C21_ Curriculum
DIPLOMA IN COMPUTER ENGINEERING

OFFERED BY

STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TELANGANA: HYDERABAD

V SEMESTER

Sl No	Course Code	Course Name	Teaching Scheme				Credits	Examination Scheme						
			Instruction Periods per week			Total Period per semester		Continuous internal evaluation			Semester end examination			
			L	T	P			Mid Sem 1	Mid Sem 2	Internal evaluation	Max Marks	Min Marks	Total Marks	Min marks for Passing including internal
1	ME-501	Industrial Management and Entrepreneurship	4	1	0	75	3	20	20	20	40	14	100	35
2	CS-502	Web Designing	4	1	0	75	3	20	20	20	40	14	100	35
3	CS-503	Python Programming	4	1	0	75	3	20	20	20	40	14	100	35
4	CS-574	.Net Programming Through C#	4	1	0	75	3	20	20	20	40	14	100	35
	CS-584	Android Programming	4	1	0	75	3	20	20	20	40	14	100	35
5	CS-575	Artificial Intelligence	4	1	0	75	3	20	20	20	40	14	100	35
	CS-585	Cryptography and Network Security	4	1	0	75	3	20	20	20	40	14	100	35
6	CS-506	Web Designing Lab	1	0	2	45	1.5	20	20	20	40	20	100	50
7	CS-507	Python Programming Lab	1	0	2	45	1.5	20	20	20	40	20	100	50
8	CS-578	.Net Programming Through C# Lab	1	0	2	45	1.5	20	20	20	40	20	100	50
	CS-588	Android Programming Lab	1	0	2	45	1.5	20	20	20	40	20	100	50
9	CS-509	System Administration Lab	1	0	2	45	1.5	20	20	20	40	20	100	50
10	CS-510	Project Work	1	0	2	45	1.5	20	20	20	40	20	100	50
11	CS-511	Skill Upgradation	0	0	8	120	2.5	0	0	Rubrics			--	-
	Activities: student performance is to be assessed through Rubrics													

ME-501 - INDUSTRIAL MANAGEMENT AND ENTREPRENEURSHIP

Course title	Industrial Management and Entrepreneurship	Course code	ME-501
Semester	V	Course group	Core
Teaching scheme in periods (L:T:P)	4:1:0	Credits	3
Methodology	Lecture+ Tutorial	Total Contact Periods	75
CIE	60 Marks	SEE	40 Marks

Prerequisites: Knowledge of Basic Sciences.

COURSE OUTCOMES

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

Course Outcomes	
CO1	Understand the principles and functions of management and Outline Organization structure& organizational behavior
CO2	Understand the Functions of Production Management
CO3	Analyse the functions of Materials Management.
CO4	Compare Marketing, sales & Feasibility study.
CO5	Know the use of ISO 9000 & T.Q.M
CO6	Understand Industrial legislation & safety and role of entrepreneur and entrepreneurial development

Blue Print of Marks for SEE:

<table>
<tr><th colspan="2" rowspan="2">Units</th><th rowspan="2">No of periods</th><th colspan="4">Questions to be set for SEE</th><th rowspan="2">Remarks</th></tr>
<tr><th colspan="2">R</th><th>U</th><th>A</th></tr>
<tr><td rowspan="2">Part-A</td><td>1.Principles and functions of management and organisation structure and behaviour</td><td>13</td><td rowspan="6">Q4</td><td colspan="2" rowspan="2">Q1</td><td rowspan="2">Q9(a)</td><td rowspan="2">Q13(a)</td><td></td></tr>
<tr><td>2.Production management</td><td>12</td><td></td></tr>
<tr><td rowspan="2">Part-B</td><td>3.Materials management</td><td>13</td><td colspan="2" rowspan="2">Q2</td><td rowspan="2">Q10(a)</td><td rowspan="2">Q14(a)</td><td></td></tr>
<tr><td>4.Marketing, sales & feasibility study</td><td>12</td><td></td></tr>
<tr><td rowspan="2">Part-C</td><td>5.Introduction to ISO 9000 & T.Q.M</td><td>13</td><td rowspan="2">Q3</td><td>Q5
Q6</td><td>Q9(b)
Q11(a)
Q11(b)</td><td>Q13(b)
Q15(a)
Q15(b)</td><td></td></tr>
<tr><td>6.Industrial legislation & safety and Entrepreneurial development</td><td>12</td><td>Q7
Q8</td><td>Q10(b)
Q12(a)
Q12(b)</td><td>Q14(b)
Q16(a)
Q16(b)</td><td></td></tr>
<tr><td colspan="2">TOTAL</td><td>75</td><td colspan="2">08</td><td>08</td><td>08</td><td></td></tr>
</table>

COURSE CONTENT

1. **Principles and functions of management and organisation structure and behaviour**
   Definitions of Industry, Commerce and Business, Evolution of management theories, Principles of Scientific Management, functions of management, Difference between administration and management, Role of industry, Types of ownership – Sole proprietorship, Partnership, Private limited, public limited company, Industrial Cooperatives, Philosophy, types of Organizations, Line and Staff and functional organizations, Advantages, limitations, departments in a large-scale industry, Effective organization, Motivation, different theories of motivation, leadership styles.

2. **Production management**
   Production, planning and control, relation with other departments, need for planning and its advantages, Routing, scheduling, dispatching, PERT and CPM, simple problems.

3. **Materials management**
   Materials in industry, inventory control model, ABC Analysis, Safety stock, re-order level, Economic ordering quantity, Stores layout, stores equipment, Stores records, purchasing procedures, purchase records, Bin card, Cardex.

4. **Marketing, sales & feasibility study**
   Sellers and Buyers markets, Marketing, Sales, Market conditions, monopoly, oligopoly, perfect competition, Cost -Elements of Cost, Contribution, Break even analysis, Market Survey, Product and production Analysis, Materials input, Manpower, Location, Economic and Technical Evaluation, preparation of Feasibility study reports.

5. **Introduction to ISO 9000 & T.Q.M**
   Concept of quality, Definition of the terms quality policy, quality management, quality systems, quality control and quality assurance, Elements of quality systems: Management responsibility, Quality system, contract review, design control, document control, purchasing, purchaser– supplied product, product identification and traceability, process control, Inspection and testing. Definition and Principles of quality assurance, Know the necessity of International standards –ISO- Evolution, Meaning, importance, Various standards under ISO, ISO 9000 series of standards- Features, series, Constituents, Advantages, Draw backs and beneficiaries (Whom does ISO 9000 help). **5-S** principles-concept of zero defects. TQM-Meaning, Characteristics.

6. **Industrial legislation & safety and Entrepreneurial development**
   Employer – Employee relations, Trade, Union Settlement of disputes, collective bargaining, Welfare activities, Total Welfare concept, rights and responsibilities of Employers and employees, Salient features of Indian Factories Act, Importance of Safety at work places, Hazards, causes of accidents, Entrepreneur and entrepreneurship - Concept, definition, role, expectation, Entrepreneurship Vs Management, promotion of S.S.I. Self –employment schemes, Product selection, site selection, Institutional support needed, financial assistance programs. Start up Scheme- Importance, Features and Eligibility for startup registration, Benefits

REFERENCE BOOKS

1. Industrial engineering and management by O.P Khanna.
2. Production management by Buffa
3. Industrial Engineering & Management Science by TR Banga
4. Engineering Economics and management science by Banga & Sharma
5. Personnel management by Flippo
6. Entrepreneurship by NITTTR Chennai.

ELECTRONIC RESOURCES

1. https://nptel.ac.in/courses/
2. https://www.slideshare.net/
3. https://en.wikipedia.org/wiki/
4. http://ndl.ethernet.edu.et/bitstream/

SUGGESTED STUDENT ACTIVITIES

1. Identify any 5 industries with different types of ownerships.
2. Prepare an organizational structure of institution
3. Make a survey on marketing a product.
4. Prepare a list of ISO 9000 series as well as latest quality standards
5. Prepare sign boards representing safety measures.
6. Role play as an entrepreneur

SUGGESTED LEARNING OUTCOMES

Upon completion of the course the student shall be able to

1. Understand the principles and functions of management and Outline Organization structure& organizational behavior

1.1 Define industry, commerce (Trade) and business.
1.2 Know the need for management.
1.3 Understand the evolution of management
1.4 Explain the principles of scientific management.
1.5 Understand functions of Management.
1.6 Differentiate between management and administration.
1.7 Understand types of ownerships
1.8 Differentiate types of ownerships.
1.9 Understand salient features of joint stock companies.
1.10 Understand the philosophy and need of organization structure of an industry.
1.11 Understand the line, staff and Functional organizations.
1.12 List the advantages and limitations of line, staff and functional organizations.
1.13 List different departments in a large scale industry.
1.14 Explain the factors of effective organization.
1.15 Understand organizational behaviour.
1.16 Explain job analysis.
1.17 State motivation theories.
1.18 State Maslow ‘s Hierarchy of needs.
1.19 List out different leadership models.
1.20 Explain the trait theory and behavior theory of leadership

2. Understand the Functions of Production Management

2.1 Differentiate production, planning and control.
2.2 Relate the production department with other departments.
2.3 State the need for planning and its advantages.
2.4 Explain the stages of Production, planning and control.
2.5 Explain routing methods.
2.6 Explain scheduling methods.
2.7 Explain dispatching.
2.8 Draw PERT/CPM networks.
2.9 Identify the critical path
2.10 Problems on PERT & CPM.

3 Analyze the functions of Materials Management

.

3.1 State the importance of material management.
3.2 Objectives and functions of material management.
3.3 Derive expression of EOQ for inventory control.
3.4 Explain ABC analysis.
3.5 Define safety stock, Buffer stock
3.6 Define reorder level.
3.7 Functions of stores department, duties of store keeper
3.8 Explain stores layout,
3.9 Explain the stores records.
3.10 Describe Cardex method.
3.11 Objectives and functions of purchasing department
3.12 Explain purchasing procedures.
3.13 List out purchase records.
3.14 Describe the stores equipments

.

4 Compare Marketing, sales & Feasibility study.

4.1 Explain marketing functions.
4.2 Explain Sales function.
4.3 List out marketing conditions.
4.4 Differentiate Sellers and Buyers 'market.
4.5 Differentiate monopoly, oligopoly, and perfect competition.
4.6 Steps in conducting market and demand surveys.
4.7 Advantages and disadvantages of market and demand surveys
4.8 Differentiate product and production analysis.
4.9 Identify the input materials, i.e. Bill of materials
4.10 Explain the concept of cost..
4.11 Explain break-even analysis..
4.12 Evaluate Economic and Technical factors.
4.13 Preparation of feasibility study.
4.14 List out different products currently in demand with market or industry.

5 Know the use of ISO 9000 & T.Q.M

5.1 Understand the concept of quality.
5.2 Know the quality systems and elements of quality systems.
5.3 Know the principles of quality Assurance.
5.4 Know the evolution of ISO standards.
5.5 Discuss ISO standards and ISO 9000 series of quality systems.
5.6 State the constituents of ISO 9000 series of standards for quality systems.
5.7 Benefits and Drawbacks of ISO 9000 series of standards.
5.8 List out the beneficiaries of ISO 9000.
5.9 Understand 5-S principles and ZERO DEFECT
5.10 Know TQM concept and elements.

6 Understand Industrial legislation & safety and role of entrepreneur and entrepreneurial development

6.1 Describe employer and employee relations.
6.2 Objectives, functions, advantages and disadvantages of Trade Unions.
6.3 Explain Causes and settlements of industrial disputes..
6.4 List out Welfare activities..
6.5 List out the rights and responsibilities of employees and employers.
6.6 List out the salient features of Indian Factories Act.
6.7 Explain the importance of safety at Work place.
6.8 List out the important provisions related to safety.
6.9 Explain hazard and accident.
6.10 Explain the causes of accidents..
6.11 Define the word entrepreneur..
6.12 Difference between entrepreneurship and management.
6.13 Explain, expectations, role and qualities of an entrepreneur..
6.14 Determine the role of entrepreneurs in promoting Small Scale Industries.
6.15 Describe the details of self-employment schemes.
6.16 Explain the method of product selection.
6.17 Explain the method of site selection.
6.18 List the financial assistance programs.
6.19 List out the organizations that help an entrepreneur
6.20 Importance of Start-ups
6.21 Different Start-up schemes
6.22 Features and Eligibility for startup registration
6.23 Benefits of Start-ups

COURSE OUTCOMES		**CL**	**Linked POs**	**Teaching Periods**
CO1	Understand the principles and functions of management and Outline Organization structure& organizational behavior	R, U, A	5,6,7	13
CO2	Understand the Functions of Production Management	R, U, A	2,5,6	12
CO3	Analyse the functions of Materials Management.	U, A	1,6,7	13
CO4	Compare Marketing, sales & Feasibility study.	U, A	1,6,7,	12
CO5	Know the use of ISO 9000 & T.Q.M	U, A	1,6,7	13
CO6	Understand Industrial legislation & safety and role of entrepreneur and entrepreneurial development	R, U, A	1,6,7	12
			Total Periods	**75**

Legends: R = Remember; U= Understand; A= Apply and above levels (Bloom's revised taxonomy)

CO-PO Attainment Matrix:

COURSE OUTCOMES	PROGRAM OUTCOMES						
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1					2	3	1
CO2		2			1	3	
CO3	1					2	3
CO4	1					3	2
CO5	2					3	1
CO6	1					2	3

Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Lowly Addressed**.**

MID SEM-I EXAM

S.No	Unit Name	R	U	A	Remarks
1	Principles and functions of management and organisation structure and behaviour	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Production management	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM-I EXAM

S.No	Unit Name	R	U	A	Remarks
1	Materials management	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Marketing, sales & feasibility study	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Legend	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

MID SEM-I Model Paper

ME-501-INDUSTRIAL MANAGEMENT AND ENTREPRENEURSHIP

Time: 1 hr Max. Marks:20

PART-A **4x1=4Marks**

NOTE: 1) Answer all questions and each carries **one** mark.

