TAMILNADU GOVERNMENT POLYTECHNIC COLLEGE, (AUTONOMOUS), MADURAI- 11

DIPLOMA IN COMPUTER ENGINEERING

N - 20-SCHEME

(Implemented from the Academic year 2021-2022 onwards)

CURRICULUM OUTLINE

FOURTH SEMESTER (FULL TIME)

Col No	SUBJECT CODE	SUBJECT	HOURS PER WEEK		
			THEORY	PRACTICAL	TOTAL
1	4052410	Computer Architecture	5		5
2	4052420	Web design and Programming	5		5
3	4052430	Object Oriented Programming with Java	5		5
4	4052440	RDBMS	5		5
5	4052450	Web design and Programming Practical		4	4
6	4052460	Java Programming Practical		4	4
7	4052470	RDBMS Practical		4	4
			20	12	32
		Physical Education			2
		Library			1
	Total				35

TAMILNADU GOVERNMENT POLYTECHNIC COLLEGE, (AUTONOMOUS), MADURAI- 11

DIPLOMA IN COMPUTER ENGINEERING

N - 20-SCHEME

(Implemented from the Academic year 2021-2022 onwards)

Course Name : 1052:Diploma in Computer Engineering

Subject Code : 4052410

Semester : IV

Subject Title : Computer Architecture

TEACHING AND SCHEME OF EXAMINATION

No of weeks per semester: 16 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	End Semester Examinations	Total	
Computer Architecture	5	80	25	100*	100	3 Hrs

*** Examinations will be conducted for 100 marks and it will be reduced to 75 marks.**

Topics and Allocation of Hours

UNIT	Topic	Hrs.
I	Register Transfer Logic and CPU	17
II	Input – Output Organization	14
III	Memory Organization	16
IV	Microprocessors, Pipelining and Vector Processing	14
V	Architecture and Concepts of Advanced Processors	12
Test and Model Exam		7
Total		**80**

RATIONALE

- Computer Architecture is concerned with the structure and behavior of the various functional modules of the computer and their interaction. This course provides the necessary understanding of the hardware operation of digital computers.

OBJECTIVES

On completion of the following units of syllabus contents, the students must be able to

- Know the fundamental blocks of computer
- Realize the function of I/O in different operation modes
- Use of I/O processor
- Know about different memory types and their operations
- Study about the fundamental blocks of CPU
- Know about the computer arithmetic
- Study the different processors

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topics	Hours
I	**REGISTER TRANSFER LOGIC AND CPU**	
	Register transfer	**3**
	Register Transfer Language – Inter Register transfer – Control function-Bus transfer-Memory transfer.	
	Micro operations and ALU	**7**
	Arithmetic micro operations-Binary adder, subtractor, incrementer, 4bit arithmetic circuit, Logic micro operations- one stage of logic circuit-applications, shift micro operations- 4 bit combinational circuit shifter-one stage of ALU.	
	Central processing unit	**4**
	Components of CPU- General register organization, bus system-register set with common ALU-memory stack - stack limits- Processor Organization - Instruction format(3,2,1,0 address instructions) – Addressing modes, Various addressing modes – RISC and CISC Architecture, Characteristics.	
	Control unit	**3**
	Structure of control unit-Fetch cycle, Indirect cycle, Execute cycle, Interrupt cycle, Instruction cycle - Types of control unit – Hardwired,Micro-programmed control.	

II	**INPUT – OUTPUT ORGANIZATION**	
	Input Output Interface Need for I/O interface, I/O bus and interface, I/O commands, Example of I/O interface, I/O Bus versus memory bus, Isolated I/O versus Memory mapped I/O.	**3**
	Asynchronous data transfer Strobe control, Handshaking, Asynchronous serial transfer, Asynchronous communication interface.	**4**
	Modes of transfer Programmed I/O, Interrupt initiated I/O-vectored interrupt, non-vectored interrupt, Priority interrupt, Interrupt controller ,DMA –DMA controller, DMA transfer.	**4**
	I/O Processor CPU-IOP communication, Data Communication Processor - Serial and Parallel communication.	**3**
III	**MEMORY ORGANIZATION**	
	Memory types Sequential Access memory, Random Access memory, CPU registers, Main memory, Secondary memory, Cache memory - Memory Hierarchy – Characteristics, Design, Advantages of Memory Hierarchy.	**2**
	Main Memory ROM, Types of ROM, RAM – SRAM, DRAM, Chips – ROM, RAM - Memory address map, Memory connection to CPU.	**3**
	Secondary Memory Magnetic disk- Structure**,** Storage capacity**,** Optical disks, USB drives, Solid State Drives, SD cards.	**3**
	Cache Need for cache memory, Operational principle, Cache initialization, Different mapping techniques, Writing into cache.	**2**
	Memory Management Virtual memory concept- Virtual address, Physical address, Memory table for mapping a virtual address, Address mapping using pages, Associative memory page table, Page replacement techniques.	**4**

