GOKUL GLOBAL UNIVERSITY

Approved By Govt. of Gujarat
(Recognized by UGC under Section 22 & 2(f) of 1956)
(Gujarat Private State University Act 4 of 2018)

M.Sc. (IT)

Master of Science in Information Technology (M.SC.(IT))

Batch 2022-2024

Program Outcomes (PO)

Faculty of Computer Science & Applications
Gokul College of Computer Science & Applications
University Campus, State Highway-41, Sidhpur - 384151, Dist. Patan, Gujarat, INDIA
E: dean.fac.compsci@gokuluniversity.ac.in W: www.gokuluniversity.ac.in M: +91 95124 00808

M.SC.(IT) SEM 1 SUBJECTS					
Subject code	**Name of subject**	**Course Credit**	**Internal Marks**	**External Marks**	**Total Marks**
FCAM110401	Communication Skills	04	30	70	100
FCAM110402	Introduction to Programming Language	04	30	70	100
FCAM110403	Web Designing	04	30	70	100
FCAM110404	Digital Electronics	04	30	70	100
FCAM110405	Practical -Introduction to Programming Language	04	30	70	100
FCAM110406	Practical -Database Management System	04	30	70	100
	Total	24	180	420	600

M.SC(IT) SEM 2 SUBJECTS					
Subject code	**Name of subject**	**Course Credit**	**Internal Marks**	**External Marks**	**Total Marks**
FCAM120407	Data Communications &Networking	04	30	70	100
FCAM120408	Object Technology(JAVA)	04	30	70	100
FCAM120409	Web Development & Database Management System	04	30	70	100
FCAM120410	Operating System	04	30	70	100
FCAM120411	Practical -Object Technology(JAVA)	04	30	70	100
FCAM120412	Practical-Web Development& Database Management System	04	30	70	100
	Total	24	180	420	600

M.SC(IT) SEM 3 SUBJECTS					
Subject code	**Name of subject**	**Course**	**Internal Marks**	**External Marks**	**Total Mark**

		Credit			s
FCAM130401	Software Engineering	04	30	70	100
FCAM130402	Web Development using PHP	04	30	70	100
FCAM130403	Mobile Applications Development	04	30	70	100
FCAM130404	Computer Security	04	30	70	100
FCAM130405	Practical-Web Development using PHP	04	30	70	100
FCAM130406	Practical -Mobile Applications Development	04	30	70	100
	Total	24	180	420	600

PROGRAMME OUTCOME

On completion of M.SC.(IT) degree, the post graduates will be able to:

PO1: Fundamental Knowledge Enrichment

Program trains students with the core computer science and Information Technology (IT) knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development.

PO2: Critical Thinking Development

The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem.

PO3: Advanced Emerging Technology Awareness

The program trains students with latest technologies that is being used in the industry. The continuous syllabi review adds value to the outgoing students and make them ready to face challenging demands of the industry.

PO4: Design /Development of Solutions

Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.

PO5: Conduct investigations of complex Computing problems

Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO6: Modern Tool Usage

Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.

PO7: Professional Ethics

Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practices.

PO8: Life-long Learning

Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

PROGRAM SPECIFIC OUTCOMES

PSO1: Aspire for research work.

PSO2: Attain Specialization in specific domains of Computer Applications.

PSO3: Work professionally with positive attitude as an individual or in multidisciplinary teams and communicate effectively.

PSO4: Gain knowledge in Software Development for employment in Indian & global Software market.

PSO5: Understand and apply knowledge on analysis, design and development of applications in the computing discipline

PSO6: Develop ability to utilize modern computer technologies, environments, and platforms in creating innovative career paths to be an entrepreneur, and contribution towards society.

PSO7: Meet the requirements of the Industrial standards.

Course Outcomes Semester-I M.Sc. (IT)

subject with code		course outcomes
Communication Skills FCAM110401	CO1	They will be able to use grammar properly , they develop basic antiquate in their behavior.
	CO2	The students will communicate professionally in any organization with proper business communication. They will develop their self confidence which is more important
	CO3	They will Increase vocabulary and develop more interest in learning English language.
Introduction To Programming Language FCAM110402	CO1	Read, understand and trace the execution of programs written in C language
	CO2	Understand the fundamentals of programming language for problem solving
	CO3	Understand basic concepts of File Management in C language
Internet & Web Design FCAM110403	CO1	Describe the concepts of World Wide Web, and the requirements of effective web design.
	CO2	Develop web pages using the HTML and CSS features with different layouts as per need of applications.
	CO3	Use the JavaScript to develop the dynamic web pages.
Digital Electronics FCAM110404	CO1	To develop logic for assembly language programming.
	CO2	Analyze the performance of commercially available computers.
	CO3	Demonstrate computer architecture concepts related to design of modem processors, memories and I/Os.
Practical -Introduction To Programming Language	CO1	Read, understand and trace the execution of programs written in C language

FCAM110405	CO2	Understand the fundamentals of programming language for problem solving
	CO3	Understand basic concepts of File Management in C language
Practical - Internet & Web Design FCAM110406	CO1	Describe the concepts of World Wide Web, and the requirements of effective web design.
	CO2	Develop web pages using the HTML and CSS features with different layouts as per need of applications.
	CO3	Use the JavaScript to develop the dynamic web pages.

Course Outcomes Semester-II M.Sc. (IT)

subject with code		course outcomes
Data communications & Networking FCAM120407	CO 1	To develop logic for assembly language programming.
	CO 2	Understand basic computer network technology.
	CO 3	Discuss the elements and protocols of transport layer
Object oriented Technology(JAVA) FCAM120408	CO 1	Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
	CO 2	Read and make elementary modifications to Java programs that solve real-world problems.
	CO3	Use a version control system to track source code in a project.
Web Development & Database Management System FCAM120409	CO1	Design, Develop and manage databases for simple applications using Structured Query Language (SQL).
	CO2	Understanding of the relational data model.
	CO3	ability to use databases for building web applications.
	CO4	Gaining knowledge about the internals of a database system.
Operating System FCAM120410	CO1	Outline various concepts and features of Operating systems.

	CO2	Compare various operating systems with respect to characteristics and features.
	CO3	Implement algorithm of CPU Scheduling, Memory Scheduling and disk scheduling.
	CO4	Make changes in the OS configurations as per need.
Practical- Object oriented Technology(JAVA) FCAP120411	CO1	Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
	CO2	Read and make elementary modifications to Java programs that solve real-world problems.
	CO3	Use a version control system to track source code in a project.
Practical-Web Development & Database Management System FCAM120412	CO1	Design, Develop and manage databases for simple applications using Structured Query Language (SQL).
	CO2	Understanding of the relational data model.
	CO3	ability to use databases for building web applications.
	CO4	Gaining knowledge about the internals of a database system.

Course Outcomes Semester-III M.SC. (IT)		
subject with code		**course outcomes**
Software Engineering	Co1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
	Co2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
	Co3	an ability to communicate effectively with a range of audiences
	Co4	an ability to recognize ethical and professional responsibilities in engineering

Web Development using PHP	Co1	Analyze PHP scripts and determine their behavior.
	Co2	Construct PHP scripts to create dynamic web content.
	Co3	Create PHP scripts capable of inserting and modifying data in a MySQL database.
	Co4	Design web pages with the ability to retrieve and present data from a MySQL database
Mobile Applications Development	Co1	They will be able to create user interface with different controls.
	Co2	The students will understand android studio environment.
	Co3	They will be able to user activity, services for different usage.
	Co4	They will be able to use APIs of android operating and can integrate into android application
Computer Security	Co1	Analyze and evaluate the cyber security needs of an organization.
	Co2	Conduct a cyber security risk assessment.
	Co3	Measure the performance and troubleshoot cyber security systems.
	Co4	Implement cyber security solutions.
Practical -Web Development using PHP	Co1	Analyze PHP scripts and determine their behavior.
	Co2	Construct PHP scripts to create dynamic web content.
	Co3	Create PHP scripts capable of inserting and modifying data in a MySQL database.
	Co4	Design web pages with the ability to retrieve and present data from a MySQL database.
Practical - Mobile Applications Development	Co1	They will be able to create user interface with different controls.
	Co2	The students will understand android studio environment.
	Co3	They will be able to user activity, services for different usage.

	Co4	They will be able to use APIs of android operating and can integrate into android application.

MSCIT Semester-I

Program :	MSCIT	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	I
Course title :	COMMUNICATION SKILLS	**Course code :**	FCAM110401
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic Knowledge of English Language		
Rationale :	To make the students confident and make them aware about their personality development.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Students will develop their confidence.
2. Students will understand the importance of personality development and self awareness.
3. Students understand the importance of language and learn different techniques of interview, presentation etc.

Course Outcome:

1. They will be able to use grammar properly , they develop basic antiquate in their behavior.
2. The students will communicate professionally in any organization with proper business communication. They will develop their self confidence which is more important
3. They will Increase vocabulary and develop more interest in learning English language.