2) Answers should be brief and straight to the point and shall not be exceed three simple sentences.

1. Define Industry.
2. Write any two qualities of a leader.
3. What do you mean by Planning?
4. What does CPM Stands for.?

PART-B **2X3M=6 Marks**

NOTE: 1) Answer all questions and each carries **three** mark.

2) Answers should be comprehensive and the criterion for valuation is the content but not length of the answer.

5.(a) what is administration

OR

5.(b) List out theories of motivation.

6.(a) what is the need for planning.

OR

6.(b) what is routing?

PART-C **2X5M=10 Marks**

NOTE: 1) Answer all questions and each carries **five** mark.

2) Answers should be comprehensive and the criterion for valuation is the content but not length of the answer.

7.(a) Explain the principles of scientific management

OR

7.(b) a) Compare between PERT AND CPM.

b) Explain about Scheduling and Dispatching.

8.(a) Draw the project network of the given project and identify all paths through it. Find the critical path, TL and T_E on the network.

Activity	Optimistic Time(a)	Most likely Time (m)	Pessimistic Time (b)
1-2	1	1	7
1-3	1	4	7
1-4	2	2	8
2-5	1	1	1
3-5	2	5	14
4-5	2	6	10
5-6	3	6	15

OR

8.(b) State the ERG theory of motivation.

MID SEM-II

Model Paper:: ME-501

INDUSTRIAL MANAGEMENT AND ENTREPRENEURSHIP

Time: 1 hr Max. Marks:20

PART-A **4x1=4Marks**

NOTE: 1) Answer all questions and each carries **one** mark.

2) Answers should be brief and straight to the point and shall not be exceed three simple sentences.

1. Write the formula to calculate EOQ?
2. What is Buffer Stock?
3. What Is feasibility study?
4. What is Breakeven Point?

PART-B **2X3M=6 Marks**

NOTE: 1) Answer all questions and each carries **three** mark.

2) Answers should be comprehensive and the criterion for valuation is the content but not length of the answer.

5.(a) List the advantages of ABC analysis.

OR

5.(b) State the functions of Material Management.

6.(a) List out the element of cost ?

OR

6.(b) what is buyer's market and seller's market.

PART-C **2X5M=10 Marks**

NOTE: 1) Answer all questions and each carries **five** mark.

2) Answers should be comprehensive and the criterion for valuation is the content but not length of the answer.

7.(a) Explain the functions of Purchase management.

OR

7.(b) Explain various records used in stores.

.

8.(a) What is Break Even analysis? Illustrate graphically the concept of Break even point.

OR

8.(b) Differentiate product and product analysis.

BOARD DIPLOMA EXAMINATION, (C-21)
SEE-MODEL PAPER ME-501
DME– V SEMESTER EXAMINATION
INDUSTRIAL MANAGEMENT AND ENTREPRENEURSHIP

Time: 2 Hours **Max. Marks:** 40

PART-A 8 X 1 = 8

Instructions: 1. Answer **ALL** questions.
2. Each question carries **ONE** mark.

1. Define Trade.
2. What is a bin card
3. List two benefits of ISO 9000 certification.
4. Define a Network.
5. Define quality control.
6. What is ISO.
7. What is the purpose of Trade unions.
8. Define an entrepreneur.

PART-B 4 X 3 = 12

Instructions: 1. Answer **ALL** questions.
2. Each question carries **THREE** marks.

9. (a) State any three differences between share and debenture.

OR

9. (b)What are the 5-S principles.
10. (a) List any thre advantages of ABC analysis.

OR

10. (b) Mention three qualities required for a good entrepreneur .
11. (a) List the benefeciaries of ISO 9000

OR

11. (b)State the features of ISO 9000.
12. (a) What are the expectations of an entrepreneur

OR

12. (b) Explain the significance of collective bargaining.

PART-C 4 X 5 = 20

Instructions: 1. Answer **ALL** questions.
2. Each question carries **FIVE** marks.

13. (a) Explain the principles of Scientific management stated by F.W. Taylor

OR

13(b) What is quality system? Explain various elements of quality systems.

14 (a) Explain ABC analysis in inventory control with graph.

OR

14(b) Explain the factors influencing the site selection for a plant location.

15 (a) What is TQM? Write the principles or elements of TQM.

OR

15(b) Explain the importance of certification of confirmation to ISO 9000 and the procedure of obtaining it ?

16(a) List out the three rights and responsibilities of Employees.

OR

16(b) State Indian electricity rules with regard to safety.

CS-502-WEB DESIGNING

Course Title:	Web Designing	Course Code	CS-502
Semester	V	Course Group	Core
Teaching Scheme in Hrs (L: T: P)	4:1:0	Credits	3
Methodology	Lecture + Tutorial	Total Contact Hours:	75
CIE	60 Marks	SEE	40 Marks

Prerequisites

Knowledge of Computer Fundamentals, C, C++ Programming language concepts.

Course Outcomes

Upon completion of the course the student shall be able to

Course Outcome	
CO1	Understand the basics of Web Design and HTML
CO2	Develop Web pages using HTML and CSS
CO3	Understand XML and Web Browsers.
CO4	Provide Logic on web pages using Java Script.
CO5	Apply the basic concepts of website development using PHP
CO6	Develop websites and Database connectivity.

Course Contents

1. Principles of Web Design and Introduction to HTML

Anatomy of Web page, Format, Elements, Navigation, Building, Launching and maintaining web site - HTML – Introduction, Format of web page, Tags and attributes, Formatting text.

2. HTML & CSS

HTML – Adding images - Positioning Lists – Colors - Connecting to hyperlinks, Tables, Forms, Frames - CSS – Introduction - Inline styles - Embedded style sheets - Linking external style sheets - Positioning elements – Backgrounds - Element dimensions-Borders-Colors.

3. XML & Web Servers

XML –Introduction, Structuring Data, XML Namespaces, DTD and Schemas, Document Object Model (DOM), Simple API for XML (SAX), Applications of XML

Web Servers – Introduction, HTTP Request Types, System Architecture, Client-Side versus Server-Side Scripting, Accessing Web Servers, IIS, PWS, Apache.

4. Java Scripts

Introduction to Scripting, Operators, Conditional Statements, Iterative Statements, Debugging Functions – Function definitions, Duration of Identifiers, Scope rules, Global functions, Recursion

Arrays – Declaring and allocating arrays, References and reference parameters, Passing arrays to functions, Sorting and Searching arrays, Multiple-Subscripted arrays
Objects – **Math** object, **String** object, **Date** object, **Boolean** and **Number** object.

5. Introduction to PHP

Fundamentals of PHP – Operators - Conditional Statements - Loops – Strings – String Methods – Arrays- Array Methods.

6. Advanced PHP

Functions - Passing arguments - Scope and lifetime of variables - Recursive functions - Object orientation in PHP - Working with forms in PHP - cookies and sessions - Database concepts - Connecting to Database - Retrieving data -

Recommended Books

1) Principles of Web Design -- Sklar, TMH
2) HTML complete reference -- Powell, THH
3) Internet & World Wide Web -- Dietel & Dietel, Pearson education
4) Straight to the point PHP -- Laxmi Publications
5) Basics of Web Site Design -- NIIT – PHI
6) WWW Design with HTML -- Xavier (TMH)

Specific Learning Outcomes:

Upon completion of the course the student shall be able to

1. Explain Illustrate principles of Web Designing and HTML

1.1 Describe the anatomy of web page.
1.2 Illustrate the format of web page.
1.3 Identify various Web page elements.
1.4 Explain the process of navigation through web pages
1.5 State the steps in building a web site
1.6 State the steps in launching a web site.
1.7 State the steps in maintaining a web site.
1.8 Describe the importance of HTML.
1.9 Use the basic tags <html>, <head>, <title>, <body>.
1.10 Use the following tags with attributes,
- <h1> to <h6>, <q>, , <cite>, <big>, <small>, <ins>, <del>

1.11 Use the following presentation tags with attributes,
- <b>, <i>, <u>, <strike>, <sub>, <sup>, , <font>, <marquee>.

2. Use various HTML tags and apply style sheets.

2.1 Use the hyperlink and imaging tags with attributes.
2.2 Use the <object> tag with all important attributes.
2.3 Use the listing tags along with attributes.
2.4 Use colors to various HTML elements.
2.5 Use the following table creation tags with attributes,
- <table>, <col>, <colgroup>, <tr>, <td>, <th>, <tbody>, <thead>, <tfoot>

2.6 Use the following control tags with attributes,

- <form>, <input>, <button>, <label>, <select>, <options>, <textarea>

2.7 Use the following frame tags with attributes,

- <frame>,<frameset>, <noframe>, <iframe>.

2.8 Apply cascading style sheets

- 2.8.1 Create Inline styles.
- 2.8.2 Create embedded style sheets.
- 2.8.3 Link external style sheets to a HTML page.
- 2.8.4 Place HTML elements at required position.
- 2.8.5 Change background colours, images etc.
- 2.8.6 Set the properties margin, padding, height, width to an element.

2.9 List the applications of HTML.

3. Create XML file and explain about web servers.

3.1 Create XML file

- 3.1.1 Describe the organization of data in the form of XML.
- 3.1.2 State the significance of Namespace
- 3.1.3 Compare and Contrast DTD and Schema
- 3.1.4 Understand the parsing process of XML by DOM and SAX.
- 3.1.5 List the applications of XML

3.2 Explain about Web servers

- 3.2.1 Distinguish Client-side and Server-side scripting.
- 3.2.2 Illustrate the architecture of Web server.
- 3.2.3 Identify various HTTP request types and their difference.
- 3.2.4 Understand the installation process of IIS, PWS and Apache web servers.
- 3.2.5 Compare/Contrast IIS, PWS and Apache.

4. Implement client side scripting using Java Script.

4.1 Describe the need for client side scripting.

4.2 List various client side scripting languages.

4.3 Use various operators.

4.4 Use **if, if/else** and **switch** conditional statements.

4.5 Use **while**, **do/while** and **for** iterative statements.

4.6 Write small programs using conditional and iterative statements.

4.7 Understand the process of debugging JavaScript code.

4.8 Implement functions

- 4.8.1 Define and call a function.
- 4.8.2 Illustrate parameter passing.
- 4.8.3 List and explain global functions provided by JavaScript.
- 4.8.4 Explain the scope and lifetime of variables within functions.
- 4.8.5 Write small programs using recursion.

4.9 Implement arrays

- 4.9.1 Understand single and multi dimensional arrays.
- 4.9.2 Declare an array.
- 4.9.3 Manipulate an array.
- 4.9.4 Write small programs using arrays.

4.10 List various Objects provided by JavaScript.

5. Introduction to PHP.

- 5.1 Understand the installation of PHP
- 5.2 PHP basics and features
- 5.3 Embedding PHP in HTML.
- 5.4 List and explain various Data types with examples.
- 5.5 Declare variables and constants.
- 5.6 Use various Operators.
- 5.7 Implement various conditional statements with examples
- 5.8 Implement various loop statements with examples
- 5.9 Write programs using loops and conditional statements
- 5.10 Explain about Strings and String Methods.
- 5.11 Implement arrays
  - 5.11.1 Understand single and multi dimensional arrays.
  - 5.11.2 Declare an array.
  - 5.11.3 Manipulate an array.
  - 5.11.4 Array Methods.
  - 5.11.5 Write programs using arrays and Array Methods.

6 Advanced Server side scripting using PHP.

- 6.1 Implement functions
  - 6.1.1 Define user defined function.
  - 6.1.2 State the importance of user defined function.
  - 6.1.3 Describe the process of passing arguments.
  - 6.1.4 Explain the scope and lifetime of variables.
  - 6.1.5 Write programs using functions.
  - 6.1.6 Using Recursive Functions.
- 6.2 Object orientation in PHP
  - 6.2.1 Define PHP Classes.
  - 6.2.2 Creating objects in PHP.
  - 6.2.3 Calling member functions.
  - 6.2.4 Inheritance
  - 6.2.5 Function overriding
  - 6.2.6 Creating a class constructor.
- 6.3 Working with forms in PHP
  - 6.3.1 Global and environmental variables.
  - 6.3.2 GET and POST methods
  - 6.3.3 Script to access user input
  - 6.3.4 Accessing input from various elements of a form
  - 6.3.5 File uploading in PHP
- 6.4 Describe the significance cookie and session
  - 6.4.1 Define Session and Cookie.
  - 6.4.2 Setting or creating a cookie in PHP.
  - 6.4.3 Retrieving and deleting cookie.
  - 6.4.4 Creating Session Cookie.
  - 6.4.5 Understand Session function in PHP

6.4.6 Use session variables.

6.5 Implement the concept of accessing databases

6.5.1 Understand basic database concepts.

6.5.2 Explain the steps for connecting to a database

6.5.3 List and explain the steps to do the following,

6.5.3.1 Retrieving data from a table.

6.5.3.2 Inserting data into a table.

6.5.3.3 Updating the data in a table.

6.5.3.4 Deleting data from a table.

6.5.4 Write programs on DDL and DML Commands.

Suggested Student Activities

Note: The following activities or similar activities for assessing 2.5 credits (Any one)

Student activity like mini-project, surveys, quizzes, etc. should be done in group of 3-5 students.

