP, CSS, and XHTML syntax, structure.

2. Create Web forms and pages that properly use HTTP GET and POST protocol as appropriate.

3 Design SQL language within MySQL and PHP to access and manipulate databases.

4. Install and configure both PHP and MySQL.

5 Create PHP code that utilizes the commonly used API library functions built in to PHP.

6. Design and create a complete web site that demonstrates good PHP/MySQL client/server design using ajax

7. To store a cookie using PHP on client side.

1. To save the user session on server side.

2. Design website using WordPress

10. Creation of basic Blogging website

INSTRUCTIONAL STRATEGY

Since this subject is practice oriented, the teacher should demonstrate the capabilities of websites/WebPages to students while doing practical exercises. Since the entire course content is web based, students can practice it online. The teachers should have practice on this framework. Entire course is hands-on based so practicals should be conducted in the laboratory.

MEANS OF ASSESSMENT

Assignments and quiz/class tests, mid-term and end-term written tests Actual laboratory and practical work, exercises and viva-voce Software installation, operation, development and viva-voce

DCOMPCO509 Computer Programming using Python LAB

LIST OF PRACTICALS

L	T	P
-	-	4

1. Getting started with Python and IDLE in interactive and batch modes
2. What do the following string methods do?

lower

count

replace

3. Write instructions to perform each of the steps below

(a) Create a string containing at least five words and store it in a variable.

(b) Print out the string.

(c) Convert the string to a list of words using the string split method.

(d) Sort the list into reverse alphabetical order using some of the list methods (you might need to use dir(list) or help(list) to find appropriate methods).

(e) Print out the sorted, reversed list of words.

4. Write a program that determines whether the number is prime.

What is your favorite number? 24

24 is not prime

What is your favorite number? 31

31 is prime

5.Find all numbers which are multiple of 17, but not the multiple of 5, between 2000 and 2500?

6.Swap two integer numbers using a temporary variable. Repeat the exercise using the code format: a, b = b, a. Verify your results in both the cases.

7. Find the largest of n numbers, using a user defined function largest().

8.Write a function myReverse() which receives a string as an input and returns the reverse of the string.

10. Check if a given string is palindrome or not. WAP to convert Celsius to Fahrenheit

11 Find the ASCII value of charades

12 WAP for simple calculator

INSTRUCTIONAL STRATEGY

Teachers should lay emphasis on practicals and experts from industries may be invited to deliver lectures and share experiences with the students.

MEANS OF ASSESSMENT

Assignments and quiz/class tests, mid-term and end-term written tests Software installation, operation, development

Actual laboratory and practical work exercises

Viva-voce

DCOMPCO510 Computer Architecture and Hardware Maintenance LAB

LIST OF PRACTICALS

L	T	P
-	-	2

1. Demonstration of following:

motherboard

Key board & Keyboard decoder

Video Adapter & display controllers Floppy Drive, CD Drive and Hard Disk. Multifunction Input/Output controllers Assembly of PC

2 Troubleshooting & repair of following equipment:

(i) Dot Matrix Printer, Laser, Inkjet Printer.

(ii) Digital Plotter

(iii) C. P. U.

(iv) Disk Drive

3. Trouble Shooting of

(i) Network

(ii) Power Supplies.

INSTRUCTIONAL STRATEGY

Since the subject is theoretical one, the practical aspects should be taught along with the theory instruction. The students should be given quiz tests and asked to give seminars on small topics. There is sufficient time in the subject and the students can be taken to laboratory for demonstration.

MEANS OF ASSESSMENT

Assignments and quiz/class tests, mid-term and end-term written tests Viva-voce

DINTECO511 Internet of Things LAB

LIST OF PRACTICALS

L	T	P
-	-	4

1. Installation of Arduino IDE
2. Interfacing Light Emitting Diode (LED)- Blinking LED
3. Interfacing Button and LED – LED blinking when button is pressed**.**
4. Interfacing Light Dependent Resistor (LDR) and LED, displaying automatic night lamp
5. Interfacing Temperature Sensor (LM35) and/or humidity sensor (e.g. DHT11)
6. Interfacing Liquid Crystal Display (LCD) – display data generated by sensor on LCD
7. Interfacing Air Quality Sensor-pollution (e.g. MQ135) - display data on LCD, switch on LED when data sensed is higher than specified value.
8. Interfacing Bluetooth module (e.g. HC05)- receiving data from mobile phone on Arduino and display on
9. LCD
10. Interfacing Relay module to demonstrate Bluetooth based home automation application. (using Bluetooth and relay).

INSTRUCTIONAL STRATEGY

Some of the topics may be taught using question/answer, assignment, seminar or case study method. The teacher will discuss case studies with students , since this

subject is practical oriented, the teacher should demonstrate functioning of various

sensors and demonstrate building of IoT applications. Solution to various regression and classification problems should also be built

MEANS OF ASSESSMENT

Assignments and quiz/class tests, mid-term and end-term written tests viva-voce

Actual laboratory and practical work exercises

Software installation, operation, development

DMINOCO512 MINOR PROJECT WORK

L	T	P
-	-	4

LEARNING OUTCOMES

After undergoing this subject, the student will be able to:

- Use effectively oral, written and visual communication
- Demonstrate skill and knowledge of current information and technological tools and techniques specific to the professional field of study.
- Identify, analyze and solve problems creatively through sustained critical investigation.
- Develop leadership abilities.
- Apply fundamental and disciplinary concepts and methods in ways appropriate to their areas of study.

Minor project work aims at exposing the students to various industries dealing with computers. It is expected from them to get acquainted with computer environment. For this purpose, student during middle of the course are required to be sent for a period of two to four weeks at a stretch in different establishments. Depending upon the interest of students they are sent for exposure to:

1. Industrial practices in installation and maintenance of computers and computer networks
2. Fabrication of computers
3. Fault diagnosis and testing of computers
4. Industrial practices in respect of documentation and fabrication
5. A variety of computers and peripherals in assembly organizations
6. Software package development organizations
7. Maintenance of database
8. Write procedure or functions which can be attached as the library objects to the main projects
9. Write a procedure function to convert number of words.
10. Write a procedure function to convert all data function (create your own) Database connectivity, (SQL server, Oracle, Access), Library classes in C++ (same application).,
11. design web applications using PHP

Note: The teachers may guide /help students to identify their minor project work and check out their plan of action well in advance.

As a minor project activity each student is supposed to study the operations at site and prepare a detail project report of the observations/processes/activities by him/her. The students should be guided by the respective subject teachers. Each teacher may guide a group of 4 to 5 students.

The teachers along with field supervisors/engineers will conduct performance assessment of students. Criteria for assessment will be as follows:

	Criteria	Weightage
(a)	Attendance and Punctuality	15%
(b)	Initiative in performing tasks/creating new things	30%
(c)	Relation with people	15%
(d)	Report Writing	40%