	3.6 Memory Management Hardware Segmented-Page mapping, Memory protection.	**2**
IV	**MICROPROCESSORS,PIPELINING AND VECTOR PROCESSING** **Microprocessor** Block diagram of 8086-registers: segment registers, address: effective address, flag registers and application of microprocessor. **Parallel processing** Types of parallel processing systems - Parallel organizations. **Pipe Lining** **I**nstruction pipeline, Arithmetic pipeline, RISC pipeline, Super pipelining, Super scalar processors. **Vector Processing** Vector Processing, Array Processing – Example of SIMD arrayprocessor.	 **3** **4** **4** **3**
V	**ARCHITECTURE AND CONCEPTS OF ADVANCED PROCESSORS** **Symmetric Multiprocessors** Organizations, a mainframe. **Multithreading and clusters** Implicit and Explicit multi threading, Cluster configuration. **NUMA and Vector** NUMA organizations and approaches to vector computation. **Multi Core** Multicore organization, Advantages and disadvantages of multicore processing.	 **2** **3** **3** **4**

Reference Books

1. "Computer System Architecture", M.Morris Mano, Prentice –Hall of India Pvt Limited,Revised Third Edition.
2. "Computer Organization And Architecture Designing For Performance", William Stallings, Pearson Publications, Eighth Edition.
3. "Computer Organization and Design: The Hardware/Software Interface", David A. Patterson and John L.Hennessey, Morgan Kauffman / Elsevier, Fifth Edition, 2014.
4. "Computer Architecture and Organization", John P. Hayes, Tata Mc Graw Hill, ThirdEdition
5. Computer Organization and Embedded Systems", Carl Hamacher, Zvonko Vranesic, Safwat Zaky and Naraig Manjikian, Sixth Edition, Tata McGraw Hill, 2012.

TAMILNADU GOVERNMENT POLYTECHNIC COLLEGE, (AUTONOMOUS), MADURAI- 11

DIPLOMA IN COMPUTER ENGINEERING

N - 20-SCHEME

(Implemented from the Academic year 2021-2022 onwards)

Course Name : 1052:Diploma in Computer Engineering

Subject Code : 4052420

Semester : IV

Subject Title : Web Design and Programming

TEACHING AND SCHEME OF EXAMINATION

No of weeks per semester: 16 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	End Semester Examinations	Total	
Web Design and Programming	5	80	25	100*	100	3 Hrs.

*** Examinations will be conducted for 100 marks and it will be reduced to 75 marks.**

Topics and Allocation of Hours

UNIT	Topic	Hrs.
I	Internet, HTML and Advanced HTML	15
II	Frames, Forms and CSS	14
III	JavaScript	15
IV	PHP	15
V	PHP Programming and MySQL	14
Test and Model Exam		7
Total		**80**

RATIONALE:

The main objective of the of this subject is to introduce the students to the building blocks of Internet and Web Design & Programming using HTML, CSS, Java Script, PHP and MySQL. The subject will impart knowledge to design web pages, dynamic and interactive web si tes with client-side and server-side scripting. After completion the students will be able to independently design and develop web sites.

OBJECTIVES: On successful completion of the course, the students will be able to.

- To impart knowledge on Internet and basics of networking concepts.
- To impart basic knowledge on web development.
- Develop simple components in web pages using CSS.
- To impart knowledge for validations and event handlers using JavaScript.
- To provide the basic knowledge about PHP and web services.
- To impart PHP scripting ideas and importance in web development.
- Write PHP Programs with MySQL database.

DETAILED SYLLABUS

Contents : Theory

Unit	Name of the Topics	Hours
I	**INTERNET, HTML AND ADVANCED HTML**	
	Internet	5
	History of the Internet - Basics of Networking Concepts – WAN, LAN,TCP/IP, UDP, FTP, Telnet, SMTP, Ports - World Wide Web - HTTP,SMTP, POP3, MIME, Understanding roles of Web Browsers —Concepts of Web Servers.	
	HTML	5
	Introduction - Basic Tags of HTML - HTML Tag - TITLE Tag – BODY Tag - Formatting of Text: Headers - Formatting Tags: BOLD, ITALICS,UNDERLINE, PARAGRAPH, TT, STRIKETHROUGH, EM, BR and HR tags - PRE Tag - FONT Tag – Special Characters - Working withImages - META Tag.	
	Advanced HTML	5
	Difference between HTML & HTML5 - New elements in HTML5 - Links - Anchor tag — Lists - Unordered Lists - Ordered Lists — Definition Lists; Tables - TABLE, TR and TD Tags - Colspan and Rowspan	
II	**FRAMES, FORMS AND CSS**	
	Frames Frameset – FRAME Tag – Frame inside other frames – NOFRAMESTag.	2
	Forms	
	FORM and INPUT Tag – Textbox - Radio Button – Checkbox – SELECT Tag and Pull Down Lists: Hidden - Submit and Reset; Some Special Tags: COLGROUP - TBODY, TFOOT - _blank, _self, _parent, _top – IFRAME – LABEL - Attribute for <SELECT> - TEXTAREA..	3
	CSS	
	Introduction – Features – Style Sheet basics - Working with CSS files – Syntax - Types of Style Sheets - Inline Styles - Embedded	4