- Each group should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned course coordinator and programme co-coordinator.
- Each group should conduct different activity and no repeating should occur.
- Refer to online content and videos to get more knowledge on database concepts.
- Interact with industry people who are working in PHPand prepare a report.
- Write assignments given by course coordinator.
- Read all the course contents and should be able to write slip tests and surprise tests.
- Prepare a seminar on a specific topic that is related to latest technologies in the java and advanced java concepts and present a Power Point Presentation (PPT) to all the peers.
- Study IEEE papers on advanced java topics and submit a report.
- Prepare quiz on java course related questions and conduct.
- Participate in state level or national level technical conferences.
- Participate in various technical coding competitions related to java programming.
- Develop some projects to design websites like Hotel Management System, E-Bill Board, Online insurance, Online Mobile, Contributor,

1. Suggested E-learning references

1. https://www.w3schools.com/html/
2. https://www.w3schools.com/js/DEFAULT.asp
3. https://www.w3schools.com/php/

CO-PO Mapping Matrix

Course Outcome		CL	Linked PO	Teaching Hours
CO1	Understand the basics of Web Design and HTML	**R,U, A**	**1,2,3,4,7**	
CO2	Develop Web pages using HTML and CSS	**R,U, A**	**1,2,3,4,7**	
CO3	Understand XML and Web Browsers.	**R,U, A**	**1,2,3,4,7**	
CO4	Provide Logic on web pages using Java Script.	**R,U, A**	**1,2,3,4,7**	
CO5	Apply the basic concepts of website development using PHP	**R,U, A**	**1,2,3,4,7**	
CO6	Develop websites using Database connectivity.	**R,U, A**	**1,2,3,4,7**	
		Total Sessions		**60**

MID SEM – I Exam

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM – II Exam

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

<table>
<tr><th>S.No</th><th>Unit Name</th><th colspan="3">R</th><th>U</th><th>A</th><th>Remarks</th></tr>
<tr><td>1</td><td>Unit-I</td><td rowspan="6">4</td><td colspan="2" rowspan="2">1</td><td rowspan="2">9(a)</td><td rowspan="2">13(a)</td><td></td></tr>
<tr><td>2</td><td>Unit-II</td><td></td></tr>
<tr><td>3</td><td>Unit-III</td><td colspan="2" rowspan="2">2</td><td rowspan="2">10(a)</td><td rowspan="2">14(a)</td><td></td></tr>
<tr><td>4</td><td>Unit-IV</td><td></td></tr>
<tr><td>5</td><td>Unit-V</td><td rowspan="2">3</td><td>5,6</td><td>9(b)
11(a)
11(b)</td><td>13(b)
15(a)
15(b)</td><td></td></tr>
<tr><td>6</td><td>Unit-VI</td><td>7,8</td><td>10(b)
11(a)
11(b)</td><td>14(b)
16(a)
16(b)</td><td></td></tr>
<tr><td colspan="2">Total Questions</td><td colspan="3">8</td><td>8</td><td>8</td><td></td></tr>
</table>

Legend:	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

MODEL QUESTION PAPER
BOARD DIPLOMA MID SEM-I SEMESTER EXAMINATIONS (C-21)
CS-502 – WEB DESIGNING

Duration : 1 Hour **Maximum Marks: 20**

PART-A

Instructions: **(1) Answer all questions.** **4x1 = 4 Marks**
(2) Each question carries *one* mark.

1) Define Webpage
2) Define HTML
3) List the attributes of Table Tag.
4) Define CSS.

PART-B **2×3=6 Marks**

Instructions: **(1) Answer *one* question each from 5 and 6**
(2)Each Question is of internal choice type
(3)Each question carries *three* marks.

5(a) Explain briefly any three Basic HTML Tags.
(OR)
5(b) List the steps involved in website development.

6(a) Explain Form tag with syntax and example.
(OR)
6(b) How do you use External CSS in HTML.

PART-C **2×5=10 Marks**

Instructions: **(1) Answer one question each from 7 and 8.**
(2)Each Question is of internal choice type
(3)Each question carries *five* marks.

7(a) . Create a HTML page using Formatting tags.
(OR)
7(b). Explain about table tag and its attributes.

8(a). Explain how to create frames using rows and column attributes.
(OR)
8(b) Create internal style sheet by applying Colors and Background property.

MODEL QUESTION PAPER
BOARD DIPLOMA MID SEM-II SEMESTER EXAMINATIONS (C-21)
CS-502 - WEB DESIGNING

Duration : 1 Hour **Maximum Marks: 20**

PART-A

Instructions: **(1) Answer all questions.** **4x1 = 4 Marks**
(2) Each question carries *one* mark.

1. Define XML.
2. List out different client side and Server side scripting languages.
3. Write syntax to Create an array.
4. Write an Example to define a function and call a function.

PART-B **2×3=6 Marks**

Instructions: **(1) Answer *one* question each from 5 and 6**
(2)Each Question is of internal choice type
(3)Each question carries *three* marks.

5(a) What is XML element give an example.

(OR)

5(b) Write syntax and example on conditional statements used in javascript.

6(a) List the differences between client and server side scripting.

(OR)

6(b) Write an example on creating a function.

PART-C **2×5=10 Marks**

Instructions: **(1) Answer one question each from 7 and 8.**
(2)Each Question is of internal choice type
(3)Each question carries *five* marks.

7(a) . Explain XML namespace.

(OR)

7(b). Write a javascript program on recursion.

8(a). Explain DOM.

(OR)

8(b) Write a javascript program on Array methods.

C21-Semester End Examination (SEE)
Model Paper- CS-502, V Semester, (Web Designing)
Time: 2 Hours **Total Marks: 40**

PART – A

Instructions: **8 X 1 M = 8 Marks**

i) Answer all the following questions:

ii) Each question carries two marks

1. Define a Tag.
2. List the methods of web site maintenance.
3. How do you change color of web page in HTML.
4. List the applications of XML
5. List comparison operators in java script.
6. Mention the names of different objects used in Java script.
7. What are magic functions in PHP.
8. How to delete cookie in PHP.

PART – B 4X3=12Marks

Answer any 2 questions from each group

9(a) List the steps in building a web site?

(OR)

9(b) Define CSS and List the features of CSS.

10(a) State the need of client side scripting language.

(OR)

10(b) Explain MARQUEE tag and list all its attributes.

11(a) List any two differences between client side and server side scripting languages.

(OR)

11(b) Mention the conditional statements in Java script.

12(a) How HTML and PHP can be combined.

(OR)

12(b) Write PHP script to illustrate use of static variables.

PART – C 4X5=20Marks

Answer any Two questions from each group

13(a) Explain various presentation formatting tags in HTML with an Example.

(OR)

13(b) Explain file uploading in PHP.

14(a) Write the differences between IIS,PWS and APACHE.

(OR)

14(b) Explain the process of creating and deleting cookies in PHP with examples.

15(a) Explain various loop statements in PHP.

(OR)

15(b) . Explain various string functions in PHP. Write PHP script to find length of a string.

16(a) Explain Setting or creating a cookie and session variable in PHP with an example.

(OR)

16(b) Write a PHP code for creating, inserting, and deleting the data in a database table.

CS-503-PYTHON PROGRAMMING

Course Title:	Python Programming	Course Code	CS-503
Semester	V	Course Group	Core
Teaching Scheme in Hrs (L: T: P)	4:1:0	Credits	3
Methodology	Lecture + Tutorial	Total Contact Hours:	75
CIE	60 Marks	SEE	40 Marks

Pre-requisites

Basic understand of computer hardware and object oriented programming.

Course Outcome

On successful completion of the course, the students will be able to attain below Course Outcome (CO):

Course outcome	
CO1	Configure Raspberry Pi with suitable OS and set up the environment for python to meet IOT applications.
CO2	Use data types, operators and control structures to write simple python problems.
CO3	Develop classes, modules and packages.
CO4	Design Graphical user interface and Regular expressions.
CO5	Develop Multithread applications and handles runtime exceptions.
CO6	Process files, database operations and implement applications using Raspberry PI.

Course Contents

1. Python Introduction and Raspberry PI **10 periods**

Introduction to IOT- Advantages and Disadvantages of IOT- Identify Components of Raspberry PI-3- Build a PC using Raspberry PI-3- Introduction to python programming language-Steps for setting up execution environment for Python

2. Basic of Python programming **10 periods**

Variable declaration and initialization-Comments-Indentation-data types-controls structures-Operators- strings and functions

3. Classes and Packages **15 periods**

Define Class- data member, methods, and constructors and create an instance of class- different types of Inheritance- Python Identity Operator- Creating and importing Modules and Packages-scope of variables-virtual environment for python application- Installing packages- math and datetime package

4. Exception handling and Multithreading **10 periods**

Different Types of errors- Exception handling- Multithreading- ways of creating threads - Methods in the Thread module -Thread Synchronization

5. Design Graphical user Interface and Regular Expressions **15 periods**

Design a graphical interface- Discuss Geometry Managers- Widgets- Event handling Regular expression to validate the data

6. Data Processing and Programming Raspberry Pi **15 periods**

Working with files and folders- working with database- Interfacing with Raspberry PI and controlling devices using python programs-Basic Electronic components

Text Books

1. Kenneth A. Lambert, The Fundamentals of Python: First Programs, 2011, Cengage Learning.
2. Think Python First Edition, by Allen B. Downey, Orielly publishing.

Reference Books

1. James Payne, Beginning Python using Python 2.6 and Python 3, Wrox publishing
2. Paul Gries, Practical Programming: An Introduction to Computer Science using python 3,The Pragmatic Bookshelf, 2nd edition (4 Oct. 2013)
3. Charles Dierach, Introduction to Computer Science using Python
4. Introduction to Computation and Programming Using Python. John V. Guttag, The MIT Press.
5. Raspberry Pi Cookbook 2014 by Simon Monk
6. Core Python Programming 2018 by R. Nageswara Rao
7. Python: For Beginners: by Timothy C. Needham
8. Sams Teach Yourself Python Programming for Raspberry Pi in 24 Hours Second Edition, Sams publication by Christine Bresnahan, Richard Blum
9. Python Programming Fundamentals- A Beginner's Handbook 2018 by Nischay kumar Hegde

Specific Learning Outcomes:
Upon completion of the course the student shall be able to

1 Python Introduction and Raspberry PI

1.1 Define IOT
1.2 List applications of IOT
1.3 List Advantages and Disadvantages of IOT
1.4 Identify Components of Raspberry PI-3
1.5 List General purpose input and Output pins (GPIO) on Raspberry PI
1.6 Build a PC using Raspberry PI-3
1.7 Install operating System into Raspberry PI
1.8 Familiarize to python programming language
1.9 List different versions of pythons

1.10 Compare Python programming language with Java Programming language
1.11 Lists features of Python programming
1.12 Sets the execution environment for Python
1.13 Execute Python Script (Command Prompt, Script and IDE) in different ways

2 Basic of Python programming

2.1 Declare and initialize variables
2.2 Use Comments, Indentation in programs
2.3 Discuss Data Types Booleans, Numbers
2.4 Use Decision Making Statements to solve different problems
2.5 Use Loop Statements with example to solve problems which are iterative
2.6 Perform operation on Lists, Tuples, Sets, and Dictionaries
2.7 Identify members of Lists, Tuples, Sets, and Dictionaries using Membership Operator
2.8 Process strings using operators and built-in functions
2.9 Build functions with/without arguments
2.10 Solve problems by using recursive method of problem solving
2.11 Differentiate between recursive and iterative way of problem solving

3. Classes and Packages

3.1 Define class with its members and create instances of class
3.2 Implement different types of Inheritance
3.3 Use super to call methods of a super class
3.4 Use Python Identity Operator
3.5 Create and import Modules and Packages
3.6 Use local and global variables
3.7 Sets up the virtual environment for python application
3.8 Install packages
3.9 Write programs using standard Mathematical function sqrt, cos, sine, pow, degrees, and fabs etc.
3.10 Use datetime package in python application

4. Exception handling and Multithreading

4.1 Difference between compile time errors, runtime errors and logical errors
4.2 List common compile time errors and runtime errors
4.3 Using try/except, finally and else block to handle exceptions
4.4 Usage of raise statement
4.5 Create User defined exception classes
4.6 Define Multithreading
4.7 List pros and cons of Multithreading
4.8 Create threads using Threading Module
4.9 Create Multiple Threads which perform different tasks
4.10 Design threads using, start, join, isAlive, getName, setName, activeCount and currentThread methods
4.11 Achieve thread Synchronization in multithreaded environment

5. Design Graphical user Interface and Regular Expressions

5.1 Design a Graphical User Interface using TKinter library
5.2 Design GUI using different Geometry Managers
5.3 Use various Widgets in TKinter library
5.4 List attributes of widgets
5.5 Handle Events generated by various Widgets
5.6 Create patterns to use regular expressions
5.7 Validate data using regular expressions

6. Data Processing and Programming Raspberry Pi

6.1 Open, close, read, write, append data to files using programs
6.2 List modes of opening a file
6.3 Delete files and folders
6.4 Connect to MySql database
6.5 Perform creation of table, insert a row in a table, update an entry in a table and execute stored procedures
6.6 Store images using blob data type
6.7 Use Bread board, resistor, transistors, diode, capacitors, inductors, transformers and adaptors
6.8 Work with I2C and SPI interface of Raspberry PI
6.9 Turn On and Off LED using python program
6.10 Make a buzzing sound with Raspberry Pi and python program
6.11 Connect to Wired or Wireless network

Suggested Student Activities

Note:

1. Student activity like mini-project, quizzes, etc. should be done in group of 3-5 students.
2. Each group should do any one of the following type of activity or any other similar activity related to the course with prior approval from the course coordinator and programme coordinator concerned.
3. Each group should conduct different activity and no repetition should occur.
4. Compare Intel mother board with Raspberry PI mother board.
5. Study IEEE paper on Block Chain and Prepare a Power point Presentation on the same paper.
6. Prepare a Quiz on various Electronic Components and the rest of the class will answer the quiz.
7. Prepare a Study report after studying three to four research papers on IOT.
8. Design a simple project that automates a task.
9. Study the impact of recent technologies on health and environment; prepare a report that addresses the issues and solution to them.
10. Study Recent Technologies like Data Mining, Data Analysis, and Data Scientist; and write a report that distinguishes these technologies.