Content

Unit	Theory of Communication	Credit	Weightage
I	Communication – Meaning and Objectives, Process and Importance, Barriers Methods of Communication - Verbal and Non-Verbal Horizontal, Grapevine Steps of Effective Communication	1	25 %
II	**Grammar** Parts of Speech Subject Verb Agreement Indirect speech Auxiliaries and Modals Questions and Negatives	1	25 %
III	**Business Communication** Application for Job, Loan, Leave, Demanding Original Documents from Office Business Letters for Inquiry, reply, Quotation, Placing of Order, Complaint, Adjustment ,Comprehension ,Paragraph Writing	1	25 %
IV	**Listening and Speaking** • Importance of Listening • Listening Process • Barriers of Listening • Speech preparation • Guidelines for Effective Speaking • Group discussion • Interview – types and preparation	1	25 %

Reference Books:

1. Communication Skills – Vithal Patel
2. English Grammar Composition and Effective Business Communication- Pink and Thomas – S. Chand

Suggested Readings:

1. Story books to increase vocabulary.
2. Listen Motivational videos.
3. Read interested area in English News Papers.

Online Resources:

1. https://learnenglish.britishcouncil.org/grammar-reference
2. https;//en.m.wikipedia.org/communication

Course Outcomes Communication Skills FCAM110401	Expected Mapping with Programme Outcomes						
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	-	-	-	-	-	***	***
CO-2	-	-	-	***	-	***	-
CO-3	-	-	-	-	-	***	***

Program :	MSCIT	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	I
Course title :	INTRODUCTION TO PROGRAMMING LANGUAGE	**Course code :**	FCAM110402
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic Knowledge of Computer		
Rationale :	To introduce students the essentials of computer Programming and programming methodology using C language		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Students will understand to formulate a computing problem to executable computer program using C language.
2. Students will understand about compiler based programming languages
3. Students will learn concepts of variables, literals, data types, conversions of data types, input and output data and processing of data, inbuilt functions, arrays, header files, conditional and iterative statements.

Course Outcome:

1. Read, understand and trace the execution of programs written in C language
2. Understand the fundamentals of programming language for problem solving
3. Understand basic concepts of File Management in C language

Content

Unit	**Description in detail**	**Credit**	**Weightage**
I	**Introduction to Programming** Concepts of Algorithm and Flowcharts, problem solving examples using algorithm and flowchart, Types of Programming languages, Characteristics of higher level language, Compiler and Interpreter **Overview of C Introduction** Importance of C, Sample C programs, Basic structure of C	1	25 %

	programs, Programming style, executing of C program **Constants, Variables and data Types** Introduction, Character Set, C tokens, Keywords and Identifiers, Constants, Variables, Data types, Declaration of Variables, Defining symbolic constants		
II	**Operators and Expression** Introduction, Arithmetic of Operators, Relational Operators, Logical Operators, Assignment Operators, Increment and Decrement Operators, Conditional Operators, Bit-wise Operators, Special Operators, Arithmetic Expressions, Evaluation of expressions, Precedence of arithmetic operators, Type conversions in expressions, Operator precedence and associativity, Mathematical functions. **Input & Output Operators** Introduction, reading a character, writing a character, formatted input, formatted output.	1	25 %
III	**Branching and Looping** Introduction Decision making with Simple IF statement, IF ELSE statement, Nesting of IF ELSE statements, The ELSE IF ladder, The switch statement, the turnery (? :) Operator, the GOTO statement. **Iterative Statement** Introduction WHILE statement, the DO statement, The FOR statement, Jumps in loops Break and continue	1	25 %
IV	**Array & String** Introduction, One-dimensional, arrays, Two-dimensional arrays, Initialization of two- dimensional arrays, Concept of Multidimensional arrays **Handling of Character strings** Introduction, Declaring and initializing string variables, Reading strings from terminal, Writing strings to screen, Arithmetic operations on characters, Putting string together, String Operations: String Copy, String Compare, String Concatenation And String Length, String Handling functions, Table of strings	1	25 %

Reference Books:

1. Programming in C, Balaguruswami – TMH
2. C: How to Program, Deitel & Deitel - PHI
3. C Programming Language, Kernigham & Ritchie – TMH

Suggested Readings:

1. Mastering Turbo C, Kelly & Bootle - BPB
2. C Language Programming – Byron Gottfried - TMH
3. Let us C, Yashwant Kanetkar - BPB Publication

Online Resources:

1. https://www.w3schools.com/
2. https://www.tutorialspoint.com/
3. https://www.programiz.com/
4. https://www.cprogramming.com/

Course Outcomes Introduction To Programming Language FCAM110402	Expected Mapping with Programme Outcomes						
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	***	***	-	***	***	-	***
CO-2	-	***	***	***	-	-	-
CO-3	-	-	-	-	***	***	-

Program :	MSCIT	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	I
Course title :	INTERNET & WEB DESIGN	**Course code :**	FCAM110403
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic knowledge of internet		
Rationale :	Students will develop and understanding of information design web page and usability as it applies to interactive media projects.		

Teaching Examination Scheme:

Teaching (Hours/week)			Examination Scheme			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Learn about E-Services like E-Banking, E-Learning etc.
2. Understanding the basic concept of HTML tags.
3. Learn the language of the web: HTML and CSS.
4. Develop skills in analyzing the usability of a web site.

Course Outcome:

At the end of the course students will be able to:

1. Describe the concepts of World Wide Web, and the requirements of effective web design.
2. Develop web pages using the HTML and CSS features with different layouts as per need of applications.
3. Use the JavaScript to develop the dynamic web pages.

Content

Unit	Description in detail	Credit	Weightage

I	**Introduction to Internet** Introduction, Evaluation of Internet, Internet Service, Computer Networks, Internet, URL (Uniform Resource Locator), Internet Service Provider, Intranet, Extranet, Virtual Private Network, World Wide Web, Search Engines, News groups, Electronic Mail, Web Portal, Chat, Video Conferencing, FTP, Remote Login, E-Commerce, E-Learning, E-Governance, E-Banking Difference between Internet, Intranet, Extranet, Internet Protocols (TCP,IP, UDP, FTP, HTTP), ISP (Internet Service Provider), E-mail, E-Learning, E-Banking, E-Governance, Social Networking, Instant Massaging, Audio and Video Conferencing, Data Encryption & Decryption, Concepts of Digital Signature, Concepts about Firewall Security	1	25 %
II	**HTML** HTML tag, Web Page and its Types, Publishing HTML Pages, Basic Tags. HTML document Structure, adding text in Newline , Creating heading: <H1> to <H6>,Creating a paragraph<P>--</P>, Creating a Horizontal ruler<HR>--</HR>, Scrolling text <marquee>--</marquee>, Linking to other page :< a> and <link> tags, Text fomenting tags, Font tag with attribute, Working with List tags<OL> and <UL>,Creating Table: Related tags with attribute, Creating HTML From with adding controls, Frame and frameset tag, Putting Graphics on a Web page, Custom Background and colors.	1	25 %
III	**Introduction to Cascading Style Sheet** Concepts of workbook, Defining Style with HTML tags, Features of Style sheet, Types of Style Sheets: External, Internal, and Inline, Style Properties, Style Class & ID Selector.	1	25 %
IV	**Introduction to Java Script** Writing First Java Script, HTML and Java script, Variables: Rules for variable names, declaring the variable, assign a value to a variable, Scope of variable, Using Operators, Control Statements, JavaScript loops. Types of JavaScript: External, Internal. JavaScript Functions: Defining a Function, Returning value from function, User Define Function.	1	25 %

Reference Books:

1.Internet and Web Design Based on DOEACC III Revised syllabus 'O' Level - Mac Millan India Ltd

2. Teach Yourself HTML 4 in 4 Hours By Dick Oliver – Tech Media 4th Edition
3. Introduction To Internet And HTML Scripting-Fourth Edition-Bhaumik Shroff

Suggested Readings:

1. Introduction To Internet And HTML Scripting-Fourth Edition-Bhaumik Shroff

Online Resources:

1. https://www.tutorialspoint.com/internet_technologies/internet_overview.htm
2. https://www.w3schools.com/html/
3. https://www.w3schools.com/w3css/defaulT.asp
4. https://www.geeksforgeeks.org/javascript/

INTERNET & WEB DESIGN FCAM110403	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	***	-	***	-	-	-	-
CO-2	-	***	-	***	-	-	-
CO-3	-	-	***	-	***	***	***

Program :	MSCIT	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	I
Course title :	DIGITAL ELECTRONICS	**Course code :**	FCAM110404
Course type :	Theory	**Course credit :**	04
Pre-requisite :	The students should have a basic Understanding of Digital computer Organization and Architecture or Micro Processors		
Rationale :	It gives information to students which gives the means of interconnectivity for a computer's hardware components as well as the mode of data transfer and processing exhibited.		