	Styles - External or Linked Styles - What is CSS3? Animation – Borders – Backgrounds – Fonts –Multiple columns – Text effects. **Formatting Text and Fonts** Font Families Font Size Kerning, Leading and Indenting - Formatting Colors and Backgrounds: The Color Attribute - The Background Attribute - Background Colors and Images. Exploring CSS Class and ID Attributes: Defining the CSS Class Attribute – Defining the CSS ID Attribute - Dynamic effects with CSS - Lists- Tables – Forms – Simple Examples using above properties.	5
III	**JAVASCRIPT** **3.1 JavaScript Basics** Need of scripting languages — Variables and Data Types: Declaring Variables — Life span of variables - Data Types - Operators: Assignment, comparison, computational and logical operators - Control Structures: Conditional Statements – Loop Statements: for, while, for in, break and continue statements.	5
	3.2 Object-Based Programming and Message boxes Functions - Executing Deferred Scripts - objects: Document object Model, Predefined objects, Array object, History object, Location object - Dialog Boxes - Alert Boxes - Confirm Boxes - Prompt Boxes.	5
	3.3 JavaScript with HTML Events - Event Handlers: onLoad and onUnload – onFocus and onBlur – onError - Forms: Forms Array – Form element properties -Introduction to jQuery – Features of jQuery - jQuery example.	5
IV	**PHP**	
	Introduction A Brief Introduction to Apache, MySQL, PHP and Open Source - Server-Side Web Scripting.	4
	PHP PHP Structure and Syntax - Integrating HTML with PHP - Syntax and Variables - Constants and Variables - Passing Variables between	5

	Pages – if Statements - if and else – switch case - for loop – for eachloop. **Includes** Includes and Functions for Efficient Code - Strings – Arrays and Array Functions - Sessions and Cookies – Sample Programs - Alternates to Incrementing/Decrementing Values.	6
V	**PHP PRGRAMMING AND MYSQL** **PHP with MYSQL** MySQL Syntax and Commands - Connecting to the MySQL Server – Data types - Functions - Querying the Database - SELECT, LogicalOperators – MySQL Programs. **Form Elements** Processing the Form - FORM Element - Tables to Display Data – Edit, Update and Delete data. **Hands on Experiments** Creating a Simple Shopping - Cart Script – Mini Project.	3 3 8

Reference Books

1. "Douglas E. Comer" "The Internet Book", Prentice Hall.
2. "Terry Felke-Morris" "Web Development and Design Foundations with HTML5", Pearson.
3. "Thomas A. Powell, Fritz Schneider" "HTML & CSS: The Complete Reference", Tata McGras-Hill.
4. "Thomas Powell, Fritz Schneider" "Java Script: The Complete Reference", Tata McGras-Hill.
5. "Timothy Boronczyk, Elizabeth Naramore, Jason Gerner, Yann Le Scouarnec, Jeremy Stolz, Michael K. Glass" "Beginning PHP6, Apache, MySQL, Web Development", Wrox Publications.

TAMILNADU GOVERNMENT POLYTECHNIC COLLEGE, (AUTONOMOUS), MADURAI- 11

DIPLOMA IN COMPUTER ENGINEERING

N - 20-SCHEME

(Implemented from the Academic year 2021-2022 onwards)

Course Name : 1052:Diploma in Computer Engineering

Subject Code : 4052430

Semester : IV

Subject Title : Object Oriented Programming with Java

TEACHING AND SCHEME OF EXAMINATION

No of weeks per semester: 16 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	End Semester Examinations	Total	
Object Oriented Programming with Java	5	80	25	100*	100	3 Hrs.

*** Examinations will be conducted for 100 marks and it will be reduced to 75 marks.**

Topics and Allocation of Hours

UNIT	Topic	Hrs.
I	Fundamentals of OOPs & Java	15
II	Control Structures, Arrays, Vectors and Strings	13
III	Classes, Interfaces and Packages	15
IV	Exception Handling, Multithreading and Files	15
V	Applets, Graphics Programming and AWT Controls	15
	Test and Model Exam	7
	Total	**80**

RATIONALE:

This course explains the fundamental ideas behind the object oriented approach to programming. Knowledge of java helps to create the latest innovations in programming. Like the successful computer languages that came before, java is the blend of the best elements of its rich heritage combined with the innovative concepts required by its unique environment. This subject is designed to give you exposure to basic concepts of object oriented technology. This subject will help in learning to write programs in java.