Course outcome		Linked PO	Teaching Hours
CO1	Configure Raspberry Pi with suitable OS and set up the environment for python to meet IOT applications	**1,2,3,4,7**	**10**
CO2	Use data types, operators and control structures to write simple python problems	**1,2,3,4,7**	**10**
CO3	Develop classes, modules and packages	**1,2,3,4,7**	**15**
CO4	Develop Multithread applications and handles runtime exceptions.	**1,2,3,4,7**	**10**
CO5	Design Graphical user interface and Regular expressions	**1,2,3,4,7**	**15**
CO6	Process file, database operations and implement applications using Raspberry PI	**1,2,3,4,7**	**15**
Total Session			**75**

CO-PO Matrix

Suggested E-learning references

1. https://www.python.org/about/gettingstarted/
2. https://www.w3schools.com/python/
3. https://www.programiz.com/python-programming
4. https://www.tutorialspoint.com/python/index.htm
5. https://realpython.com/start-here/
6. https://www.codecademy.com/learn/learn-python
7. https://www.dataquest.io/blog/learn-python-the-right-way/

MID SEM-I EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM –II EXAM

S.No	Unit Name	R	U	A	Remarks
1	Unit-III	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-IV	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

Sl No	Unit No.	Questions to be set for SEE				Remarks
		R		U	A	
1	I	4	1	9(a)	13(a)	
2	II					
3	III		2	10(a)	14(a)	
4	IV					
5	V		3 — 5, 6	9(b) 11(a) 11(b)	13(b) 15(a) 15(b)	
6	VI		3 — 7,8	10(b) 12(a) 12(b)	14(b) 16(a) 16(b)	
Total Questions		8		8	8	

Legend:	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

State Board of Technical Education

Python Programming

CS-503---V Semester

Mid SEM -1 Model Paper

Time: 1 hour **Marks: 20**

PART-A

Instructions: *4*1 =4 marks*

Answer all questions

Each question carries 1 mark

1. List the advantages of IOT.
2. List the features of python programming language.
3. Write the purpose of Indentation.
4. Write the syntax to declare Dictionary.

NOTE: 1. Answer any one question from 5 and 6. *2*3=6 marks*

2. Each question carries three marks.

5(a). Discuss the components of Raspberry PI

or

5(b). Write the differences between Python and Java

6(a). Write any five string processing functions.

or

6(b). Write the differences between implementing function using loops and recursion.

PART-C

NOTE: 1. Answer any one question from 7 and 8. *2*5=10 marks*

2. Each question carries three marks.

7(a). Write the steps to build a PC and install operating system into Raspberry

or

7(b). Explain the different ways of executing a python program

8(a). Develop a python program to traverse, delete and add elements into list

or

8(b). Develop a python program to find the next prime number of a given prime number

State Board of Technical Education

Python Programming

CS-503---V Semester

Mid SEM -II Model Paper

Time: 1 hour **Marks: 20**

PART-A

Instructions: *4 *1 =4 marks*

Answer all questions

Each question carries 1 mark

1. What is the user of super keyword?
2. Define module.
3. List the keywords to handle exceptions.
4. Write the purpose of join method in Threading Module.

PART-B

NOTE: 1. Answer any one question from 5 and 6. *2*3=6 marks*

2. Each question carries three marks.

5(a). Discuss different types of inheritance with a diagram.

or

5(b). Write any five methods of math module.

6(a). List different types of errors.

or

6(b). Write the advantages and disadvantages of multithreading.

PART-C

NOTE: 1. Answer any one question from 7 and 8. *2*5=10 marks*

2. Each question carries three marks.

7(a). Write the steps to steps to create virtual environment for python application.

or

7(b). Write an application to create a module and import the same to other module.

8(a). Write a python program to create a multi threaded application.

or

8(b). Write a python program to handle different types of exceptions.

State Board of Technical Education, Telangana State
C21-Semester End Examination (SEE)
Model Paper- CS-503-Python Programming

Time: 2 Hours **Total Marks: 40**

PART – A

Instructions: ***8 X1 M = 08 Marks***

Answer all the following questions:

Each question carries 1 mark

1. Write the syntax to create a dictionary type variable.
2. Write the use of raise statement.
3. List any four widgets for developing a GUI.
4. Define Multithreading.
5. What is the purpose of Geometry Managers?
6. Define regular expression.
7. Write the syntax to open a file.
8. List types of transistors.

PART- B

NOTE: 1. Answer any one question from 9, 10, 11 and 12. ***MARKS: 4 X 3=12***

2. Each question carries three marks.

9(a) Write different components of Raspberry PI.

or

9(b) Discuss search, replace and match function for regular expression.

10(a) List different types of inheritance with diagram.

or

10(b) Write how to calculate the resistance of a resistor by using color codes.

11(a) Discuss basic attributes of widgets.

or

11(b) Write different geometry managers.

12(a) Discuss the function to open, write and close a file.

or

12(b) Write the process to connect MySql database.

PART-C

NOTE: 1. Answer any one question from 13, 14, 15 and 16 ***MARKS: 4 X 5=20***

2. Each question carries five marks

13(a) Write a python program to print multiplication tables from 1 to 10.

or

13(b) Design a window application that displays number of times a user clicks a button.

14(a) Write a python script that denies access to multiple threads to critical section.

or

14(b) Write a python program to delete record from a table.

15(a) Create regular expression to validate email-id, and phone number.

or

15(b) Write a python application to handle list box events.

16(a) Write a python program to copy one file into another file and delete the original file.

or

16(b) Write a python program and steps to turn on/off LED.

CS-574- .NET PROGRAMMING THROUGH C#

Course Title:	.NET Programming Through C#	Course Code	CS-574
Semester	V	Course Group	Core
Teaching Scheme in Hrs (L: T: P)	4:1:0	Credits	3
Methodology	Lecture + Tutorial	Total Contact Hours:	75
CIE	60 Marks	SEE	40 Marks

Prerequisites

Basic understand of object oriented programming concepts.

Course Outcomes

Upon completion of the course the student shall be able to

Course outcome	
CO1	Use visual studio editor for developing C#.net applications based on .net framework
CO2	Develop applications applying principles of OOPs
CO3	Develops Multithreaded application and handles runtime errors
CO4	Develops programs that supplies attributes at runtime
CO5	Develops windows and web based applications
CO6	Use database to access, store and update data through applications

Course Contents

1. Basics of .NET Framework and Visual Studio. 5 periods

Introduction to .NET Framework-features of .net framework-CLR architecture- framework and base class Library-.NET languages- Visual Studio (Integrated Development Environment) especially for c#.net-various windows-applications

2. Introduction to C#.net 15 periods

History of C#.net-Features of C#.net-Compare C#.Net Vs C/C++-Differences between C#.Net and Java-Primitive datatypes - class, struct-enum and interface-variables- local variables and methods-constructors in classes and structures-Access control specifiers in C#-Inheritance- Arrays-Method Overloading- Method Overriding- Differentiate looping structure with recursive function call structure

3. Exception Handling and Multithreading 10 periods

Introduction to Exception Handling- Predefined Exception Classes-Exception handling Mechanism-User define exception-Multithreading-Threads-Thread class properties and methods- Thread life cycle-Thread priorities

4. Advanced concepts of C# 11 periods

Indexers and Properties-Anonymous Methods-Lambda expressions- Delegates-Operators is, as and typeof - Generic Programming

5 Windows and Web Applications development 17 periods

Designing aspects of C#.NET windows application forms - creating a windows application - various elements of user interface and their properties (text box, label, button, check box, radio button- list box-combo box- Enable, disable, hide and show the controls in the applications-Event handling - Menus-Deploying and distribution of windows application-Web application-Asp.net server controls with asp.net code - Data transfer between pages.

6 Database access 17 periods

Introduction to ADO.NET -Features and advantages of ADO.NET-Connection- Dataset- Data adaptor and Command objects-typed and untyped dataset objects- Data binding to DataGrid control, text box and listbox-Navigate through a data source-Introduction to LINQ-Syntax of LINQ-Types of LINQ Objects-Advantages of LINQ-Various LINQ operators

Text Books:

1. Professional C# 5.0 and .NET 4.5.1 (WROX) by Christian Nagel (Author), Jay Glynn (Author), Morgan Skinner.
2. Herbert Schildt, "The Complete Reference: C# 4.0", Tata McGraw Hill, 2012.
3. C# 5.0 IN A NUTSHELL Fifth Edition by Joseph Albahari and Ben Albahari.
4. Christian Nagel et al. "Professional C# 2012 with .NET 4.5", Wiley India, 2012.

Reference Books:

1. Andrew Troelsen, "Pro C# 2010 and the .NET 4 Platform, Fifth edition, A Press, 2010.
2. Ian Griffiths, Matthew Adams, Jesse Liberty, "Programming C# 4.0", Sixth Edition, O"Reilly, 2010.
3. Sathiaseelan J. G. R, Sasikaladevi N, Programming with C# .NET PHI Learning.
4. Kogent Learning Solutions Inc., .NET 4.5 Programming (6-in-1) Dreamtech Press (2013).

Specific Learning Outcomes:

Upon completion of the course the student shall be able to

1 Basics of .NET Framework and Visual Studio.

1.1 Define .NET Framework
1.2 List the features of .NET framework
1.3 Draw and grasp CLR architecture
1.4 Discuss about .NET framework and base class Library
1.5 List .NET languages
1.6 List the features of Visual Studio (Integrated development environment) especially for C#.NET
1.7 Comprehend the purpose of Design View window, Code window, Object browser window, solution explorer window, server explorer window, error window and property window
1.8 List the applications of .NET

2 Introduction to C#.NET

2.1 Familiarize with C#.net
2.2 List features of C#.net

2.3 Differentiate between C#.Net and C/C++
2.4 Differentiate between C#.Net and Java
2.5 Explain Different primitive data types
2.6 Build data types using class, struct, enum, and interface
2.7 Design small applications using instance variables, local variables and methods
2.8 Write Example program with constructors in classes and structures
2.9 Control access to members of the class with access specifiers
2.10 Discuss about inheriting classes
2.11 Process data with different types of arrays
2.12 Develop programs using Method Overloading and Method Overriding concepts
2.13 Differentiate looping structure with recursive function call structure

3 Exception Handling and Multithreading

3.1 Define Exception
3.2 List Predefined Exception Classes
3.3 Handle Exceptions
3.4 Create user defined exceptions
3.5 Define Multithreading, Threads
3.6 Comprehend thread class properties and methods
3.7 Create and abort threads
3.8 List the states of thread life cycle
3.9 Create Multiple Threads
3.10 List Thread priorities

4. Advanced concepts of C#

4.1 Design classes with Indexers and Properties
4.2 Define Anonymous Methods in classes
4.3 Pass Parameters and Returns values from anonymous methods
4.4 List types of Lambda expressions with examples
4.5 Delegates functionality to other functions
4.6 Use operators like is, as and typeof
4.7 List the needs of Generic Programming
4.8 Define Generic class with two parameters

5 Windows and Web Applications development

5.1 Discuss the designing aspects of C#.NET windows application form
5.2 List the steps for creating a windows application
5.3 List various elements of user interface
5.4 List the properties of controls like text box, label, button, checkbox, radiobutton, combobox, listbox, datagrid
5.5 Describe how to enable, disable, hide, and show the controls in the windows application
5.6 Handle events generated by various controls
5.7 List the steps for creation of Menus at design time
5.8 Develop a project to control menus at run time
5.9 Create short cut keys for pull down menus
5.10 List the steps to deploy and distribute a windows application

5.11 Discuss the steps for creating a web application
5.12 Describe the usage of web controls like text box, label, button, check box, radio button, dropdown list, listbox, data grid, hyperlink, images, panel, and hidden field controls
5.13 List and describe various Data validation controls
5.14 List the importance of data transfer between pages
5.15 Uses query string, cookie and post method used to transfer data between pages with example

6 Database access

6.1 Familiarize with ADO.NET
6.2 List the features and advantages of ADO.NET
6.3 Establish connection to database using Connection, Dataset, Data adapter, Data Provider and Command objects
6.4 Describe how to connect data base to C# application through server explorer
6.5 Differentiate between typed and untyped dataset objects
6.6 Access data with data adapters and typed/untyped data sets
6.7 Explain the process of databinding to DataGrid control, textbox and listbox
6.8 Explain how to navigate through a data source
6.9 Familiarize to LINQ
6.10 Write Syntax of LINQ
6.11 List Types of LINQ Objects
6.12 List the advantages of LINQ
6.13 List various LINQ operators

Suggested Student Activities

Note:

- **Student activity like mini-project, quizzes, etc. should be done in group of 3-5 students**
- **Each group should do any one of the following type of activity or any other similar activity related to the course with prior approval from the course coordinator and programme coordinator concerned.**
- **Each group should conduct different activity and no repetition should occur.**

1. Study Research Papers based on Deep learning and Machine Learning and submit a report.
2. Prepare a Power point Presentation on the applications and issues related to cloud computing and give a seminar on the same.
3. Conduct a Quiz on C# programming language.
4. Give a seminar on various design patterns.
5. Prepare a student database project which stores student details of CME branch.
7. Study the impact of recent technologies on health care and environment; prepare a report that addresses the issues and solutions to them.
8. Study Recent Technologies like Data Mining, Data Analysis, and Data Scientist; and write a report that distinguishes these technologies.