Teaching Examination Scheme:

Teaching (Hours/week)			Examination Scheme			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. To understand the structure, function and characteristics of computer system.
2. To identify and compare different method for computer I/O.
3. Identify and understand the Number system.

Course Outcome:

1. To develop logic for assembly language programming.
2. Analyze the performance of commercially available computers.
3. Demonstrate computer architecture concepts related to design of modem processors, memories and I/Os.

Content

Unit	Description in detail	Credit	Weightage
I	Digital & Analog systems, Logic levels and pulse wave forms, digital computer, Major parts of computer, Hardware, Software - Application and System Software Computer generations	1	25 %

	First generation, Second generation, Third generation, Forth generation, Fifth generation Super Computers, Mainframes, Mini Computers, Palmtop PC, Laptop PC, Personal Computer, Workstations, Mainframe, Supercomputer. Dos, Windows, Linux		
II	Communication devices -Modem, NIC, Switch, Hub Keyboard, Mouse, Light pen, Joystick, Scanner, Voice input system, Touch Monitor - CRT terminals (Monitor / VDU) Non – CRT terminals, LCD, Plasma display, LED Printer - Dot matrix printer, Ink jet printer, Laser printer, Line printer, Plotter Magnetic memory - Magnetic disk, Hard disk, Floppy disk, Semiconductor memory - RAM, ROM, Flash memory Optical memory - CD, CD-ROM, CD-RAM, DVD, DVD-ROM, DVD-RAM Cache memory, Physical & Virtual memory	1	25 %
III	Number system - Binary, decimal, octal, hexadecimal Conversion - Binary to decimal, decimal to binary, octal to decimal , decimal to octal, octal to binary, binary to octal, hexadecimal to binary, binary to hexadecimal, hexadecimal to Decimal, decimal to hexadecimal, hexadecimal to octal, octal to hexadecimal Binary arithmetic – Addition, subtraction (simple method)	1	25 %
IV	Logic gates - AND, OR, NOT, NAND, NOR, Exclusive-OR, Exclusive-NOR Data Processing circuit - Decoder, Encoder	1	25 %

Reference Books:

1.Fundamentals of computers – By. V. Rajaraman PHI Publication
2.How computer work: Ron White – Tech media
3.O-Level (Information Technology) - By V.K.Jain (Module- M1.1)
4.Computer Fundamentals: Pradeep K. Sinha &Priti Sinha (BPB)
5.Fundamentals of computers – By. Anand Kumar PHI Publication

Suggested Books:

1.Fundamentals of computers – By. Anand Kumar PHI Publication

Online Resources:

1. https://edu.gcfglobal.org/en/computerbasics/what-is-a-computer/1/
2. https://www.tutorialspoint.com/digital_circuits/digital_circuits_logic_gates.htm
3. https://www.tutorialspoint.com/computer_fundamentals/computer_number_system.htm

Course Outcomes Digital Electronics FCAM110404	Expected Mapping with Programme Outcomes						
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	***	***	***	-	-	-	-
CO-2	-	-	-	-	-	***	***
CO-3	-	***	-	***	-	***	-

Program :	MSCIT	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	I
Course title :	PRACTICAL -INTRODUCTION TO PROGRAMMING LANGUAGE	**Course code :**	FCAM110405
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Basic Knowledge of Computer		
Rationale :	To introduce students the essentials of computer Programming and programming methodology using C language		

Teaching Examination Scheme:

Teaching (Hours/week)			Examination Scheme			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

4. Students will understand to formulate a computing problem to executable computer program using C language.
5. Students will understand about compiler based programming languages
6. Students will learn concepts of variables, literals, data types, conversions of data types, input and output data and processing of data, inbuilt functions, arrays, header files, conditional and iterative statements.

Course Outcome:

4. Read, understand and trace the execution of programs written in C language
5. Understand the fundamentals of programming language for problem solving
6. Understand basic concepts of File Management in C language

Content

Practical:
1. Write a C program to display "Gokul University" on the screen.
2. Write a C program to find the area of circle using the formula Area=PI * r * r.
3. Write a C program to find the area of rectangle, cube and triangle.(Formula are: Rectangle=l *b*h, triangle = (I * b)* 0.5, cube = L*L*L
4. Write a C program to evaluate simple interest I = P*R*N / 100.
5.Write a C program to enter a distance into K.M and convert it in to meter, feet, inches and Centimeter
6. Write a C program to interchange two numbers.
7. Write a C program to convert Fahrenheit into centigrade
8. Write a C program for summation, subtraction, multiplication, division of two number using Arithmetic operator
9. Write a C program to find out the largest value from given three numbers using conditional Operator
10. Write a C program to find the maximum number from given three numbers.
11.Write a C program to find that the enter number is Negative, or Positive or Zero.
12.Write a C program to Checked whether entered char is capital, small, digit or any special Character
13.Write a C program to find out the max. and min. number from given 10 numbers.
14.Write a C program to find the sum of digit of accepted number.
15.Write a C program to find the sum of first 100 odd numbers. And even numbers.
16.Write a C program to display first 25 Fibonacci nos.
17.Write a C program to check the accepted number is prime number or not.
18.Write a C program to display first' 100 prime numbers.
19.Write a C program to find factorial of accepted numbers.

20. Write a C program to print accepted no and its reverse number.
21. Write a C program to convert decimal numbers into equivalent hexadecimal number.
22. Write a C program to display first 5 Armstrong number.
23. Write a C program to arrange the accepted numbers in ascending order and descending order.
24. Write a C program to find whether the accepted string is palindrome or not.
25. Write a C program to convert given line into upper case or lower case.
26. Write a C program to count no of word, character, line and space from given text.
27. Write a C program to display following output on the screen.

```
1
12
123
1234
```

28. Write a C program to display following output on the screen.

```
0
1 1
1 0 1
0 1 0 1
1 0 1 0 1
```

29. Write a C program to display following output on the screen.

```
1
22
3 3 3
4 4 4 4
```

30. Write a C program to find maximum & minimum value from the given array

Reference Books:

1. Programming in C, Balaguruswami – TMH
2. C: How to Program, Deitel & Deitel - PHI
3. C Programming Language, Kernigham & Ritchie - TMH

Suggested Readings:

1. Mastering Turbo C, Kelly & Bootle - BPB
2. C Language Programming – Byron Gottfried - TMH
3. Let us C, Yashwant Kanetkar - BPB Publication

Online Resources:

1. https://www.w3schools.com/
2. https://www.tutorialspoint.com/
3. https://www.programiz.com/

4. https://www.cprogramming.com/

Course Outcomes Practical - Introduction To Programming Language FCAM110405	Expected Mapping with Programme Outcomes						
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	***	***	-	***	***	-	***
CO-2	-	***	***	***	-	-	-
CO-3	-	-	-	-	***	***	-

Program :	MSCIT	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	I
Course title :	PRACTICAL - INTERNET & WEB DESIGN	**Course code :**	FCAM110406
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Basic knowledge of internet		
Rationale :	Students will develop and understanding of information design web page and usability as it applies to interactive media projects.		

Teaching Examination Scheme:

Teaching (Hours/week)			Examination Scheme			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

(a) Learn about E-Services like E-Banking,E-Learning etc.
(b) Understanding the basic concept of HTML tags.
(c) Learn the language of the web: HTML and CSS.
(d) Develop skills in analyzing the usability of a web site.
(e) Develop basic programming skills using JavaScript.

Course Outcome:

At the end of the course students will be able to:

(a) Describe the concepts of World Wide Web, and the requirements of effective web design.
(b) Develop web pages using the HTML and CSS features with different layouts as per need of applications.
(c) Use the JavaScript to develop the dynamic web pages.

Content

Practical:

1. Develop an HTML document for a web page of your favorite teacher. Design the page With an attractive background color, text color and background image.
2. Develop an HTML document for a web page of your favorite National Leader. Design the page with an attractive color combination, with suitable headings and horizontal rules.
3. Write an HTML document with an example of Ordered List and Unordered List.
4. Write an HTML document with an example of Ordered List and Unordered List Using Nested list.
5. Write an HTML document with an example of Table format to print your Bio-Data.
6. Write an HTML document to create complex Table like Telephone Bill, Mark sheet, Time-table.
7. Write the Frameset tags and Frame tags for the following frameset.

Physics.html	Welcome.html	Maths.html
Chemistry.html		Computer.html
Biology.html		
Zoology.html	Heading.html	Account.html

8. Develop a complete web page using Frames and Frameset which gives the Information about Hospital.
9. Write an HTML code for designing the subscription form of mail account in the e-mail Website with appropriate fields.
10. Write an example of External Stylesheet.
11. Write HTML program which contains Inline Style sheet for <p>, <h1> and <body>tags.
12. Write HTML program which contains Internal Style sheet for <p>, <h1> and <body>tags.
13. Describe yourself on a webpage and experiment with colors in bicolor, text, and link, try out different and sizes and also the other tags you studies so far, such as the rules tag as wells.
14. Write HTML code to develop a web page having background in blue and title "Well come to my home page" in red other color.
15. Create an HTML document of giving details of your name, age, telephone no, address and enrolment no, aligned in proper order.
16. Calculate a web page that provides links to five different web page or to entirely different websites.
17. Write a HTML code for making table to containing different option for different questions.
18. Create form to fill information student.