OBJECTIVES:

On completion of the following units of syllabus contents, the students must be able to

- Understand the basic concepts and applications of Object Oriented Programming.
- Know the history & features Java.
- Use of control structures in Java Program.
- Use of Arrays and Vectors in Java Program.
- Demonstrate the use of string and String Buffers.
- Define Class with the attributes and methods.
- Know the types of inheritances.
- Define and Implement Interfaces.
- Create and access packages.
- Handle the errors using exceptions.
- Creating own exceptions
- Understand the concepts of multithreading.
- Develop multithreaded programs in Java.
- Develop File programs
- Develop simple Applets.
- Use of Graphics, Color & Font class
- List the types of AWT Components and types of eventlisteners.

Unit	Name of the Topics	Hours
I	**FUNDAMENTALS OF OOPS & JAVA** **Basics of OOPs** Introduction to Object Oriented Programming - Basic concepts of Object Oriented Programming –Objects and Classes — Data abstraction and Encapsulation, Inheritance, Polymorphism, Dynamic binding, Message communication – Application of OOPs. **Introduction to Java** History of Java — Java features — Java Environment — JDK — API- Types of Java program – Creating and Executing a Java program – Java Tokens: Keywords, Character set, Identifiers, Literals, Separator – Java Virtual Machine (JVM) – Comments in Java program. **Elements** Constants – Variables – Data types – Type casting – Scope of variables – Operators - Types – Expressions – Evaluation of Expressions.	4 6 5
II	**CONTROL STRUCTURES, ARRAYS, VECTORS AND STRINGS** **Decision making and Branching** Decision making: Simple if statement – if – else statement – Nesting if –else – else if Ladder – switch statement, Looping: While loop – do – While loop - for loop – break – labeled loop – continue Statement. **Arrays & Vectors** Arrays: One Dimensional Array – Creating an array – Array processing –Multidimensional Array, Vectors: Definition- Creation - Methods **Strings** String Class – Creation – Methods, String Buffer Class -- Creation - Methods- Difference between String and String Buffer.	5 4 4
III	**CLASSES, INTERFACES AND PACKAGES** **3.1 Class and object** Defining a class — Creating objects — Accessing class members- Constructors – Method overloading – Static members – Nesting of Methods – this keyword – Command line argument.	6

	Inheritance Definition –Types -- Single Inheritance – Multilevel Inheritance – Hierarchical Inheritance – Overriding methods – Final variables and methods – Final classes – Final methods - Abstract methods and classes – Visibility Control: Public , Private, friendly and protected. Interfaces: Multiple Inheritance -- Defining interface – Extending interface - Implementing Interface. **Package** Java API Packages – System Packages – Naming Conventions – Creating & Accessing a Package – Adding Class to a Package – Hiding Classes.	6 3
IV	**EXCEPTION HANDLING, MULTITHREADING AND FILES** **Exception Handling** Types of Errors – Exception -- Advantages of Exception Handling – Basics of Exception Handling – try blocks – throwing an exception –catching an exception – finally statement – built in exceptions, creatingown exception sub classes. **Multithreading** Introduction – Life cycle of a Thread – Thread Methods – Creating Threads – Extending Thread class -- Implementing Runnable interface - Thread Priority – Thread Scheduling. **FILES** File – Streams – Advantages – The stream classes – Byte stream classes –Character stream classes – Random Access files.	6 4 5
V	**APPLETS, GRAPHICS PROGRAMMING AND AWT CONTROLS** **Applets** Introduction – Applet Life cycle – Creating & Executing an Applet –Applet tags in HTML – Parameter tag. **Graphics programming** Graphics class –Lines -- Rectangles – Circles – Arcs -- Polygon – Fillingobjects – Color class - Selecting a color - Font class - Selecting a font -Drawing Bar charts.	5 5

	5.3 AWT Components and Event Handlers Abstract window tool kit – AWT Controls – Labels – Text Field – Buttons - Checkboxes – Choice – Scrollbars – Event handling: Events, Eventsources, Event Listeners, Input Events – Layout Managers – Menus.	5

References:

1. "E. Balagurusamy ", "Programming with Java", Tata Mc-Graw Hill, New Delhi.
2. "Herbert schildt ", "Java - The complete reference", Tata Mc graw Hill, New Delhi.
3. "Java 2,J2SE1.4 Complete", BPB Publications.

TAMILNADU GOVERNMENT POLYTECHNIC COLLEGE, (AUTONOMOUS), MADURAI- 11

DIPLOMA IN COMPUTER ENGINEERING

N - 20-SCHEME

(Implemented from the Academic year 2021-2022 onwards)

Course Name : 1052:Diploma in Computer Engineering

Subject Code : 4052440

Semester : IV

Subject Title : Relational Database Management System

TEACHING AND SCHEME OF EXAMINATION

No of weeks per semester: 16 weeks

Subject	Instructions		Examination			
			Marks			Duration
	Hours / Week	Hours / Semester	Internal Assessment	End Semester Examinations	Total	
Relational Database Management System	5	80	25	100*	100	3 Hrs.