Suggested E-learning references

1. https://www.tutorialspoint.com/linq/linq_tutorial.pdf
2. https://wvvw.asp.net/
3. https://wvvw.tutorialspoint.com/

4. http: / /www.codeproject.com
5. http://telerikacademy.com
6. https://msdn.microsoft.com
7. https://universityxamarimcom/
8. https://sourcemaking.com/design_patterns

CO-PO Mapping Matrix

Course outcome		Linked PO	Teaching Hours
CO1	Use visual studio editor for developing C#.net applications based on .net framework.	**1,2,3,4,7**	**5**
CO2	Develop applications applying principles of OOPs	**1,2,3,4,7**	**15**
CO3	Develops Multithreaded application and handles runtime errors	**1,2,3,4,7**	**10**
CO4	Develops programs that supplies attributes at runtime	**1,2,3,4,7**	**11**
CO5	Develops windows and web based applications	**1,2,3,4,7**	**17**
CO6	Use database to access, store and update data through applications	**1,2,3,4,7**	**17**

MID SEM – I Exam

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM – II Exam

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

<table>
<tr><th>S.No</th><th>Unit Name</th><th colspan="3">R</th><th>U</th><th>A</th><th>Remarks</th></tr>
<tr><td>1</td><td>Unit-I</td><td rowspan="6">4</td><td colspan="2" rowspan="2">1</td><td rowspan="2">9(a)</td><td rowspan="2">13(a)</td><td></td></tr>
<tr><td>2</td><td>Unit-II</td><td></td></tr>
<tr><td>3</td><td>Unit-III</td><td colspan="2" rowspan="2">2</td><td rowspan="2">10(a)</td><td rowspan="2">14(a)</td><td></td></tr>
<tr><td>4</td><td>Unit-IV</td><td></td></tr>
<tr><td>5</td><td>Unit-V</td><td rowspan="2">3</td><td>5,6</td><td>9(b)
11(a)
11(b)</td><td>13(b)
15(a)
15(b)</td><td></td></tr>
<tr><td>6</td><td>Unit-VI</td><td>7,8</td><td>10(b)
11(a)
11(b)</td><td>14(b)
16(a)
16(b)</td><td></td></tr>
<tr><td colspan="2">Total Questions</td><td colspan="3">8</td><td>8</td><td>8</td><td></td></tr>
</table>

Legend:	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

State Board of Technical Education
.Net Programming through C#
CS-574 V Semester
Mid SEM -1 Model Paper

Time: 1 hour **Marks: 20**

PART-A

Instructions: *4 X 1 =4 marks*

Answer all questions

Each question carries 1 mark

1. Define CLR.
2. Define MSIL.
3. Define Methodoverriding.
4. Write the syntax to create a structure.

PART-B

NOTE: 1. Answer any one question from 5 and 6. *2*3=6 marks*

2. Each question carries three marks.

5(a). Demonstrate the architecture of CLR.

or

5(b). List the features of .net framework.

6(a). Write the differences between structures and class.

or

6(b). Discuss different access modifiers.

PART-C

NOTE: 1. Answer any one question from 7 and 8. *2*5=10 marks*

2. Each question carries three marks.

7(a). Explain the features of Visual studio.

or

7(b). Explain different windows in visual Studio.

8(a). Write a C# program to implement multiple inheritance.

or

8(b). Write a C# program to access the members of a structure.

State Board of Technical Education

.Net Programming through C#

CS-574 V Semester

Mid SEM -II Model Paper

Time: 1 hour **Marks: 20**

PART-A

Instructions: *4*1 =4 marks*

Answer all questions

Each question carries 1 mark

1. Write the syntax of multiple catch blocks with a single try block.
2. What is the class used to define user defined exception.
3. Write the syntax for lambda expression.
4. What is the use of 'is' operator.

PART-B

NOTE: 1. Answer any one question from 5 and 6. *2*3=6 marks*

2. Each question carries three marks.

5(a). Discuss the keyword related to exception handling.

or

5(b). Write about thread life cycle.

6(a). Write about Indexers and Properties in a class.

or

6(b). Write the need of generic programming.

PART-C

NOTE: 1. Answer any one question from 7 and 8. *2*5=10 marks*

2. Each question carries three marks.

7(a). Write a C# program to create multiple threads

or

7(b). Write a C# program to illustrate that program is not terminated when exception occurs.

8(a). Write a C# program with anonymous method that accepts arguments and return parameters

or

8(b). Write a C# program to define a class with generic data members.

State Board of Technical Education, Telangana State
C21-Semester End Examination (SEE)
.Net Programming through C#
CS-574

Time: 2 Hours **Total Marks: 40**

PART – A

Instructions: ***8*1M = 08 Marks***

1. ***Answer all the following questions:***
2. ***Each question carries 1 mark***

1. Write the syntax to define a constructor in a class.
2. Write the syntax to create lambda expression.
3. Define Cookie.
4. Define instance variable.
5. What is Windows Form?
6. What is the use of run at attribute in a server control?
7. Define data grid control.
8. List any two LINQ operators.

PART- B

NOTE: 1. Answer any one question from 9, 10, 11 and 12. ***MARKS: 4*3=12***
2. Each question carries three marks.

9(a) Draw and Explain CLR architecture.

or

9(b) Write any five properties of TextBox and List Box controls.

10(a) Discuss about the five methods in a Thread class.

or

10(b) List the features and advantages of ADO.NET.

11(a) Discuss the steps for creating a web application.

or

11(b) List various Data validation controls

12(a) Write about different types of LINQ objects

or

12(b) Discuss Connection, Dataset and Data adaptor object.

PART-C

NOTE: 1. Answer any one question from 13, 14, 15 and 16 ***MARKS: 4*5=20***
2. Each question carries five marks

13(a) Write about the following windows (a) Object browser window (b) solution explorer window (c) server explorer window.

or

13(b) Develop a C# application to sort the items in the list box.

14(a) Write a C# program to pass parameters and return values from anonymous methods.

or

14(b) Write a C# program to insert rows in a table.

15(a) Write a C# program to create menus at runtime.

or

15(b) Write the asp.net code to create a student registration form.

16(a) Write a C# code to navigate all the records in the table.

or

16(b) Write a C# program to access the students records using LINQ objects.

CS-584-ANDROID PROGRAMMING

Course Title:	Android Programming	Course Code	CS-584
Semester	V	Course Group	Elective
Teaching Scheme in Hrs (L: T: P)	4:1:0	Credits	3
Methodology	Lecture + Tutorial	Total Contact Hours:	75
CIE	60 Marks	SEE	40 Marks

Prerequisites

Knowledge of Java programming and AWT event handling concepts.

Course Outcomes

Upon completion of the course the student shall be able to

Course Outcome	
CO1	Understand the categories of mobile applications and know the internal components of smart phone.
CO2	Interpret different types of mobile operating systems and know the architecture of iOS and Android OS
CO3	To demonstrate their skills of using Android software development tools
CO4	Know the components of Android to develop simple mobile applications running on emulator
CO5	Design Graphical User Interface(GUI) mobile applications and handle events generated by UI controls
CO6	Know Android services and Develop android applications to interact with SQLite database

Course Contents

1. **Introduction to mobile application development and smart phone hardware architecture**

Duration: 8 Periods

Mobile device - types of mobile devices - mobile application development – types of mobile apps - native, web and hybrid - smart phone - evolution of smart phones - features of smart phone - System on Chip (SoC) - components of SoC - advantages and disadvantages of SoC - Digital Signal Processor(DSP) - features of different processor architectures – Traditional DSP Architecture - Modern DSP Architecture - SoC based architecture - contemporary processors used in smart phones - peripheral devices for a smart phone - future technology in smartphones

2. Understand different mobile operating systems

Duration: 8 Periods

Mobile operating system – types of mobile operating systems - history of iOS - versions of iOS - iOS Architecture - layers in iOS architecture - features of different layers of iOS - history of Android OS - versions of Android - Android OS Architecture - layers in Android OS architecture- features of different layers of Android OS - iOS vs Android OS

3. Introduction to Android Environment setup

Duration: 8 Periods

Programming languages used in Android applications - MVC Architecture - Security Aspects of Android - Android Environment Setup - Android Studio IDE - Eclipse IDE - create Android Virtual Devices(AVDs) - types of Android applications - Android development Frameworks for mobile apps - types of Android Development Tools.

4. Understand the programming components of Android

Duration: 12 Periods

Programming Components of Android – Activities – Services- Content Providers – Broadcast Receivers – create "Hello world!" application - File structure of an Android application - Main Activity File, Android Manifest file, R file, Strings file, Layout file - Intent - Types of Intents - Intent to dial a number or to send SMS - explicitly switching between activities - lifecycle of Android Activities - Activity callback functions - android application which shows callback functions

5. Android User Interface(UI) controls

Duration: 12 Periods

User Interface Designing Layouts - Linear Layout - Relative Layout - List View Layout - Grid view Layout - Table Layout - User Interface(UI) Controls –TextView - Edit Text – Button –Checkbox - Radio Button - Toggle button – Spinner - Date picker - Time picker - Develop simple android applications using each UI control - Event handling of UI Controls with example programs - Toast message in android application to display notifications – Fragments - Life cycle of fragments - Develop android application using fragments

6. **Android Services and Database**

Duration: 12 Periods

Android service - life cycle of Android Services - Develop simple Android application using Android service - Introduction to SQLite database - Creating and opening a database in SQLite database - Creating tables in SQLite database - Inserting data into SQLite database - Retrieving data from SQLite database - Updating and Deleting data from SQLite database - Develop simple android application using SQLite database

Recommended Books

1. Today's Smartphone Architecture by Malik Wallace and Rafael Calderon - *meseec.ce.rit.edu/551-projects/spring2016/2-6.pdf*
2. *https://cs4720.cs.virginia.edu/slides/CS4720-MAD-iOSAppComponents.pdf*

3. Professional Android 4 Application Development, Reto Meier, Wiley India, (Wrox) , 2012
4. Android Application Development for Java Programmers, James C Sheusi, Cengage Learning, 2013
5. Head First Android Development by Dawn Griffiths & David Griffiths - Oreilly publications
6. Android App Development for Dummies 3rd edition by Michael Burton - A Wiley brand
7. Hello, Android: Introducing Google's Mobile DevelopmentPlatform fourth edition by Ed Burnette - The pragmatic programmers
8. Busy Coder's Guide to Android Development by Mark L Murphy -
9. Android Programming: The Big Nerd Ranch Guide By Bill Philips, Chris Stewart and Kristin
10. Android Cookbook 2nd edition by Ian F.Darwin - O'Reilly

Specific Learning Outcomes:

1.0 **Introduction to mobile application development and smart phone hardware architecture**

1.1 Define mobile device
1.2 List different type of mobile devices
1.3 Define mobile application development
1.4 Classify mobile application development applications: native, web and hybrid
1.5 Define smart phone
1.6 Discuss the evolution of smart phones
1.7 Describe the key features of smart phone
1.8 Define System on Chip (SoC)
1.9 List and briefly explain the components of SoC
1.10 List advantages and disadvantages of SoC
1.11 Define Digital Signal Processor(DSP)
1.12 Briefly discuss the features of different processor architectures – Traditional DSP Architecture, Modern DSP Architecture and SoC based architecture
1.13 List the contemporary processors used in smart phones
1.14 List different peripheral devices for a smart phone
1.15 Discuss the future technology in smart phones

2.0 Understand different mobile operating systems

2.1 Define mobile operating system
2.2 List different mobile operating systems
2.3 State in brief the history of iOS
2.4 Know the different versions of iOS
2.5 Draw the block diagram of iOS Architecture
2.6 List the layers in iOS architecture
2.7 Briefly explain the features of different layers of iOS