19. Create a JavaScript code to display any message.
20. Create a JavaScript code using Arithmetic Operator, Assignment Operator, Comparison Operator, Logical Operator and String Operator.
21. Create a JavaScript code using Control Statement.
22. Create a JavaScript code to display 5*1=5 ,5*10=50 using for loop.
23. Create a JavaScript code using User Defined Function which will calculate the area
24. Write a JavaScript code to change the background color of the webpage.
25. Write a JavaScript code to display Factorial of the given number.

Reference Books:

1.Internet and Web Design Based on DOEACC III Revised syllabus 'O' Level - Mac Millan India Ltd
2. Teach Yourself HTML 4 in 4 Hours By Dick Oliver – Tech Media 4th Edition
3. Introduction To Internet And HTML Scripting-Fourth Edition-Bhaumik Shroff

Suggested Readings:

1. Introduction To Internet And HTML Scripting-Fourth Edition-Bhaumik Shroff

Online Resources:

1. https://www.tutorialspoint.com/internet_technologies/internet_overview.htm
2. https://www.w3schools.com/html/
3. https://www.w3schools.com/w3css/defaulT.asp
4. https://www.geeksforgeeks.org/javascript/

Course Outcomes Practical - Internet & Web Design FCAM110406	Expected Mapping with Programme Outcomes						
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	***	-	***	-	-	-	-
CO-2	-	***	-	***	-	-	-
CO-3	-	-	***	-	***	***	***

Semester-II

Program :	MSC_IT	**Subject / Branch :**	NA
Year :	**2023**	**Semester :**	II
Course title :	Data communication & networking	**Course code :**	FCAM120307
Course type :	Theory	**Course credit :**	04
Pre-requisite :	The students should have a basic Understanding of computer Network ,Models and Layer.		
Rationale :	It gives information to students which gives the means of interconnectivity for a computer's hardware components as well as the mode of data transfer and processing exhibited.		

Teaching Examination Scheme:

Teaching (Hours/week)			Examination Scheme			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. To understand the data and database management of computer system.
2. To identify and compare different method for computer I/O.
3. Identify and understand the models.

Course Outcome:

1. To develop logic for assembly language programming.
2. Analyze the performance of commercially available computers.

Content

Unit	Basic concepts of Database Systems	Credit	Weightage
I	Introduction of Computer Networks, Uses of Computer Networks, Advantage & Disadvantage of Computer Networks Transmission mode: Simplex communication, Half-duplex and Full-duplex Introduction of Internet & Intranet, Baseband & Broadband	1	25 %
	Transmission		
II	Network Hardware: PAN (Personal Area Network) , LAN (Local Area Network), MAN (Metropolitan Area Network), WAN (Wide Area Network) The Internet (network of all networks) Network Topology: Linear bus, Ring, Star, tree, mesh & Hybrid. Reference Model: OSI Reference Model & TCP/IP Reference Model, Comparison of OSI reference model Connecting Devices: Repeater, HUB, Switch, Bridge, Router, and Gateway. The Telephone System – its structure, the local loop, transmission Impairments Introduction of Modem, Introduction of Communication satellites.	1	25 %
III	Guided Media - Twisted Pair, coaxial cable, Fiber optics. Unguided transmission media - Radio wave, micro wave and infrared, Multiplexing – FDM, TDM, WDM. Switching – Circuit switching, Message Switching, Packet switching.	1	25 %
IV	Design Issues - Framing, Error control, Flow control, Error detection and correction. Elementary data link protocols - Simplex, stop and wait, sliding window protocol - Go Back N, Selective repeat. **The Medium Access Control Sublayer:** The channel allocation problem, Multiple Access protocols – CSMA/CD, CSMA/CA	1	25 %

Reference Books:

1. 1 Data Communication & Networking by Behrouz A. Forouzan, Tata McGraw Hill Edition
2. Computer network, Andrew S. Tanenbaum, fourth edition, Pearson 3. TCP/IP Protocol Suit by Behrouz A. Forouzan, Tata McGraw Hill Edition.

Suggested Books:

1. Computer network, Andrew S. Tanenbaum, fourth edition, Pearson

Online Resources:

1. https://www.tutorialspoint.com/computer_fun damentals/computer_networking.htm
2. https://www.tutorialspoint.com/data_communication_computer_network/data_commu nica tion_computer_network/data_communication_computer_network_tutorial.pdf

Course Outcomes Data communications & Networking FCAM120407	Expected Mapping with Programme Outcomes						
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	-	-	-	-	-	-	-
CO-2	***	-	-	-	-	-	-
CO-3	-	-	-	-	-	-	-

Program :	MSCIT	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	II
Course title :	Object oriented Technology(JAVA)	**Course code :**	FCAM120408
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic knowledge of Object oriented Technology(JAVA).		
Rationale :	Java was designed to be easy to use and is therefore easy to write, compile, debug, and learn than other programming languages. Java is objected-oriented. This allows you to create modular programs and reusable code.		

Teaching Examination Scheme:

Teaching (Hours/week)			Examination Scheme			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective:

1. To learn how to extend Java classes with inheritance and dynamic binding.
2. To learn how to implement object-oriented designs with Java.
3. To learn how to design a graphical user interface (GUI) with Java Swing.

Course Outcome:

1. Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
2. Read and make elementary modifications to Java programs that solve real-world problems.
3. Use a version control system to track source code in a project.

Content

Unit	Description in detail	Credit	Weightage
I	**Basic concepts of JAVA** The Byte-code, Features of Java, IDE for Java, Object-Oriented Programming in Java, Java Program Structure and Java's Class Library. **Data Types, Variables, and Operators:** The Simple Data Types, Literals, Variables, Type Conversion and Casting, Automatic Type Promotion in expressions, Java Operators, Operator Precedence. **Selection Statements:** Control Statements – if and switch, Scope of Variable, Iterative Statements – for, while, do…. While, Jump Statements. **Defining Classes:**	1	25 %

	Definition of a Class, Definition of Methods, Constructors, Creating Objects of a Class, Assigning Object Reference Variables, The Variable this, Defining and Using a Class, Automatic Garbage Collection.		
II	**Arrays and Strings:** Arrays, Arrays of Characters, String Handling Using String Class, Operations on String Handling Using String Buffer Class. **Extending Classes and Inheritance:** Using Existing Classes, Class Inheritance, Choosing Base Class, Access Attributes, Polymorphism, Multiple Levels of Inheritance, Abstraction through Abstract Classes, Using Final Modifier, The Universal Super class-Object Class. **Packages & Interfaces:** Understanding Packages, Defining a Package, Packaging up Your Classes, Adding Classes from a Package to Your Program, Understanding CLASSPATH, Standard Packages, Access Protection in Packages, Concept of Interface. **Exception Handling:** The Idea behind Exceptions, Types of Exceptions, Dealing with Exceptions, Exception Objects, Defining Your Own Exceptions **Multithreading Programming:** The Java Thread Model, Understanding Threads, The Main Thread, Creating a Thread, Creating Multiple Threads, Thread Priorities, Synchronization, Inter-thread communication, Deadlocks	1	25 %
III	**Input/output in Java :** I/O Basic, Byte and Character Structures, I/O Classes, Reading Console Input Writing Console Output, Reading and Writing on Files, Random Access Files, Storing and Retrieving Objects from File, Stream Benefits. **Creating Applets in Java:** • Applet Basics, Applet Architecture, Applet Life Cycle, Simple Applet Display Methods, Requesting Repainting, Using the Status Window, The HTML APPLET Tag Passing Parameters to Applets.	1	25 %
IV	**Working with Graphics and Texts :** Working with Graphics, Working with Color, Setting the Paint	1	25 %

	Mode, Working with Fonts, Managing Text Output Using Font Metrics, Exploring Text and Graphics. **Working with AWT Controls, Layout Managers and Menus:** Control Fundamentals, Labels, Buttons, Check Boxes and Check, Box Groups, Choice Controls, Lists, Scroll Bars, Text Field and Text Area Controls, Understanding Layout Managers, Flow Layout Manager, Border Layout Manager, Grid Layout Manager, Using Insets Manager, Card Layout Manager, Menu Bars and Menus, Dialog Boxes, File Dialog **Handling Events in Java :** Two Event Handling Mechanisms, The Delegation Event Model, The Event Handling Process, Event Classes, Sources of Events, Event Listener Interfaces, Using the Delegation Event Model, Adapter Classes		

Reference Books:

1. Teach Yourself JAVA, Josheph O'Neil & Herb Schildt, Tata McGrow Hill
2. JAVA 2 UNLEASHED, Tech Media Publications.
3. JAVA 2(1.3) API Documentations.
4. Programming with JAVA: A printer, Balagurusamy,2nd Edition, Tata McGrow Hill

Online Resources:

1. https://www.geeksforgeeks.org/introduction-to-java/
2. https://www.w3schools.com/java/java_intro.asp

Suggested Readings:

Course Outcomes Object oriented Technology(JAVA) FCAM120408	Expected Mapping with Programme Outcomes						
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	***	***	-	***	-	-	***
CO-2	***	***	-	***	-	-	-
CO-3	-	-	-	-	***	***	***

Program :	MSCIT	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	II
Course title :	Web Development & Database Management System	**Course code :**	FCAM120409
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic knowledge of Database management System.		
Rationale :	Student will learn to use data manipulation language to query, update, and manage a database. Student will understand essential DBMS concepts such as: database security, integrity, concurrency, storage strategies etc. The students will get the hands on practice of using SQL and PL/SQL concepts.		