*** Examinations will be conducted for 100 marks and it will be reduced to 75 marks.**

Topics and Allocation of Hours

UNIT	Topic	Hrs.
I	Concepts of Databases and Data Modeling	15
II	Relational Data model & MYSQL Administration	15
III	Interactive MYSQL	15
IV	MYSQL Performance Tuning	14
V	Stored Program Concepts & Development	14
Test and Model Exam		7
Total		**80**

RATIONALE

The Database Management system is a collection of programs that enables to store, modify and extract information from a database. The primary resource that fuels knowledge power is the database. Organizations are employing mechanisms to effectively manage and utilize the data stored in the databases. Relational Database Management System has been developed to harness the information stored in the database.

The major objectives of this subject are to provide a strong formal foundation in Database Concepts, technology and practice to the students to enhance them into well informed application developers. After learning this subject, the students will be able to understand the designing of RDBMS and can use any RDBMS package as a backend for database applications.

OBJECTIVES:

On completion subject, the students must be able to

- Describe data, database, database management systems and database models.
- To make the students to understand the concept of relational model and constraints.
- To make the students to understand the concept of Client/Server technology, Data warehousing, Data mining and Big Data.
- State CODD's rules.
- Understand Normalization and explain different types of normal form.
- To know DDL, DML, DCL and all related commands.
- Write logical and conditional statement for database query.
- Works with Procedures and functions.
- Create and use Cursors and Triggers.

DETAILED SYLLABUS

Contents: Theory

Unit	Name of the Topics	Hours
I	**CONCEPTS OF DATABASES AND DATA MODELING**	
	Basic Concepts Data, Databases, Database Management System - Components of Database – Data Dictionary – Architecture: Overall Architecture of DBMS, Three level architecture.	4
	Data Models Types of Database models: Hierarchical Database Model, Network Database Model and Relational Database Model. E-R model: Entities - Attributes – Relationships – E-R diagram – Samples.	3
	Database Administrator Server / Client and distributed concept — DBA tasks — DBA Tools/Utilities – Database Maintenance – Backup & Recovery.	3
	Advanced Concepts Introduction to Data warehousing and Data mining – Applications – Data marts. Big Data: Definition – Characteristics – Various Technologies used – Applications – Overview of NoSQL: Difference between RDBMS and NoSQL – Tools used in Big Data, Scalability, and Understanding storage architecture.	5
II	**RELATIONAL DATA MODEL & MYSQL ADMINISTRATION**	
	Relational data model CODD's rules – components of DBMS – Table Structure – Records, rows, tuples, attributes. Keys: Primary key, foreign key, composite key. Meta data – Data Dictionary – Data Integrity – Data constraints and validation - Types of constraints - Difference between SQL andMySQL.	5
	Normalization Benefits - Normal forms: 1st Normal form, 2nd Normal form, 3rd Normal form.	3
	MySQL Installation Install, Configure and test the MySQL server on Microsoft Windows.	3

	2.4 Working with MySQL Admin Creating (CREATE cmd), Selecting (USE cmd) and Describing database (DESC cmd) – SHOW cmd – backing up databases.	4
III	**INTERACTIVE MYSQL** **Introduction to MySQL** MySQL data types - Data Definition Commands – Data ManipulationCommands – Data retrieval commands. **MySQL Operators and Expressions** Types of Operators – Arithmetic, Comparison and logical operators –Pattern matching – Import and Export of data. **Built-in Functions** Single row functions – Aggregate functions – Conversion functions. **Querying the table** Selecting rows using Where, Order by, group by & Having clauses.Sub-queries – correlated sub-queries. **Flow control** IF(), IF NULL(), CASE, LOOP, LEAVE, ITERATE, REPEAT, WHILE	4 2 3 3 3
IV	**MYSQL PERFORMANCE TUNING** **Indexes and sequences** Index types, Creating of an Index: Simple and Composite Index, Dropping Index. Sequences: creating, altering and dropping sequences. **Views** Introduction – Advantages of views – Creating, Updating and Deletingviews. **Joins & Unions** Joins – definition - Types of Joins: natural join, inner join, self join, outer join. Unions: Types: Union, Union All, Union Distinct – order byand Limit handling. **User and Transaction management** Creating, deleting, renaming users grant & revoke commands – Transaction command: commit, rollback and save points.	3 3 4 4

V	**STORED PROGRAM CONCEPTS & DEVELOPMENT**	
	MySQL Procedures & Functions Creating – Executing and Deleting stored procedures – Creating –Executing and Deleting stored functions – Advantages.	3
	MySQL Trigger & Cursor Use of Trigger – Creating Trigger – Types of Triggers – Cursor:Creation and Deletion.	3
	MySQL and Web Need for own MySQL programs – MySQL Application ProgrammingInterfaces.	3
	MySQL with PHP Database connections — Managing Database connections— Performing Queries – Closing Connections.	5

Reference Books

1. "Abraham Silberschatz, Henry F.Forth, S.Sudarshan", "Database System Concepts",Mc Graw Hill Education. Seventh Edition.
2. "Joel Murach", "Murach's MySQL", Mike Murach & Associates, Inc. 3rd Edition.
3. "Vikram Vaswami", "The Complete Reference MySQL".
4. "Paul DuBois", "MySQL Developers library", Addison Wesley (4th Edition).