2.8 State in brief the history of Android OS
2.9 Know the different versions of Android
2.10 Draw the block diagram of Android OS Architecture
2.11 List the layers in Android OS architecture
2.12 Briefly explain the features of different layers of Android OS
2.13 Compare iOS and Android OS

3.0 Introduction to Android Environment setup

3.1 List the programming languages used for developing Android applications
3.2 Know the Concepts of MVC Architecture
3.3 Know the Security Aspects of Android
3.4 Explain the Android Environment Setup using Android Studio IDE
3.5 Explain the Android Environment Setup using Eclipse IDE
3.6 Explain the procedure to create Android Virtual Devices(AVDs)
3.7 Describe different types of Android applications
3.8 Explain different Android development Frameworks for mobile apps
3.9 Explain different types of Android Development Tools

4.0 Understand the programming components of Android

4.1 Explain the Programming Components of Android
- 4.1.1 Activities
- 4.1.2 Services
- 4.1.3 Content Providers
- 4.1.4 Broadcast Receivers

4.2 Explain the procedure to create “Hello world!” application and running application in emulator
4.3 Discuss the File structure of an Android application project like Main Activity File, Android Manifest file, R file, Strings file, Layout file
4.4 Explain Android Activating component: Intent
- 4.4.1 Define Intent
- 4.4.2 Types of Intents
- 4.4.3 Develop and android application using Intent to dial a number or to send SMS
- 4.4.4 Develop and android application on explicitly switching between activities

4.5 Explain the lifecycle of Android Activities
- 4.5.1 List the Activity Callback functions
- 4.5.2 Develop an android application which shows Callback functions

5.0 Android User Interface(UI) controls

5.1 Discuss the User Interface Designing Layouts
- 5.1.1 Linear Layout
- 5.1.2 Relative Layout
- 5.1.3 List View Layout

5.1.4 Grid view Layout
5.1.5 Table Layout

5.2 Explain the usage of User Interface Controls
5.2.1 TextView
5.2.2 Edit Text
5.2.3 Button
5.2.4 Checkbox
5.2.5 Radio Button
5.2.6 Toggle button
5.2.7 Spinner
5.2.8 Date picker
5.2.9 Time picker

5.3 Develop simple Android applications using each UI control

5.4 Explain Event handling of UI Controls with example programs

5.5 Understand the usage of Toast message in android application to display notifications

5.6 Understanding Fragments
5.6.1 Define fragment
5.6.2 Life cycle of fragments
5.6.3 Develop android application using fragments

6 Android Services and Database

6.1 Define Android service

6.2 Explain the life cycle of Android Services

6.3 Develop simple Android application using Android service

6.4 Introduction to SQLite database

6.5 Explain the process of creating and opening a database in SQLite database

6.6 Explain the process of creating tables in SQLite database

6.7 Explain the process of inserting data into SQLite database

6.8 Explain the process of retrieving data from SQLite database

6.9 Explain the process of updating and deleting data from SQLite database

6.10 Develop simple android application using SQLite database

Suggested list of student activities

Note: The following activities or similar activities for assessing 2.5 credits (Any one)

Student activity like mini-project, surveys, quizzes, etc. should be done in group of 3-5 students.

- Each group should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned course coordinator and programme co-coordinator.
- Each group should conduct different activity and no repeating should occur.
  1. Study different Integrated Development Environments(IDEs) available for executing android programs and prepare a report.
  2. Develop some simple GUI based applications like calculator etc using android controls.

3. Visit Library to refer to standard Books on Advanced java concepts, collect related material and prepare notes.
4. Refer to online content and videos to get more knowledge on SQLite database concepts.
5. Interact with industry people who are working in android technologies and prepare a report.
6. Compare different types of Operating Systems used in mobiles and submit a report.
7. Write assignments given by course coordinator.
8. Read all the course contents and should be able to write slip tests and surprise tests.
9. Prepare a seminar on a specific topic that is related to latest technologies in the mobile application development and present a Power Point Presentation(PPT) to all the peers.
10. Study IEEE papers on android programming and submit a report.
11. Prepare quiz on android programming related questions and conduct.
12. Participate in state level or national level technical conferences.
13. Develop simple android applications (apps).

Suggested E-learning references

1. "Android Programming for Beginners" John Horton- Packt publishing.
2. "Android Programming: The Big Nerd Ranch Guide" 2nd edition by Bill Phillips, Chris Stewart, Brian Hardy and Kristin Marsicano.
3. "Android Programming Tutorials" by Mark L. Murphy.
4. "Beginning Android Programming with Android Studio" Fourth Edition by J.F.DiMarzio.
5. "Head First Android Development" by Griffiths & Griffiths 2015-07-03.
6. https://www.tutorialspoint.com/android/index.htm
7. https://developer.android.com/
8. https://www.sanfoundry.com/java-android-programing-examples
9. https://sites.google.com/site/hkustcomp4521/home/lab-exercises
10. https://www.vidyarthiplus.com/vp/attachment.php?aid=47906
11. https://www.javatpoint.com/android-tutorial
12. https://www.studytonight.com/android/
13. https://www.splessons.com/lesson/android-tutorial/

CO-PO Mapping Matrix

Course Outcome		CL	Linked PO	Teaching Hours
CO1	Understand the categories of mobile applications and know the internal components of smart phone.	**R,U, A**	**1,2,3,4,6,7**	**8**
CO2	Interpret different types of mobile operating systems and know the architecture of iOS and Android OS	**R,U, A**	**1,2,3,4,6,7**	**8**
CO3	To demonstrate their skills of using Android software development tools	**R,U, A**	**1,2,3,4,6,7**	**8**
CO4	Know the components of Android to develop simple mobile applications running on emulator	**R,U, A**	**1,2,3,4,6,7**	**12**
CO5	Design Graphical User Interface(GUI) mobile applications and handle events generated by UI controls	**R,U, A**	**1,2,3,4,6,7**	**12**
CO6	Know Android services and Develop android applications to interact with SQLite database	**R,U, A**	**1,2,3,4,6,7**	**12**
		Total Sessions		**60**

MID SEM – I Exam

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM – II Exam

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

<table>
<tr><th>S.No</th><th>Unit Name</th><th colspan="3">R</th><th>U</th><th>A</th><th>Remarks</th></tr>
<tr><td>1</td><td>Unit-I</td><td rowspan="6">4</td><td colspan="2" rowspan="2">1</td><td rowspan="2">9(a)</td><td rowspan="2">13(a)</td><td></td></tr>
<tr><td>2</td><td>Unit-II</td><td></td></tr>
<tr><td>3</td><td>Unit-III</td><td colspan="2" rowspan="2">2</td><td rowspan="2">10(a)</td><td rowspan="2">14(a)</td><td></td></tr>
<tr><td>4</td><td>Unit-IV</td><td></td></tr>
<tr><td>5</td><td>Unit-V</td><td rowspan="2">3</td><td>5,6</td><td>9(b)
11(a)
11(b)</td><td>13(b)
15(a)
15(b)</td><td></td></tr>
<tr><td>6</td><td>Unit-VI</td><td>7,8</td><td>10(b)
11(a)
11(b)</td><td>14(b)
16(a)
16(b)</td><td></td></tr>
<tr><td colspan="2">Total Questions</td><td colspan="3">8</td><td>8</td><td>8</td><td></td></tr>
</table>

Legend:	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

MODEL QUESTION PAPER
BOARD DIPLOMA MID SEM-I SEMESTER EXAMINATIONS (C-21)
CS-584–ANDROID PROGRAMMING

Duration : 1 Hour **Maximum Marks: 20**

PART-A

Instructions: **(1) Answer all questions.**

4x1 = 4 Marks

(2) Each question carries *one* mark.

1) Define mobile device.
2) Define SoC.
3) Define mobile OS.
4) List the types of mobile OS.

PART-B **2×3=6 Marks**

Instructions: **(1) Answer *one* question each from 5 and 6**
(2)Each Question is of internal choice type
(3)Each question carries *three* marks.

5(a) Classify different types of mobile apps.

(OR)

5(b) List the advantages and disadvantages of SoC.

6(a) Compare iOS and Android OS.

(OR)

6(b) Write the brief history of iOS.

PART-C **2×5=10 Marks**

Instructions: **(1) Answer one question each from 7 and 8.**
(2)Each Question is of internal choice type
(3)Each question carries *five* marks.

7(a) Demonstrate the features of different DSP architectures.

(OR)

7(b) Explain the contemporary processors used in smart phones.

8(a) Explain different versions of iOS

(OR)

8(b) Demonstrate the layers of Android OS architecture.

MODEL QUESTION PAPER
BOARD DIPLOMA MID SEM-II SEMESTER EXAMINATIONS (C-21)
CS-584 - ANDROID PROGRAMMING

Duration : 1 Hour **Maximum Marks: 20**

PART-A

Instructions: **(1) Answer all questions.** **4x1 = 4 Marks**
(2) Each question carries *one* mark.

1) List the programming languages used for developing android applications.
2) List the types of android applications.
3) Define Intent.
4) Write about Android manifest file.

PART-B **2×3=6 Marks**

Instructions: **(1) Answer *one* question each from 5 and 6**
(2)Each Question is of internal choice type
(3)Each question carries *three* marks.

5(a) Discuss the security aspects of Android.

(OR)

5(b) Write the procedure to create Android Virtual Device(AVD).

6(a) List the different types of Intents with examples.

(OR)

6(b) List the Activity callback functions.

PART-C **2×5=10 Marks**

Instructions: **(1) Answer one question each from 7 and 8.**
(2)Each Question is of internal choice type
(3)Each question carries *five* marks.

7(a) Explain the steps to install Android Studio IDE.

(OR)

7(b) Explain the concept of MVC architecture.

8(a) Develop an android application using Intent to dial a number.

(OR)

8(b) Develop an android application to display “Hello World!” message on screen.

MODEL QUESTION PAPER
BOARD DIPLOMA SEMESTER END EXAMINATION (C-21)
CS-584 –ANDROID PROGRAMMING

Duration : 2 Hours **Maximum Marks: 40**

PART-A

Instructions: **(1) Answer all questions.** **8x1 = 8 Marks**

(2) Each question carries *one* mark.

1) List the peripheral devices for a smart phone.
2) Define Content Provider.
3) What is Linear Layout?
4) What id R.java file?
5) List any three UI controls.
6) Define fragment.
7) Define Service.
8) What is SQLite database?

PART-B

Instructions: **(1) Answer *one* question each from 9,10,11 and 12.** **4×3=12 Marks**

(2)Each Question is of internal choice type
(3)Each question carries *three* marks.

9(a) Discuss the future technology in smartphones.

(OR)

9(b) Write about Event handling of UI controls.

10(a) Discuss different types of Android applications.

(OR)

10(b) Describe the callback methods in Android Services.

11a) Describe about Array Adapters in List View Layout.

(OR)

11(b) Demonstrate the life cycle of fragments.

12(a) Demonstrate the life cycle of Android Services

(OR)

12(b) Discuss about creating database in SQLite database.

PART-C **4×5=20 Marks**

Instructions: **(1) Answer one question each from 13,14,15 and 16.**

(2)Each Question is of internal choice type

(3)Each question carries *five* marks.

13(a) Explain the layers of iOS architecture with a block diagram.

(OR)

13(b) Develop simple android application to find sum of two numbers using TextView ,EditText and Button controls.

14(a) Explain the process of Android Environment setup using Eclipse IDE.

(OR)

14(b) Develop simple android application using Android Service.

15(a) Develop simple android application to display notifications using Toast message.

(OR)

15(b) Develop an android application using fragments in activities.

16(a) Explain the process of inserting data into the SQLite database.

(OR)

16(b) Explain the process of retrieving data from the SQLite database.

CS-575-ARTIFICIAL INTELLIGENCE

Course Title	Artificial Intelligence	Course Code	CS-575
Semester	V	Course Group	Elective
Teaching Scheme in periods(L:T:P)	4:1:0	Credits	3
Methodology	Lecture+Assignments	Total Contact periods	75
CIE	60 Marks	SEE	40 Marks

Pre requisites

1) It requires Concepts of python programming.
2) It requires Concepts of prolog programming.

Course Outcomes

On completion of the course, the student shall be able to

CO1	Understand the need of Artificial Intelligence
CO2	Understand the basic knowledge of Representation and Reasoning
CO3	Apply Probability to understand Reasoning under uncertainty
CO4	Understand Learning from Observation
CO5	Understand semantic analysis of Natural language processing
CO6	Use Artificial Intelligence in solving real time problems

Course Content and Blue Print of Marks for SEE

Unit No	Unit Name	Periods	Questions to be set for SEE			
			R		U	A
1	Introduction To Artificial Intelligence	13	Q4	Q1	Q9(a)	Q13(a)
2	Basic Knowledge Representation and Reasoning	15				
3	Reasoning Under Uncertainty	12		Q2	Q10(a)	Q14(a)
4	Learning From Observations	12				
5	Natural Language Processing	13		Q3 Q5,Q6	Q9(b), Q11(a), Q11(b)	Q13(b), Q15(a), Q15(b)
6	Applications of Artificial Intelligence	10		Q7,Q8	Q10(b), Q12(a), Q12(b)	Q14(b), Q16(a), Q16(b)
	Total	75	8		8	8

Course Contents

Unit–1: INTRODUCTION TO ARTIFICIAL INTELLEGENCE

Duration: 13Periods (L:10 – T: 3)

Introduction-definition-need for AI-Approaches to AI-history-Applications of AI-Search in state spaces-Memory verses computation-state space graph-searching explicit state spacis-feature based state spaces- Uninformed search straggles- Breadth first search – Depth first search- BFS- DFS – Heuristic functions

Unit–2 BASIC KNOWLEDGE REPRESENTATION AND REASONING

Duration: 15Periods (L: 12 – T: 3)

Knowledge representation and reasoning- Propositional logic- Resolution in propositional logic- Semantic propositional logic- PSAT- Predicate calculus and language syntax – Semantic predicate logic- Horn clause- first order logic – forward chaining algorithm-Backward chaining algorithms.