Teaching Examination Scheme:

Teaching (Hours/week)			Examination Scheme			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective:

1. Learn new ways to query and model data.
2. Become familiar with the expanding role of database technology.
3. To learn SQL functions and PL/SQL Program in SQL plus.

Course Outcome:

1. Design, Develop and manage databases for simple applications using Structured Query Language (SQL).
2. Understanding of the relational data model.
3. ability to use databases for building web applications.
4. Gaining knowledge about the internals of a database system.

Content

Unit	Description in detail	Credit	Weightage
I	**Basic concepts of Database Systems** Client/server architecture **Relational and other models** Relational model concepts and constraints, relational algebra, queries in relational algebra. **Database Design using RDBMS** Functional dependency & normalization. Schema design and normal forms. Database design process and tools	1	25 %
II	**Interactive SQL Part – I** ✔ Introduction to SQL, ✔ Logging into SQL * Plus, ✔ Naming rules and Conventions, ✔ Data Types ✔ Creating a Table, ✔ Inserting, ✔ Viewing data in the tables ✔ Sorting data in a table, Delete operations, Updating contents of a table ✔ Modifying the structure of tables, Renaming, Truncating and	1	25 %

	Destroying tables, Dropping a column from a table Constraints (I/O and Business rule constraints), Computations on table data.		
III	**Interactive SQL Functions** Functions **Aggregate** : AVG, MIN, COUNT, COUNT(*), MAX, SUM Numeric : ABS, POWER, ROUND, SQRT, EXP, GREATEST, LEAST, MOD, TRUNC, FLOOR, CEIL **String:** LOWER,INITCAP,UPPER,SUBSTR,ASCII,INSTR,TRANSLATE, LENGTH,LTRIM,RTRIM,TRIM,LPAD,RPAD **Conversion:** TO_NUMBER, TO_CHAR(NUMBERCONVERSION), TO_CHAR(DATE CONVERSION) ,TO_DATE **Date function**: ADD_MONTHS, LAST_DAY, MONTHS_BETWEEN, NEXT_DAY Advance Queries: • Group by Clause, Having Clause, EXISTS/ NOT EXISTS operator, • Sub query, Different Types of Joins, Set Operators SQL Performance Tuning • Index, View, Sequence, Setting environment using SET command Security Management using SQL • Granting and revoking permissions, revoking privileges given	1	25 %
IV	**PL/SQL**	1	25 %

	Variable declaration Control Structure 1. Condition structure. 2. Iterative structure. Cursor 1. Implicit 2. Explicit Store Procedure, Trigger, View, Function Exceptions. 1. Predefine exceptions. 2. Users define exceptions. 3. Handling Raised exceptions.		

Reference Books:

1. Database System Concepts: – Henry F. Korth & Abrahim Albrecht –McGraw Hill Education
2. Introduction to Database System C. J. Date (7 Edition) Low Price Edition
3. Database System Concepts, A.Silberschatz, Henry Korth and S.Sudarshan,McGraw-Hill, 1997

Suggested Readings:

1. SQL, PL/SQL: The Programming Language of Oracle(3nd, 4rd edition)By Ivan Bayross-BPB

Online Resources:

1. https://www.w3schools.com/sql/sql_ref_sqlserver.asp
2. https://www.javatpoint.com/pl-sql-tutorial
3. https://www.tutorialride.com/plsql/plsql-control-statements.htm

Course Outcomes Web Development & Database Management System FCAM120409	Expected Mapping with Programme Outcomes						
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	***	-	-	-	***	-	-
CO-2	-	-	-	-	***	-	-
CO-3	-	-	-	-	***	***	-
CO-4	-	-	***	-	-	-	***

Program :	MSCIT	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	II
Course title :	Operating System	**Course code :**	FCAM120410
Course type :	Theory	**Course credit :**	04
Pre-requisite :	The students should have general idea about Operating System Concept, types of Operating System and their functionality.		
Rationale :	The course provides the students with an understanding of human computer interface existing in computer system and the basic concepts of operating system and its working.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. To familiarize the operations performed by OS as a resource Manager.
2. To learn and understand the Concepts of operating system.
3. To Learn and understand operating system services.
4. To teach the different memory management techniques.

Course Outcome:

At the end of the course students will be able to:

1. Outline various concepts and features of Operating systems.
2. Compare various operating systems with respect to characteristics and features.
3. Implement algorithm of CPU Scheduling, Memory Scheduling and disk scheduling.
4. Make changes in the OS configurations as per need.

Content

Unit	Description in detail	Credit	Weightage
I	**Operating System Overview:** Introduction to Operating System, Types of Operating system, Operating System Services functionality and characteristics of OS Buffering & Spooling	1	25 %
II	**Process Management:** Process, Process, Process States, Control Block (PCB), Scheduling – Types of Schedulers, Scheduling & Performance Criteria, Scheduling Algorithms – FCFS, SJF, Priority & Round Robin (RR) Scheduling. Deadlock: Concept, Deadlock detection, and prevention	1	25 %
III	**Memory Management:** Static Memory Allocation, Dynamic Memory Allocation, Segmentation, Virtual memory – Paging, Demand Paging, Page Replacement, Fragmentation & Defragmentation, Cache memory	1	25 %
IV	**I/O Management:** Program Controlled I/O, Interrupt Driven I/O, USART, PIT File Management: File concept, Access method, Directory structure,	1	25 %

	Disk Space Management - Continuous allocation, non continuous allocation, File related system services		

Reference Books:

1. Operating System Concept, Wiley, Sixth Edition - Silberschatz & Galvin
2. Operating Systems, Tata McGraw – Hill, Second Edition- Milan Milenkovi'c
3. Operating Systems, PHI, Fourth Edition - William Stallings

Suggested Readings:

1. Operating System Concept, Wiley, Sixth Edition - Silberschatz & Galvin

Online Resources:

1. https://www.tutorialspoint.com/operating_system/index.htm
2. https://www.geeksforgeeks.org/operating-systems/
3. https://www.javatpoint.com/operating-system

Course Outcomes Operating System FCAM120410	**Expected Mapping with Programme Outcomes**						
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**
CO-1	***	-	-	-	-	-	-
CO-2	***	-	-	-	-	-	-
CO-3	***	-	-	***	-	-	-
CO-4	-	-	-	-	-	***	***

Program :	MSCIT	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	II
Course title :	Practical- Object Technology(JAVA)	**Course code :**	FCAP120411
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Basic knowledge of Object oriented Technology(JAVA).		
Rationale :	Java was designed to be easy to use and is therefore easy to write, compile, debug, and learn than other programming languages. Java is objected-oriented. This allows you to create modular programs and reusable code.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective:

1. To learn how to extend Java classes with inheritance and dynamic binding.
2. To learn how to implement object-oriented designs with Java.
3. To learn how to design a graphical user interface (GUI) with Java Swing.

Course Outcome:

1. Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.

2. Read and make elementary modifications to Java programs that solve real-world problems.
3. Use a version control system to track source code in a project.

Content

Course Contents
1. Write a Java Program find the Area of circle using command-line arguments. 2. Write a Java Program that will display Factorial of the given number. 3. Write a Java Program that will display 25 Prime nos. 4. Write a Java Program to sort the elements of an array in ascending order. 5. Write a Java Program which will read a word and count all occurrences of a particular character. 6. Write a Java Program which will read a string and rewrite it in the alphabetical order eg. The word "STRING" should be written a "GINRST". 7. Write a java program which shows the application of constructors and constructors overloading. 8. Write a java program which shows the use of methods overloading. 9. Write a java program which shows the use of static members and methods. 10. Write a java program which shows the nesting of methods. 11. Write a java program which shows use of String & Buffer String class. 12. Write a java program which shows use of Vector class. 13. Write a java program for Data Input Stream which use try and catch for exception handling. Write a java program which use multiple catch blocks and also define finally block. 14. Write a java program which shows throwing our own exception. 15. Write a java program to explain the concept of single inheritance. 16. Write a java program which explains the concept of multilevel inheritance. 17. Write a java program to shows the use of 'super' keyword. 18. Write a java program which show the method overriding. 19. Write a java program which demonstrates the use of final variable, method and class. Write a java program which shows the concept of abstraction using abstraction class. Write a java program to implement interface. 20. Write a java program for implements multiple inheritance using interface.