TAMILNADU GOVERNMENT POLYTECHNIC COLLEGE, (AUTONOMOUS), MADURAI- 11

DIPLOMA IN COMPUTER ENGINEERING

N - 20-SCHEME

(Implemented from the Academic year 2021-2022 onwards)

Course Name : 1052:Diploma in Computer Engineering

Subject Code : 4052450

Semester : IV

Subject Title : Web Design and Programming Practical

TEACHING AND SCHEME OF EXAMINATION

No of weeks per semester: 16 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	End Semester Examinations	Total	
Web Design and Programming Practical	4	64	25	100*	100	3 Hrs.

*** Examinations will be conducted for 100 marks and it will be reduced to 75 marks.**

RATIONALE:

The main objective of the of this practical subject is to introduce the students to build a complete site, with the writing of a single web page in Web Design & Programming Practical using HTML, CSS, Java Script, PHP and MYSQL. The subject will impart knowledge to design web pages, dynamic and interactive web sites with client-side and server-side scripting. After completion the students will be able to independently design and develop web sites and web applications.

OBJECTIVES:

By introducing the Web design and Programming Practical, it is intended to:

- Develop to build a complete website using HTML.
- Create web pages using Advanced HTML and CSS.

- Practice to include JavaScript for form validations.

- Develop and run sample programs using PHP script.
- Develop a simple web application using server side PHP script and MySQL.

DETAILED SYLLABUS

Contents: Practical

PART – A

1. Design a HTML page describing your profile in one paragraph. Design in such a way that it has a heading, a horizontal rule, three links and your photo. Also, write three HTML documents for the links. Include facilities for forward, backward and HOME.
2. Design a HTML page about computer languages. List the language. Each Language's name is a link. Prepare separate HTML documents for each language and call them in the appropriate link.
3. Design a single page website for your polytechnic containing a description of the courses offered. It should also contain some general information about the college such as its history, the campus, and its unique features and so on. The site should be colored and each section should have a different color.
4. Develop a web page using CSS to create a time table for the class using different border style.
5. Write a Java script code that converts the entered text to uppercase.
6. Write a Java script code to validate the username and password. The username and password are stored in variables.
7. Write a Java Script code using frames and Events (When a cursor moves over anobject it should display the specification of the object in another frame).
8. Create a site containing banner advertisement at the top of the page. The ads arechanged every 10 or 15 seconds.
9. Write jQuery Program for Count the number of milliseconds between the two click events on a paragraph.
10. Write jQuery Program for Disable/enable the form submit button & Blink the text.

PART – B

11. Write a PHP program to implement at least 05 string functions with description
12. Create a PHP script which display the capital and country name from the given array.Sort the list by the name of the country.
13. Write a PHP program to implement Date and Time Functions.
14. Write a PHP script to display table with implementing Form Processing Controls of Insert and Delete data from data base.
15. Create a simple shopping - cart script using PHP and MySQL.

AUTONOMOUS EXAMINATION

NOTE:
Students should write one program from **PART A** and one program from **PART B.**

DETAILLED ALLOCATION OF MARKS

Writing answer for any one program from PART – A	20 Marks
Writing answer for any one program from PART – B	25 Marks
Executing program – PART – A	20 Marks
Executing program – PART – B	20 Marks
Result with printout – PART – A	5 Marks
Result with printout – PART – B	5 Marks
VIVA – VOCE	5 Marks
TOTAL	100 Marks

LIST OF EQUIPMENTS

Hardware Requirement

1. Desktop Computers – 30 Nos.
2. Laser Printer – 1 No.

Software Requirement

1. Notepad / Notepad++ / Dreamweaver
2. Apache XAMPP
3. Any Browser

TAMILNADU GOVERNMENT POLYTECHNIC COLLEGE, (AUTONOMOUS), MADURAI- 11

DIPLOMA IN COMPUTER ENGINEERING

N - 20-SCHEME

(Implemented from the Academic year 2021-2022 onwards)

Course Name : 1052:Diploma in Computer Engineering

Subject Code : 4052460

Semester : IV

Subject Title : Java Programming Practical

TEACHING AND SCHEME OF EXAMINATION

No of weeks per semester: 16 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	End Semester Examinations	Total	
Java Programming Practical	4	64	25	100*	100	3 Hrs.