Unit–3 REASONING UNDER UNCERTAINITY

Duration: 12Periods (L: 8 – T: 4)

Basic Probability- Conditional probability- Probabilistic inference-Bayes networks- Inference in bayes network- Types of inferences- Uncertain evidence- Probabilistic inference in polytrees-Reasoning on states and action- Difficulty in reasoning ucertain information-Generating plans.

Unit–4 LEARNING FROM OBSERVATIONS

Duration: 12Periods (L: 8 – T: 4)

Forms of Learning-Inductive learning-Learning decision trees using information theory-Advantages of decision tree- Decision tree uses to describe the domain with example-Decision learning algorithms- Procedure of selecting attributes tests- Over fitting problem-Techniques employed in handling over fitting problem-Issues that are to be considered foe extending the applicability of decision tree- False negative – False positive- Procedure to current-best-hypothesis test- Version space learning.

Unit-5 NATURAL LANGUAGE PROCESSING

Duration: 13Periods (L: 10 – T: 3)

Natural language- Advantages of natural language processing- Steps involved in communication agent- Morphological analysis-Parsing-Parsing a sentence with an example-Transition networks- Augmented transition network- Chart parsing- Semantic analysis performed in natural language processing-Pragmatic analysis in understanding natural language- Ambiguity and disambiguation- Different forms of ambiguity in details- Discourse understanding.

Unit–6 APPLICATIONS OF ARTIFICIAL INTELLEGENCE

Duration: 10 Periods (L: 8 – T: 2)

Speech recognition with different models-major design issues in speech recognition system-AI role in computer application - AI role in robotics- AI role in flying with drones-Future AI-driven car- AI role in observing the universe- AI role in developing the neural networks- AI role in the medical field- AI role in military application

Specific Learning Outcomes: After completion of the course the student will be able to understand

1.0 INTRODUCTION TO ARTIFICIAL INTELLEGENCE

1.1 Define Artificial Intelligence.
1.2 State the need for Artificial Intelligence.
1.3 State about AI technique.
1.4 Explain the Approaches to Artificial Intelligence.
1.5 State brief history of Artificial Intelligence.
1.6 List the applications of Artificial Intelligence.
1.7 Explain search in State spaces and mention its advantages.
1.8 State briefly about memory verses computation
1.9 Explain about state space graph.
1.10 Explain searching explicit state spaces.
1.11 Explain feature based state spaces
1.12 Explain in detail about uninformed search strategies a) breadth first search b)Depth first Search.
1.13 Differentiate BFS and DFS.
1.14 State about Heuristic Functions and Give Example.

2.0 BASIC KNOWLEDGE REPRESENTATION AND REASONING

2.1 State about Knowledge representation and Reasoning.
2.2 Explain Propositional Calculus or Logic in detail.
2.3 List the semantics of Propositional logic .
2.4 Define resolution in Propositional logic.
2.5 Explain Semantics in Propositional logic.
2.6 State about PSAT problem.
2.7 Explain predicate calculus and mention the Language and its syntax.
2.8 List semantics of predicate logic.
2.9 Explain semantic in predicate logic.
2.10 State about horn clauses.
2.11 Define First order logic.
2.12 Explain about forward chaining algorithm.
2.13 Explain about backward chaining algorithm.

3.0 REASONING UNDER UNCERTAINITY

3.1 Define conditional probability
3.2 Explain Probabilistic inference with example.
3.3 Explain about Bayes networks.
3.4 List the types of inference in Bayes network.
3.5 Explain the types of inference in Bayes network.
3.6 State uncertain evidence.
3.7 State D-separation.
3.8 Explain about Probabilistic Inference in polytrees.
3.9 Explain how reasoning can be done on states and actions.
3.10 List the difficulties in reasoning with uncertain information.
3.11 Explain the difficulties in reasoning with uncertain information.
3.12 Explain in brief about generating plans.

4.0 LEARNING FROM OBSERVATIONS

4.1 Define learning.
4.2 Explain forms of learning.
4.3 State inductive learning with example.
4.4 Define decision tree.
4.5 List the advantages of decision tree.
4.6 Explain how decision tree used to describe the domain with example.
4.7 Explain about decision tree learning algorithm with example.
4.8 Explain the procedure of selecting attribute tests.
4.9 Define over fitting problem.
4.10 State the technique employed in handling over fitting problem.
4.11 Explain the issues that are to be considered for extending the applicability of decision tree.
4.12 Define false negative and false positive.
4.13 Explain the procedure to current -best –hypothesis test.
4.14 Explain about version space learning.

5.0 NATURAL LANGUAGE PROCESSING

5.1 Define Natural Language.
5.2 List the advantages of Natural language processing.
5.3 Explain steps involved in communication agent.
5.4 Explain about morphological analysis.
5.5 Define parsing .
5.6 Explain parsing a sentence with an example.
5.7 Explain about transition networks.
5.8 State augmented transition network.
5.9 State chart parsing
5.10 Explain how Semantic analysis is performed in natural language processing.
5.11 Explain about pragmatic analysis in understanding natural language.
5.12 State Ambiguity and disambiguation.

5.13 Explain the different forms of ambiguity in detail.
5.14 State discourse understanding.

6.0 APPLICATIONS OF ARTIFICIAL INTELLEGENCE

6.1 Explain about speech recognition with different models.
6.2 State major design issues in speech recognition systems.
6.3 Explain AI role in computer applications.
6.4 Explain AI role in robotics
6.5 Explain AI role in flying with drones.
6.6 Explain the future of AI-driven car.
6.7 Explain the AI role in observing the universe.
6.8 Explain the AI role in developing the neural networks.
6.9 Explain the AI role in the medical field.
6.10 Explain the AI role in military application.

Recommended Books

1. "Artificial Intelligence: A Modern Approach" by Stuart Russell and Peter Norvig
2. Artificial Intelligence: A New Sythesis" by Nils J Nilsson
3. "Artificial Intelligence" by Negnevitsky
4. "Artificial Intelligence : A Modern Approach" by Norvig and Russell
5. "INTRO. TO ARTIFICIAL INTELLIGENCE" by AKERKAR RAJENDRA

Suggested E-learning references

1. https://nptel.ac.in/courses/106/102/106102220/

Suggested Student Activities

NOTE Students should select any one of the above or other topics relevant to the subject approved by the concerned faculty, individually or in a group.

CO-PO Mapping Matrix

	Basic and Discipline Specific Knowledge	Problem Analysis	Design/Development of Solutions	Engineering Tools, Experimentation and Testing	Engineering Practices for Society, Sustainability and Environment	Project Management	Lifelong Learning	Linked PO
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO 7	
CO1	3	-	-	1	2	-	1	1,4,5,7
CO2	3	1	-	1	2	-	1	1,2,4,5,7
CO3	3	2	-	2	2	-	1	1,2,4,5,7
CO4	3	1	-	1	2		1	1,2,4,5,7
CO5	3	1	-	1	2	-	1	1,2,4,5,7
CO6	3	1	2	2	2	2	2	1,2,3,4,5,6,7

Internal Evaluation

Test	Units	Marks
Mid Sem 1	1 and 2	20
Mid Sem 2	3 and 4	20
Slip Test 1	1 and 2	5
Slip Test 2	3 and 4	5
Assignments		5
Seminars		5
	Total	60

QUESTION PAPER PATTERN FOR MID SEMESTER EXAMS

Sl.No	Description	Level	No of Questions	Marks for each question	Choice	Total Marks
01	Part-A	Remembering(R)	4	1	Nil	4 Marks
02	Part-B	Understanding(U)	4	3	2	6 Marks
03	Part-C	Application(A)	4	5	2	10 Marks
Total Marks						20 Marks

MID SEM-I EXAM

S.No	Unit No	R	U	A	Remarks
1	Unit-I	1,2	5(a)	7(a)	
			5(b)	7(b)	
2	Unit-II	3,4	6(a)	8(a)	
			6(b)	8(b)	
Total Questions		4	4	4	

MID SEM-II EXAM

S.No	Unit No	R	U	A	Remarks
1	Unit-III	1,2	5(a)	7(a)	
			5(b)	7(b)	
2	Unit-IV	3,4	6(a)	8(a)	
			6(b)	8(b)	
Total Questions		4	4	4	

The length of answer for each question framed in respect of Part-A, B&C shall not exceed ¼ of a page,1 page and 2 pages respectively

QUESTION PAPER PATTERN FOR SEMESTER END EXAM

Sl.No	Description	Level	No of Questions	Marks for each question	Choice	Total Marks
01	Part-A	Remembering(R)	8	1	Nil	8 Marks
02	Part-B	Understanding(U)	8	3	4	12 Marks
03	Part-C	Application(A)	8	5	4	20 Marks
Total Marks						40 Marks

Unit No	Questions to be set for SEE				
	R			U	A
I	Q4	Q1		Q9(a)	Q13(a)
II					
III		Q2		Q10(a)	Q14(a)
IV					
V		Q3	Q5,Q6	Q9(b), Q11(a), Q11(b)	Q13(b), Q15(a), Q15(b)
VI			Q7,Q8	Q10(b), Q12(a), Q12(b)	Q14(b), Q16(a), Q16(b)
Total Questions	8			8	8

State Board of Technical Education and Training,Telangana

Model Question Paper

V Semester Mid Semester-I Examination

Course Code:CS-575 **Duration: 1 Hour**

Course Name: Artificial Intelligence **Max.Marks: 20**

PART-A

Answer **all** questions, Each Question carries **one** mark **4x1 = 4 Marks**

1. Define Artificial Intelligence.
2. List the Applications of Artificial Intelligence.
3. List the semantics of predicate logic.
4. Define First order logic.

PART-B

Answer **TWO** questions. Each question carries **THREE** marks **2x 3 = 6 Marks**

5(a). State brief history of Artificial Intelligence.

(OR)

5(b). Differentiate BFS and DFS.

6(a). State about PSAT problem.

(OR)

6(b). State about horn clauses.

PART-C

Answer **TWO** questions. Each question carries **FIVE** marks **2x 5 = 10 Marks**

7(a). Explain about state space graph.

(OR)

7(b). Explain about feature based state spacis.

8(a). Explain semantics in propositional logic.

(OR)

8(b) Explain about forward chaining algorithm.

State Board of Technical Education and Training,Telangana

Model Question paper

DCE V semester Mid Semester-II Examination

Course Code: CS-575 **Duration: 1 Hour**

Course Name: Artificial Intelligence **Max.Marks: 20**

PART-A

Answer **ALL** questions, Each Question carries **ONE** mark **4x1 = 4 Marks**

1. Define conditional probability.
2. State uncertain evidence.
3. Define learning.
4. Define decision tree.

PART-B

Answer TWO questions. Each question carries **THREE** marks **2x 3 = 6 Marks**

5(a). List the difficulties in reasoning with uncertain information.

(OR)

5(b). State uncertain evidence.

6(a). List the advantages of decision tree.

(OR)

6(b). State inductive learning with example.

PART-C

Answer TWO questions. Each question carries **FIVE** marks **2x 5 = 10 Marks**

7(a). Explain about probabilistic inference in polytrees.

(OR)

7(b). Explain about Bayes network

8(a). Explain about Decision tree learning algorithm with example.

(OR)

8(b). Explain about forms of learning.

State Board of Technical Education and Training,Telangana
Model Question paper
V semester
Semester End Examination

Course Code: CS-575 **Duration:2 hours**
Course Name: Artificial Intelligence **Max. Marks: 40 Marks**

PART-A

Answer **all** questions. Each question carries **one** mark **8x1 = 8 Marks**

1. State the need for Artificial Intelligence.
2. State D-Separation.
3. Define natural language.
4. Define learning.
5. Define parsing.
6. State discourse understanding.
7. State major design issues in speech recognition systems.
8. State AI role in robotics.

PART-B

Answer **FOUR** questions. Each question carries **three** marks. **4 x 3 = 12 Marks**

9(a). List the semantics in probabilistic logic.

(OR)

9(b). List the advantages of natural language process.

10(a). List the types of inference in Bayes network.

(OR)

10(b). Explain AI role in robotics.

11(a). Explain about transition network.

(OR)

11(b). State ambiguity and disambiguation.

12(a). Explain AI role in flying with drones.

(OR)

12(b). Explain AI role in observing universe.

PART-C

Answer **FOUR** questions. Each question carries **five** marks. **4 x 5 = 20 Marks**

13(a) Explain about forward chaining algorithm.

(OR)

13(b) Explain about morphological analysis.

14(a) Explain about generating plans.

(OR)

14(b) Explain AI role in developing the neural networks.

15(a) Explain parsing a sentence with an example.

(OR)

15(b) Explain different forms of ambiguity in detail.

16(a) Explain AI role in the medical field.