21. Write a java program which shows importing of classes from other packages.
22. Write a java program which shows the use of Stack and Hash Table class. Write a java program which shows the use Date and Calendar Classes.

Reference Books:

1. Teach Yourself JAVA, Josheph O'Neil & Herb Schildt, Tata McGrow Hill
2. JAVA 2 UNLEASHED, Tech Media Publications.
3. JAVA 2(1.3) API Documentations.
4. Programming with JAVA: A printer, Balagurusamy,2nd Edition, Tata McGrow Hill

Suggested Readings:

1. Java: A Beginner's Guide. Author: Herbert Schildt

Online Resources:

1. https://www.geeksforgeeks.org/introduction-to-java/
2. https://www.w3schools.com/java/java_intro.asp

Course Outcomes Practical- Object oriented Technology(JAVA) FCAP120411	**Expected Mapping with Programme Outcomes**						
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**
CO-1	***	***	-	***	-	-	***
CO-2	***	***	-	***	-	-	-
CO-3	-	-	-	-	***	***	***

Program :	MSCIT	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	II
Course title :	Practical-Web Development & Database Management System	**Course code :**	FCAM120412
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Basic knowledge of Database management System.		
Rationale :	Student will learn to use data manipulation language to query, update, and manage a database. Student will understand essential DBMS concepts such as: database security, integrity, concurrency, storage strategies etc. The students will get the hands on practice of using SQL and PL/SQL concepts.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Student will learn the physical and logical database designs, database modeling, relational, and network models.
2. Become familiar with the expanding role of database technology.
3. Understand PL/SQL concept: Cursor, Trigger, Stored Procedure etc.

Course Outcome:

1. Design, Develop and manage databases for simple applications using Structured Query Language (SQL).
2. Understanding of the relational data model.

3. ability to use databases for building web applications.
4. Gaining knowledge about the internals of a database system.

Content

Practical:

Create following Three Tables.

1. Salesman

SNUM	SNAME	CITY	COMMITION
1001	PIYUSH	LONDON	12%
1002	NIRAJ	SURAT	13%
1003	MITI	LONDON	11%
1004	RAJESH	BARODA	15%
1005	ANAND	NEW DELHI	10%
1006	RAM	PATAN	10%
1007	LAXMAN	BOMBAY	09%

SNUM : A Unique number assign to each salesman.

SNAME : The name of salesman.

CITY : The location of salesman.

COMMITION: The salesman commission on order.

2. Customer

CNUM	CNAME	CITY	RATING	SNUM
2001	HARDIK	LONDON	100	1001
2002	GITA	ROME	200	1003
2003	LAXIT	SURAT	200	1002
2004	GOVIND	BOMBAY	300	1002
2005	CHANDRESH	LONDON	100	1001
2006	CHAMPAK	SURAT	300	1007
2007	PRATIK	ROME	100	1004
2008	MANOJ	LONDON	200	1007

CNUM : A Unique number assign to each customer.

CNAME : The name of customer.

CITY : The location of customer.

RATING : A level of preference indicator given to this customer.

SNUM : A salesman number assign to this customer.

3. Order

ONUM	AMOUNT	ODATE	CNUM	SNUM
3001	18.69	03/03/99	2007	1007
3002	767.19	05/03/97	2001	1001
3003	1900.10	10/03/97	2007	1004
3004	5160.45	12/03/99	2003	1002

3005	1098.25	15/04/99	2008	1007
3006	1713.12	10/04/95	2002	1003
3007	75.75	20/05/96	2004	1002
3008	4723.00	30/05/99	2006	1001
3009	1309.95	08/05/97	2004	1002
3010	9898.87	06/06/99	2006	1001

ONUM : A Unique number assign to each Order.

AMOUNT : Amount of order in Rs.

ODATE : The date of order.

CNUM : The number of customer making the order.

SNUM : The number of salesman credited with the sale.

Solve following request with the help of sql query.

1. Produce the order no, amount and date of all orders.
2. Give all the information about all the customers with salesman number 1001.
3. Display the information in the sequence of city, sname, snum, and Commission.
4. List of rating followed by the name of each customer in Surat.
5. List of snum of all salesmen with orders from order table.
6. List of all orders for more than Rs. 1000.
7. List out names and cities of all salesmen in London with commission above 10%
8. List all customers excluding those with rating <= 100 or they are located in Rome.
9. List all order for more than Rs. 1000 except the orders of snum 1006 of 10/03/97
10. List all orders taken on March 3rd or 4th or 6th.

11. List all customers whose names begin with a letter 'C'.
12. List all customers whose names begins with letter 'A' or 'B' or 'c'.
13. List all orders with zero or NULL amount.
14. Find out the largest orders of salesman 1002 and 1007.
15. Count all orders of 10-Mar-97.
16. Calculate the total amount ordered.
17. Calculate the average amount ordered.
18. Count the no. of salesmen currently having orders.
19. Find the largest order taken by each salesman.
20. Find the largest order taken by each salesman on 10/03/1997.
21. Count the no. of different non NULL cities in the Customer table.
22. Find out each customer's smallest order.
23. Find out the customer in alphabetical order whose name begins with 'G'
24. Count the no. of salesmen registering orders for each day.
25. List all salesmen with their amount calculated with commission.

PI/SQL PRACTICAL LIST

GROUP I (PL/SQL Examples)

P1. Display any string using pl/sql block.
P2. Check whether accepted number is positive or negative.
P3. Accept three different numbers from terminal and display biggest one.
P4. Make the sum of first 100 natural number and display it.
P5. Make the sum of odd and even numbers up to 100 and display it.

GROUP II (PL/SQL)

1. Simple PL/SQL block construction
   a. Displaying message on terminal
   b. Calculation on given data and prepare result for display
   c. Accept the value from user and do accordingly.

2. Decision making and looping
   a. If. .then, if. .then. .else, else ..if ledger, and nested if.
   b. Different looping concepts like loop. .end loop, while, for
   c. Nested looping.
   d. Use of go to clause.

Reference Books:

1. Database System Concepts: – Henry F. Korth & Abrahim Silberschatz –McGraw Hill Education
2. Introduction to Database System C. J. Date (7 Edition) Low Price Edition
3. Database System Concepts, A.Silberschatz, Henry Korth and S.Sudarshan,McGraw-Hill, 1997

Suggested Readings:

1. SQL, PL/SQL: The Programming Language of Oracle(3nd, 4rd edition)By Ivan Bay ross-BPB

Online Resources:

1. https://www.w3schools.com/sql/sql_ref_sqlserver.asp
2. https://www.javatpoint.com/pl-sql-tutorial
3. https://www.tutorialride.com/plsql/plsql-control-statements.ht

Course Outcomes Practical-Web Development & Database Management System FCAM120412	**Expected Mapping with Programme Outcomes**						
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**
CO-1	***	-	-	-	***	-	-
CO-2	-	-	-	-	***	-	-
CO-3	-	-	-	-	***	***	-
CO-4	-	-	***	-	-	-	***

MSCIT SEMESTER - III

Program :	M.SC.(IT)	**Subject / Branch :**	NA
Year :	**2023/24**	**Semester :**	III
Course title :	**Software Engineering**	**Course code :**	FCAM130401
Course type :	Theory	**Course credit :**	04
Pre-requisite :	You must **have strong project management skills** before learning software engineering skills. They can help you organize how you work on assignments and projects		
Rationale :	The reasoning and justification behind human decisions, opinions, and beliefs. In software engineering, rationale management focuses on capturing design and requirements decisions and on organizing and reusing project knowledge.		

Teaching Examination Scheme:

Teaching (Hours/week)			Examination Scheme			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective:

1. Be employed in industry, government, or entrepreneurial endeavors to demonstrate professional advancement through significant technical achievements and expanded leadership responsibility;
2. Demonstrate the ability to work effectively as a team member and/or leader in an ever-changing professional environment; and

3. Progress through advanced degree or certificate programs in computing, science, engineering, business, and other professionally related fields.