*** Examinations will be conducted for 100 marks and it will be reduced to 75 marks.**

RATIONALE:

- To understand various concepts of JAVA and to familiarize Java environmentto create, debug and run Java programs.

OBJECTIVES:

- Develop programs using different operators and expressions.
- Develop programs using Iterative statements.
- Develop programs using arrays
- Develop applications using Vectors.

- Create classes and objects with constructors
- Solve problems using inheritance
- Handle exception arising in programs.
- Use multithreading in programs
- Develop programs using File/ Create Applet programs
- Develop programs using Graphics & Color classes
- Use GUI components to develop GUI applications

..

DETAILED SYLLABUS

Contents: Practical

PART - A

1. Write a program to read the temperature in Celsius and convert into Fahrenheit.
2. Write a program to read 2 integers and find the largest number using conditional operator.
3. Write a program to read an integer and find the factorial of a number.
4. Write a program to implement Vector class and its methods.
5. Write a program to read a string and check whether it is palindrome or not.
6. Write a program to create a class with following data members
    1. register number 2. Name
    3. Marks in 3 subjects and member functions
    1. parameterised constructor – to assign values to members
    2. method to find total mark
    3. method to display register number, name, total mark Create 3 objects from the above class and use the members
7. Write a program that accepts radius of a circle from command line and display its area.

PART - B

8. Write a program to implement multilevel inheritance.
9. Write a program to create a own exception subclass that throws exception if the given number is not in a range of numbers.
10. Write a program that creates three threads. First thread displays “Good Morning” everyone second, the second thread displays “Hello” every two seconds and the third thread displays “Welcome” every three seconds.

11. Write a program to create a file using Byte stream or Character stream class.12.Write a program to demonstrate Mouse events.
13. Write a program to display basic shapes using Graphics class and fill them using Color class
14. Write a program to create a simple calculator to perform addition, subtraction, multiplication and division using button, label and text field.

AUTONOMOUS EXAMINATION

NOTE:
Students should write one program from **PART A** and one program from **PART B.**

DETAILLED ALLOCATION OF MARKS

SCHEME OF VALUATION	
Writing answer for any one program from PART – A	20 Marks
Execution (Part A)	20 Marks
Result with Print out (Part A)	5 Marks
Writing answer for any one program from PART – B	25 Marks
Execution (Part – B)	20 Marks
Result with Print out (Part – B)	5 Marks
Viva voce	5 Marks
TOTAL	**100 Marks**

LIST OF EQUIPMENTS

HARDWARE

1. Desktop Computers – 30 Nos
2. Laser Printer – 1 No

SOFTWARE

1. Any Text Editor
2. JDK 1.7 or above
3. Java enabled Browser

TAMILNADU GOVERNMENT POLYTECHNIC COLLEGE, (AUTONOMOUS), MADURAI- 11

DIPLOMA IN COMPUTER ENGINEERING

N - 20-SCHEME

(Implemented from the Academic year 2021-2022 onwards)

Course Name : 1052:Diploma in Computer Engineering

Subject Code : 4052470

Semester : IV

Subject Title : Relational Database Management System Practical

TEACHING AND SCHEME OF EXAMINATION

No of weeks per semester: 16 weeks

Subject	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	End Semester Examinations	Total	
Relational Database Management Systems Practical	4	64	25	100*	100	3 Hrs.

*** Examinations will be conducted for 100 marks and it will be reduced to 75 marks.**

RATIONALE:

The main objective of this practical subject is to provide basic and advanced concepts of MySQL. MySQL is a relational database management system based on the Structured Query Language, which is the popular language for accessing and managing records in the database. MySQL is open-source and free software under the GNU license. This practical includes all topics of MySQL database that provide for how to manage database and manipulate data with the help of various SQL queries.

OBJECTIVES:

On Completion of the following exercise, the students must be able to

- How to install, configure and connect to MySQL server and MySQL workbench inWindows.
- Understand basic concepts of how a database stores information via tables.

- Understand SQL syntax used with MySQL.
- Learn how to retrieve and manipulate data from on or more tables.
- Learn how to filter data based upon multiple conditions.
- Understand the advantages of stored functions and procedures.
- Learn way of connecting to MySQL through PHP, and how to create tables, enter data, select data, change data, and delete data. Connect to SQL server and other data sources.

DETAILED SYLLABUS

Contents: Practical

PART – A

1. Install, configure and connect to MySQL server and MySQL workbench in windows.Create a database, backup and restore the database.
2. To study Basic MySQL commands (create database, create table, use, drop, insert)and execute the following queries using these commands:
    - Create a database named ‘employee’.
    - Use the database ‘employee’ and create a table ‘emp’ with attributes ‘ename’, ‘ecity’, ‘salary’, ‘enumber’, ‘eaddress’, ‘deptname’.
    - Create another table ‘Company’ with attributes ‘cname’, ‘ccity’, ‘empnumber’in the database ‘employee’.
3. To study the viewing commands (select, update) and execute the following queries using these commands:
    - Find the names of all employees who live in Chennai.
    - Increase the salary of all employees by Rs.5,000.
    - Change the company city to Chennai where the company name is ‘TCS’.
4. To study the commands that involve compound conditions (and, or, in, not in, between, not between, like, not like) and execute the following queries using thesecommands:
    - Find the names of all employees who live in ‘Chennai’ and whose salary isbetween Rs.20,000 to Rs.30,000.
    - Find the names of all employees whose names begin with either letter ‘A’ or ‘B’.
    - Find the company names where the company city is ‘Chennai’ and thenumber of employees is not between 5000 and 10,000.
    - Find the names of all companies that do not end with letter ‘A’

5. a) Create a database ‘polytechnic_collee’. Create 2 users namely ‘staff’ and ‘student’.
    - Grant all privileges to the user ‘staff’ and grant only ‘create’ privilege to‘student’ user and verify the same.
    - Revoke all privileges to the 2 users and verify the same.

    b) Implement the following transactions control statements.

    i) Commit ii) Rollback iii) Save point
6. Create table ‘author’ with the following structure

    author_id

    author_name

    address

    mobile

    book_title

    pages

    published_on

    i) Insert 4 books published by 3 authors each. (12 records)

    ii) Fetch all the rows and observe how the data duplicated.

    iii) Apply 1st and 2nd normal forms to fix it.
7. To study the commands for views and execute the following queries using thesecommands:
    - Create a view having ename and ecity
    - In the above view change the ecity to ‘Chennai’ where ename is ‘John’.
    - Create a view having attributes from both the tables.
    - Update the above view and increase the salary of all employees of ITdepartment by Rs.1000.
8. Create a library table with proper fields. Create another table called library1 and insert rows from library table.

    Hint:

    CREATE TABLE new_table LIKE original_table;

    INSERT INTO new_table SELECT * FROM original_table;

PART – B

9. Create a table to store the details of a customer in a Bank. Do some transactions likewithdrawal, deposit. Find the Balance amount(Credit Limit). Based on customer’s credit limit, write a program using **IF** or **CASE** flow control statements to find the customer levels namely SILVER, GOLD or PLATINUM.

If the Credit limit is

- greater than 50K, then the customer level is PLATINUM
- less than 50K and greater than 10K, then the customer level is GOLD
- less than 10K, then the customer level is SILVER

10. Create two tables with the following structure.

a) users - table name

user_id - UNSIGNED, INT, AUTO INCREMENT, PRIMARY KEY

username - VARCHAR (60)

password - VARCHAR (128)

email - VARCHAR (255)

b) users_profiles

user_id - FOREIGN KEY refers to user_id field of user table

first_name - VARCHAR(60)

last_name - VARCHAR(60)

mobile - VARCHAR(15)

i) SELECT all the users along with their profile details. (Hint: Use INNER JOIN)

ii) SELECT the users who do not have profiles (Hint: USE LEFT JOIN andexclude the rows generated with NULL values from joining table)

11. Create an employee database and create a stored procedure that accepts employee_Id as input and returns complete details of employee as output.

12. Create two tables with the following structure

Authors

author_id - INT

name VARCHAR (60)

titles_count INT -- holds the total number numbers of titles authored.

Titles

author_id - INT

name VARCHAR (512) -- name of the title

a. Create a trigger to update the titles count field of respective row in authors tableeach time a title gets inserted into titles table.

b. Create **log table** with the following structure

author_id – INT

name VARCHAR (512) -- name of the title

status VARCHAR(25) --- ADDITION,DELETION,UPDATION

and insert an entry in that table each time the tile is added, deleted or updated.Use a trigger to accomplish this.

13. Create a table containing phone number, user name, address of the phone user.Write a function to search the address using phone number.

14. Create a table to store the salary details of the employees in a company. Declare the cursor id to contain employee number, employee name and net salary. Use cursor toupdate the employee.

15. Write a program to connect PHP with MySQL and create a database using PHP MySQL.

AUTONOMOUS EXAMINATION

NOTE:

Students should write one program from **PART A** and one program from **PART B.**

DETAILLED ALLOCATION OF MARKS

Writing answer for any one program from PART – A	20 Marks
Writing answer for any one program from PART – B	25 Marks
Executing program (PART – A)	20 Marks
Executing program (PART – B)	20 Marks
Result with printout (PART – A)	5 Marks
Result with printout (PART – B)	5 Marks
VIVA – VOCE	05 Marks
TOTAL	**100 Marks**

LIST OF EQUIPMENTS

HARDWARE

1. Desktop Computers – 30 Nos
2. Printer – 1 Nos

SOFTWARE

1. mysql 5.5.20