Course Outcome:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering

Content

Unit	Introduction to Software Engineering	Credit	Weightage
I	Define Software and System; Define Software Engineering, Software Characteristic, Difference between Software Engineering and Computer Science. Difference between Software EngineeringandSystemEngineering.SoftwareCosts,SoftwareApplication,EvolutionofsoftwareEngineering,Software Crisis-Problem and Causes, Software Myths, Professional and Ethical Responsibility, Software Process, Principal of Software Engineering, Software QualityFactors,SoftwareQualityAttributes,SoftwareEngi	1	25 %

	neeringMethods. **Software Process Model** Waterfall Model, Prototyping Model, Incremental Model, Spiral Model		
II	**Software Requirement Specification** WhatisRequirement,TypesofRequirement,SRS(SoftwareRequirementSpecification),SoftwareEngineering Benefits, Role of Management in Software Development, Role of Metrics and Measurement. **System Design** SoftwareDesignStrategy,BecomeaMasterDesigner,EvaluatingaDesign,ProblemPartitioning,Abstraction,StrategyofDesign,FunctionOrientedv/sObjectOrientedApproaches	1	25 %
III	**Coding** Programming Practices, Top down Approaches &Bottom Up Approaches ,Structure Programming, Information hiding, Programming Style, **Testing** TestingFundamental,TopDownApproaches&BottomUpApproaches,TestCasesandTestCriteria,PsychologyofTesting,RegressingTesting,FunctionalTesting,StructureTestingEquivalenceClassPartitioning,BoundaryValueAnalysis,CauseEffectGraphing,TypeofTesting,TestPlan.	1	25 %

Reference Books:

1. **SOFTWAREENGINEERING-Roger S. Pressman**
   Practical Approach of Software Engineering- Dr. Munesh Trivedi, Avinash

Suggested Books:

1. Pres sman R.S: Software Engineering: A Practitioner approach, McGraw-Hill
2. Software Engineering, Addison Wesley

Online Resources:

https://medium.com/fantageek/best-resources-for-software-engineering-77a5b8f7280c
https://www.coursera.org/specializations/software-engineering
https://www.knowledgehut.com/blog/web-development/software-engineering-books

Course Outcomes	Expected Mapping with Programme Outcomes						
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	***	-	-	***		-	***
CO-2	-	-	-	-	***	***	-
CO-3	***	-	-	***	***	***	-
CO-4	***	-		-	***	***	***

Program :	M.SC.(IT)	**Subject / Branch :**	NA
Year :	**2023/24**	**Semester :**	III
Course title :	COMPUTER SECURITY	**Course code :**	FCAM130404
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Vulnerabilities in the Information Technology systems. Anticipating and detecting threats. Routing and switching. Being aware of the network architecture and protocol. Firewalls.		
Rationale :	Computer security helps keep valuable information protected and maintain the		

	health of a computer with no disruptive behavior in its performance caused by viruses and malware. That's all for the importance and need of computer security.

Teaching Examination Scheme:

Teaching (Hours/week)			Examination Scheme			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. 1.To prepare students with the technical knowledge and skills needed to protect and defend computer systems and networks.
2. To develop graduates that can plan, implement, and monitor cyber security mechanisms to help ensure the protection of information technology assets.
3. To develop graduates that can identify, analyse, and remediate computer security breaches.

Course Outcome:

1. 1.Analyse and evaluate the cyber security needs of an organization.
2. Conduct a cyber security risk assessment.
3. Measure the performance and troubleshoot cyber security systems.
4. Implement cyber security solutions.

Content

Unit	Introduction:	Credit	Weightage
I	**Introduction:**WhatDoes"Secure"Mean?,Attacks,TheMeaningofC	1	25 %

	omputerSecurity,ComputerCriminals,MethodsofDefense. **CyberSecurity:**MakingaBusinessCase,QuantifyingSecurity,ModelingCyber-security,CurrentResearch and Future Directions		
II	**System Security** - Intruders • Intruders, Intruders detection, Password management. - Malicious Software • Virusesand Related Threats - Firewalls • Firewalls Design principle ,established systems.	1	25 %
III	**Cryptography** - Foundations of cryptography and computer security • Mathematical foundations ,Randomness - Symmetric key cryptography • Classical Encryption Techniques • Block Ciphersand The Data Encryption Standard • Advance Encryption Standard • Confidentiality Using Symmetric Encryption - Public key cryptography • Public Key Cryptography And RSA Message Authenticationand Hash Function	1	25 %
IV	**Network Security** - Protocols: Digital Signature standards - Electronics Mail Security-PGP(Pretty Good Privacy)MIME ,data Compression technique - IP Security: Architecture, Authentication	1	25 %

	Leader, Encapsulating security Payload–Key management - Web security: -Secure Socket Layer & Transport Layer security, secure electronics transactions		

Text Books:

1. Security in Computing, Fourth EditionBy Charles P. P fleeger ,ShariL awrence Pfleeger Publisher: PrenticeHall.
2. CryptographyandNetworkSecurity(2ndedition)WilliamStallings(PearsonEducation).

Reference Books:

1. Computer Security Basics by Debby Russell ,G.T .Gangemi (Orielly)
2. NetworkSecurityPrivateCommunicationinaPublicWorldbyCharlieKamfman,RadiaParolman,MikeSpeciner

Online Resources:

1.https://www.britannica.com/technology/computer-security
2.https://bootcamp.berkeley.edu/blog/what-is-computer-security/

Course Outcomes	Expected Mapping with Programme Outcomes						
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	***	***	-	***		***	-
CO-2	***	***	-	***		***	-
CO-3	***	***	-	***		***	-
CO-4	***	***	-	***		***	-

Program :	M.SC.IT	**Subject / Branch :**	NA
Year :	**2023/24**	**Semester :**	III
Course title :	**PHP**	**Course code :**	FCAM130402
Course type :	Theory	**Course credit :**	04
Pre-requisite :	To learn PHP one must have a basic understanding of computer programming, Internet, database, HTML/XHTML and MySQL will be very helpful. Audience - It is designed for those who are unaware of the PHP concepts but have a basic understanding of computer programming.		
Rationale :	server-side programming language that can be used to create websites, applications, customer relationship management systems and more.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Initially designed to perform little more than an accountant and a guestbook.
2. PHP has experienced in a short time a real revolution and, from its functions, in these moments you can perform a multitude of useful tasks for web development.
3. source: https://disenowebakus.net/en/php-objectives

Course Outcome:

1. Analyze PHP scripts and determine their behavior.
2. Construct PHP scripts to create dynamic web content.
3. Create PHP scripts capable of inserting and modifying data in a MySQL database.

4. Design web pages with the ability to retrieve and present data from a MySQL database.

Content

Unit	Description in detail	Credit	Weightage
Unit – 1	**PHP FUNDAMENTALS**	1	25 %
	Building blocks of PHP: Basic syntax, Variables, Data Types, Operators andexpressions, Constants. Flow Control: Switch flow, Loops, Code Block, Sendingdata to the browser. **Working with Arrays:** Arrays, Creating array, Array related Functions.		
Unit – 2	**PHP FUNCTIONS**	1	25 %
	Working with Function: Function, Calling Function, Defining Function, Returningthe Values from user defined function, Variable Scope, Argument. **Working with Strings,Date and Time Functions:** formatting String with PHP ,Date and Time Function, String Manipulation and Investigating Strings with PHP. **Working with Forms:** Creating form, handling form, validating form data, accessing form data, use of Hidden fields to save State, redirecting user, file Upload and Sending Mail on Form Submission.		
Unit – 3	**WORKING WITH FILE COOKIES & SESSION:**	1	25 %
	Working with Cookies and User Session: Introduction of Cookie, Setting a Cookie with PHP, Introduction of Session and Improving Session Security, Startinga Session, Working with Session Variables, Passing Session Id in the query String, Destroying Session and Unsetting Variables. **Working with Directories**: Directory related function. **Working with files**: Include Files with INCLUDE, creating and deleting files, opening a file for reading, writing or Appending, Reading from files, Validating Files.		
Unit – 4	**DATABASE MYSQL**	1	25 %
	Understanding the Database Design Process: The importance of		

	good database design, Types of Table Relationship, Understanding Normalization . **Learning Basic SQL Command:** Table Creation, Insert row, Select Command Using Where Clause, Update and Delete Command, Replace Command, Stored Procedures, Join, Indexing and Sorting query. **Using MySQL with PHP**: Connecting to MySQL and selecting the database, executing simple queries, retrieving query results, counting return Records, updating, Record Addition, Viewing Record, and Deletion Record with PHP. **MYSQL Error Handling:** SQL and MySQL debugging techniques. Connecting database with DSN : ODBC Connectivity Function.		

Reference Books:

1.PHP and MySQL for dynamic Web Sites: Visual pro Guide, Second Edition by Larry.
2. Programming PHP By Rasmus Lerdorf, Kevin Tatroe, Peter Maclntyre.
3. The Complete Reference PHP by Steven Holzner

Suggested Books:

Beginning PHP 5 by Wrox.

1. Julie C. Meloni, PHP MySQL and Apache, SAMS Teach Yourself, Pearson Education.

Online Resources:

https://www.w3schools.com/php/
https://www.tutorialspoint.com/php/index.htm
https://www.phptutorial.net/

Course Outcomes	Expected Mapping with Programme Outcomes						
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	***	***	***	-	***	-	***
CO-2	***	***	***	-	***	-	***
CO-3	***	***	***	-	***	-	***

CO-4	***	***	***	-	***	-	***

Program :	M.SC .(IT)	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	III
Course title :	MOBILE APPLICATION DEVELOPMENT	**Course code :**	FCAM130403
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic concept of programing language java		
Rationale :	Students are capable to develop android mobile application		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Students will be able to develop their own android application
2. Students will understand the importance of play store
3. Students can bring their own idea in work and can start their own venture.

Course Outcome:

1. They will be able to create user interface with different controls.
2. The students will understand android studio environment.
3. They will be able to user activity, services for different usage.
4. They will be able to use APIs of android operating and can integrate into android application.

Content

Unit	Theory of Communication	Credit	Weightage
I	History of Mobile Software Development, The Open Handset Alliance, The Android Platform, Android SDK, Building a sample Android application, Android Manifest File and its common settings, Anatomy of an Android application ,Application Context, Activities, Intents, Services, Receiving and Broadcasting Intents	1	25 %
II	Working with different types of resources, User Interface Screen elements, Designing User Interfaces with Layouts, Working with Animation, Working with canvas	1	25 %
III	Using Android Data and Storage APIs, managing data using SQLite, Sharing Data between Applications with Content Providers	1	25 %
IV	Using Android Web APIs, Using Android Telephony APIs, Selling your Android application	1	25 %

Reference Books:

1. Lauren Darcey and Shane Conder, "Android Wireless Application Development", Pearson Education, 2nd ed. (2011)
2. Reto Meier, "Professional Android 2 Application Development", Wiley India Pvt Ltd (2011)

Suggested Readings:

1. Mark L Murphy, "Beginning Android", Wiley India Pvt Ltd(2009)
2. Sayed Y Hashimi and Satya Komatineni, "Pro Android", Wiley India Pvt Ltd (2009)

Online Resources:

1. https://developer.android.com/
2. https://www.tutorialspoint.com/android/index.htm
3. https://www.javatpoint.com/android-tutorial
4. https://www.geeksforgeeks.org/android-tutorial/

Course Outcomes	Expected Mapping with Programme Outcomes						
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	***	***	***	***	***	-	-
CO-2	***	-	***	-	***	-	-

CO-3	-	***	-	-	***	-	-
CO-4	***	-	***	-	***	-	***

Program :	M.SC .(IT)	**Subject / Branch :**	NA
Year :	**2023/24**	**Semester :**	III
Course title :	**PRACTICAL - PHP**	**Course code :**	FCAM130405
Course type :	Theory	**Course credit :**	04
Pre-requisite :	To learn PHP one must have a basic understanding of computer programming, Internet, database, HTML/XHTML and MySQL will be very helpful. Audience - It is designed for those who are unaware of the PHP concepts but have a basic understanding of computer programming.		
Rationale :	server-side programming language that can be used to create websites, applications, customer relationship management systems and more.		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Initially designed to perform little more than an accountant and a guestbook.
2. PHP has experienced in a short time a real revolution and, from its functions, in these moments you can perform a multitude of useful tasks for web development.
3. source: https://disenowebakus.net/en/php-objectives

Course Outcome:

1. Analyze PHP scripts and determine their behavior.
2. Construct PHP scripts to create dynamic web content.
3. Create PHP scripts capable of inserting and modifying data in a MySQL database.
4. Design web pages with the ability to retrieve and present data from a MySQL database.

Content

CONTENT
1. Write a PHP program to display 'Hello World" Message on Screen.
2. Write a PHP program to display the today's date and current time.
3. Write a PHP program to display the Fibonacci series
4. Write a PHP program to calculate sum of given number.
5. Write a PHP Program that will use the concept form.
6. Write a PHP program to read the employee detail using form component.
7. Write a PHP program to demonstrate the use of array.
8. Write a PHP program to prepare student Mark sheet using Switch statement.
9. Write a PHP program to generate the multiplication of matrix.
10. Write a PHP program to send Mail from PHP Script.
11. Write a PHP Program for Create, Delete, and Copying file from PHP Script.
12. Write a PHP Program to Recursive Traversals of Directory.
13. Write a PHP Program to Validate Input Data
14. Write a PHP Program to Upload File.
15. Write a PHP program to perform demonstrates the college Website.
16. Write a PHP program for Error Handling.
17. Write a PHP Program for Session and Cookies.
18. Write a PHP program for connection with my Sql and display all record from the database
19. Write a PHP program for add record into database
20. Write a PHP program for search record from the database.

21. Write a PHP program for delete, update record from the database
22. Develop a PHP application to make following Operation
    I. Registration of user.
    ii. Insert the details of user.
    iii. Modify the details

Reference Books:

1.PHP and MySQL for dynamic Web Sites: Visual Quickpro Guide, Second Edition by Larry.
2. Programming PHP By Rasmus Lerdorf, Kevin Tatroe, Peter Maclntyre.
3. The Complete Reference PHP by Steven Holzner

Suggested Books:

Beginning PHP 5 by Wrox.
1. Julie C. Meloni, PHP MySQL and Apache, SAMS Teach Yourself, PearsonEducation.

Online Resources:

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https://www.tutorialspoint.com/php/index.htm
https://www.phptutorial.net/

Course Outcomes	Expected Mapping with Programme Outcomes						
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	***	***	***	***	***	-	-
CO-2	***	-	***	-	***	-	-
CO-3	-	***	-	-	***	-	-
CO-4	***	-	***	-	***	-	***

Program :	M.SC.(IT)	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	III
Course title :	PRACTICAL – MOBILE APPLICATION DEVELOPMENT	**Course code :**	FCAM130406
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic concept of programing language java		
Rationale :	Students are capable to develop android mobile application		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Students will be able to develop their own android application
2. Students will understand the importance of play store
3. Students can bring their own idea in work and can start their own venture.

Course Outcome:

1. They will be able to create user interface with different controls.
2. The students will understand android studio environment.
3. They will be able to user activity, services for differen tusage.
4. They will be able to use APIs of android operating and can integrate into android application.

Content

1. Create “Hello World” application. That will display “Hello World” in the middle of the screen in the red color with white background.
2. To understand Activity, Intent
    a. Create sample application with login module.(Check username and password)
    b. On successful login, go to next screen. And on failing login, alert user using Toast.
    c. Also pass username to next screen.
3. Create login application where you will have to validate Email ID(User Name). Till the username and password is not validated , login button should remain disabled.
4. Create and Login application as above . On successful login , open browser with any URL.
5. Understand resource folders :
    a. Create spinner with strings taken from resource folder(res >> value folder).
    b. On changing spinner value, change image.
6. Understand Menu option.
    a. Create an application that will change color of the screen, based on selected options from the
    b. menu.
7. Create an application that will have spinner with list of animation names. On selecting animation name , that animation should affect on the images displayed below.
8. Understanding of UI :
    a. Create an UI such that , one screen have list of all the types of cars.
    b. On selecting of any car name, next screen should show Car details like : name , launched date ,company name, images(using gallery) if available, show different colors in which it is available.
9. Understanding content providers and permissions:
    a. Read phonebook contacts using content providers and display in list.
10. Read messages from the mobile and display it on the screen.
11. Create an application to call specific entered number by user in the Edit Text
12. Create an application that will create database with table of User credential.
13. Create an application to read file from asset folder and copy it in memory card.
14. Create an application that will play a media file from the memory card.
15. Create an application to make Insert, update, Delete and retrieve operation on the

database.

16. Create an application to read file from the SD card and display that file content to the screen.

17. Create an application to draw line on the screen as user drag his finger.

18. Create an application to send message between two emulators.

19. Create an application to take picture using native application.

20. Create an application to pick up any image from the native application gallery and display it on the screen.

21. Create an application to open any URL inside the application and clicking on any link from that URL should not open Native browser but that URL should open the same screen.

Reference Books:

1. Lauren Darcey and Shane Conder, "Android Wireless Application Development", Pearson
    a. Education, 2nd ed. (2011)
2. Reto Meier, "Professional Android 2 Application Development", Wiley India Pvt Ltd (2011)

Suggested Readings:

1. Mark L Murphy, "Beginning Android", Wiley India Pvt Ltd(2009)
2. Sayed Y Hashimi and Satya Komatineni, "Pro Android", Wiley India Pvt Ltd (2009)

Online Resources:

1. https://developer.android.com/
2. https://www.tutorialspoint.com/android/index.htm
3. https://www.javatpoint.com/android-tutorial
4. https://www.geeksforgeeks.org/android-tutorial/

Course Outcomes	Expected Mapping with Programme Outcomes

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7
CO-1	***	***	***	***	***	-	-
CO-2	***	-	***	-	***	-	-
CO-3	-	***	-	-	***	-	-
CO-4	***	-	***	-	***	-	***