(OR)

16(b) Explain AI role in the military applications.

CS-585-CRYPTOGRAPHY AND NETWORK SECURITY

Course Title	Cryptography and Network Security	Course Code	CS-585
Semester	V	Course Group	Elective
Teaching Scheme in Pds(L:T:P)	4:1:0	Credits	3
Type of course	Lecture + Tutorial	Total Contact Periods	75
CIE	60 Marks	SEE	40 Marks

Prerequisites

Intermediate level Mathematics and computer networking concepts

Course Outcomes

Upon completion of the course the student shall be able to

Course Outcomes	
CO1	Describe Cryptography, Identify various threats and understand network security model
CO2	Apply the encryption techniques to generate encrypted messages for a given plain text
CO3	Verify the authenticity of received cipher text
CO4	Differentiate internet security and web security
CO5	Classify malicious software, virus, worm and countermeasures
CO6	Realize the importance of firewall, cybercrime and digital rights management

Course Contents

1. **Introduction to Cryptography: Duration: 7 Periods**

   Security-Need of Network security- security goals, cryptography and its evolution-classic vs. modern cryptography-Attacks-Mechanisms and Services-The OSI Security Architecture: Security Services- Availability Services-Security Mechanisms and Security Attacks-A model for Network Security.

2. **Classical Encryption Techniques: Duration: 15 Periods**

   Encryption-Decryption-Cryptanalysis,-Cryptology-Symmetric Cipher Model-Substitution Techniques : Caesar Cipher-Monoalphabetic Cipher- Playfair Cipher-Hill Cipher-Monoalphabetic Cipher-Polyalphabetic Cipher-One Time Pad-Steganography.

3. **Cryptographic Integrity Techniques : Duration: 10 Periods**

   Principles of Public Key Cryptosystems-Authentication Requirements-Authentication Functions- Message Authentication Codes-Hash Functions-Digital Signatures.

4. **Network and Internet Security:** **Duration: 8 Periods**
   Web Security –Threats on Web-Approaches to Web Security-HTTPS-Wireless Security-Threats-Email Security-threats-Internet Protocol Security (IPSec)-Benefits and services.

5. **System Security:** **Duration:11 Periods**
   Intruders-Intrusion Detection-Password Management-Backdoor-Logic Bomb-Trojan Horses-Mobile Code- and Multiple-Threat Malware-Viruses: The Nature of Viruses-Viruses Classification-Virus Kits- Macro Viruses-E-Mail Viruses-Virus Countermeasures: Antivirus Approaches-Advanced Antivirus Techniques-Worms- Difference between virus and worm-The Morris Worm-Worm Propagation Model-Recent Worm Attacks-State of Worm Technology-Mobile Phone Worms- Worm Countermeasures-back-up and data recovery.

6. **Firewalls and Ethical Issues:** **Duration: 9 Periods**
   The Need for Firewalls-Firewall Characteristics-Types of Firewalls and their advantages-Legal and Ethical issues- Cybercrime and Computer Crime-Ethical Issues Related to Computers and Information Systems-Digital Rights Management(DRM)-Categories of users of Digital Rights Management Systems

Recommended Books

1. Cryptography and Network Security: Principles and Practices, - William Stallings - Pearson Education.
2. Cryptography and Network Security –Atul Kahate : Mc Graw Hill
3. Network Security Essentials (Applications and Standards) - William Stallings, Pearson Education.
4. Cryptography and Network Security: 2nd Edition - Behrouz a. Forouzan.
5. Fundamentals of Network Security—Eric Maiwald-Dreamtech Press.
6. Computer networking a top-down approach- James F. kurose & Keith W. Ross, Pearson Education

Specific Learning Outcomes:

Upon completion of the course the student shall be able to

1. **Introduction to Cryptography**
   - 1.1 Define security and network security.
   - 1.2 Describe OSI security architecture.
   - 1.3 Discuss about different security goals.
   - 1.4 Define cryptography.
   - 1.5 Differentiate classic cryptography and modern cryptography
   - 1.6 Discuss about crypto system.
   - 1.7 Discuss about authentication, Confidentiality, integrity w.r.t data.
   - 1.8 Differentiate passive and active security threats.
   - 1.9 List and explain categories of passive and active security attacks.
   - 1.10 List and explain categories of security services.
   - 1.11 List and explain categories of security mechanisms.
   - 1.12 Draw the Model for network security and explain.

2 Classical Encryption Techniques

2.1 Define encryption and decryption
2.2 Define cryptanalysis and cryptology
2.3 List the essential ingredients of a symmetric cipher.
2.4 Describe two basic functions used in encryption algorithms.
2.5 List keys required for two people to communicate via a cipher.
2.6 Describe the general approaches to attacking a cipher.
2.7 Define substitution cipher
- **i.** Discuss the Caesar cipher.
- **ii.** Discuss the monoalphabetic cipher.
- **iii.** Describe Playfair and Hill ciphers.
- **iv.** Discuss One-Time-Pad.
- **v.** Differentiate mono and polyalphabetic ciphers.
- **vi.** Discuss the problems with the one-time pad.

2.8 Define steganography.
2.9 Exercise all the ciphers with examples.

3. Cryptographic Data Integrity Techniques

3.1 List the principal elements of a public-key cryptosystem.
3.2 List the roles of the public and private key.
3.3 Define hash function and cryptographic hash function
3.4 Explain the features and properties of hash functions
3.5 Define message digest
3.6 Explain the applications of cryptographic hash functions in Message Authentication
3.7 List and explain message authentication requirements
3.8 List the message authentication functions
3.9 Explain the message authentication code.
3.10 Define digital signature.
3.11 List the properties of a digital signature should have.
3.12 List the digital signature requirements.

4. Network and Internet Security

4.1 Define Web Security
4.2 Compare types of security threats on web
4.3 Explain briefly web traffic security approaches
4.4 Explain HTTPS
4.5 Define Wireless Security
4.6 List and explain security threats to wireless networks
4.7 Classify email security threats
4.8 List and explain various protocols used to counter email threats
4.9 Define Internet Protocol Security (IPSec).
4.10 Explain the benefits of IPSec
4.11 List out the IPSec services

5. System Security

5.1 Discuss Intruders, intrusion detection, password management

5.2 Discuss malicious software like Backdoor, Logic Bomb, Trojan Horses, Mobile Code, Multiple-Threat Malware

5.3 Define virus and worm.

5.4 Discuss Virus, Virus Nature, Virus Classification, Macro Viruses, Virus Kits, E-Mail Viruses

5.5 Discuss Virus Countermeasures: Antivirus Approaches, Advanced Antivirus Techniques

5.6 Discuss Morries worm, worm attacks, worm technologies, mobile phone worms,

5.7 Describe how a worm propagates.

5.8 Discuss worm Countermeasures

6 Firewalls and Ethical Issues

6.1 Define Firewall.

6.2 List types of firewalls.

6.3 Discuss firewall characteristics

6.4 Analyze the importance of firewall

6.5 Explain the steps to design a firewall

6.6 Discuss cybercrime and computer crime,

6.7 Discuss the classification of computer crime based on the role that the computer plays in the criminal activity.

6.8 Explain digital rights management

6.9 List the basic conditions that must be fulfilled to claim a copyright.

6.10 Describe the principal categories of users of digital rights management systems.

Suggested Student Activities

1. Student visits Library to refer Standard Books on Cryptography and Network Security and collect related material.
2. Assignments
3. Explore and analyze topics to improve the level of creativity and analytical skill by taking Quiz Programmes. Documents have to be maintained as a record.
4. Surprise tests
5. Create a power point presentation on the topic relevant to course or advanced topic as an extension to the course to improve the communication skills. Documents have to be maintained as a record.

Suggested E-learning references

1) **http://www.cse.iitm.ac.in/~chester/courses/16e_cns/slides/01_Introduction.pdf**
2) **https://www.ijcsmc.com/docs/papers/January2015/V4I1201544.pdf**

CO-PO Mapping Matrix

	Course Outcomes	**CL**	**Linked POs**	**Teaching Hours**
CO 1	Describe Cryptography, Identify various threats and understand network security model	R,U	1,2,3,4,7	7
CO 2	Apply the encryption techniques to generate encrypted messages for a given plain text	R,U,A	1,2,3,4,7	15
CO 3	Verify the authenticity of received cipher text	R,U,A	1,2,3,4,7	10
CO 4	Explain internet security and web security		1,2,3,4,7	8

MID SEM – I Exam

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

MID SEM – II Exam

S.No	Unit Name	R	U	A	Remarks
1	Unit-I	1, 2	5(a) 5(b)	7(a) 7(b)	
2	Unit-II	3, 4	6(a) 6(b)	8(a) 8(b)	
Total Questions		4	4	4	

Semester End Examination

<table>
<tr><th>S.No</th><th>Unit Name</th><th colspan="3">R</th><th>U</th><th>A</th><th>Remarks</th></tr>
<tr><td>1</td><td>Unit-I</td><td rowspan="6">4</td><td colspan="2" rowspan="2">1</td><td rowspan="2">9(a)</td><td rowspan="2">13(a)</td><td></td></tr>
<tr><td>2</td><td>Unit-II</td><td></td></tr>
<tr><td>3</td><td>Unit-III</td><td colspan="2" rowspan="2">2</td><td rowspan="2">10(a)</td><td rowspan="2">14(a)</td><td></td></tr>
<tr><td>4</td><td>Unit-IV</td><td></td></tr>
<tr><td>5</td><td>Unit-V</td><td rowspan="2">3</td><td>5,6</td><td>9(b)
11(a)
11(b)</td><td>13(b)
15(a)
15(b)</td><td></td></tr>
<tr><td>6</td><td>Unit-VI</td><td>7,8</td><td>10(b)
11(a)
11(b)</td><td>14(b)
16(a)
16(b)</td><td></td></tr>
<tr><td colspan="2">Total Questions</td><td colspan="3">8</td><td>8</td><td>8</td><td></td></tr>
</table>

Legend:	Remembering (R)	1 Mark
	Understanding (U)	3 Marks
	Application (A)	5 Marks

MODEL QUESTION PAPER

BOARD DIPLOMA MID SEM-I SEMESTER EXAMINATIONS (C-21)

CS-585- CRYPTOGRAPHY AND NETWORK SECURITY

Duration: 1 Hour **Maximum Marks: 20**

PART-A

Instructions: **(1) Answer all questions.** **4x1 = 4 Marks**

(2) Each question carries one mark.

1) Define cryptography.
2) Define network security.
3) List the essential ingredients of a symmetric cipher.
4) Define substitution cipher

PART-B **2×3=6 Marks**

Instructions: **(1) Answer one question each from 5 and 6**

(2)Each Question is of internal choice type

(3)Each question carries Three marks.

5(a) Discuss crypto system.

(OR)

5(b) Discuss passive threats.

6(a) Write about two basic functions used in encryption algorithms.

(OR)

6(b) Differentiate mono and polyalphabetic ciphers

PART-C **2×5=10 Marks**

Instructions: **(1) Answer one question each from 7 and 8.**

(2)Each Question is of internal choice type

(3)Each question carries Five marks.

7(a) Explain categories of passive and active security attacks.

(OR)

7(b) Draw the Model for network security and explain.

8(a) Explain Playfair cipher with the keyword “DECRYPTION” to encrypt the message ” I WANT MORE MONEY”

(OR)

8(b) Explain one-time pad with an example.

MODEL QUESTION PAPER

BOARD DIPLOMA MID SEM-II SEMESTER EXAMINATIONS (C-21)

CS-585- CRYPTOGRAPHY AND NETWORK SECURITY

Duration : 1 Hour **Maximum Marks: 20**

PART-A

Instructions: **(1) Answer all questions.** **4x1 = 4 Marks**

(2) Each question carries one mark.

1) Define cryptographic hash function
2) Define message digest
3) Define web security.
4) Define wireless security.

PART-B **2×3=6 Marks**

Instructions: **(1) Answer *one* question each from 5 and 6**

(2)Each Question is of internal choice type

(3)Each question carries Three marks.

5(a) Discuss the principal elements of a public-key cryptosystem

(OR)

5(b) Explain the features and properties of hash functions

6(a) Compare types of security threats on web

(OR)

6(b) Classify email security threats

PART-C **2×5=10 Marks**

Instructions: **(1) Answer one question each from 7 and 8**

(2)Each Question is of internal choice type

(3)Each question carries Five marks.

7(a) Explain the message authentication code

(OR)

7(b) Discuss briefly the message authentication requirements

8(a) Explain the benefits of Internet Protocol Security.

(OR)

8(b) List and explain security threats to wireless networks

MODEL QUESTION PAPER
BOARD DIPLOMA SEMESTER END EXAMINATION (C-21)
CS-585- CRYPTOGRAPHY AND NETWORK SECURITY

Duration: 2 Hours **Maximum Marks: 40**

PART-A

Instructions: **(1) Answer all questions.** **8x1 = 8 Marks**
(2) Each question carries one mark.

1) Define cryptography.
2) Define message digest
3) Define virus.
4) What is a digital signature?
5) List types of intruders.
6) What is a spyware?
7) What is a firewall?
8) List types of firewall.

PART-B **4×3=12 Marks**

Instructions: **(1) Answer *one* question each from 9,10,11 and 12.**
(2)Each Question is of internal choice type
(3)Each question carries Three marks.

9(a) Discuss passive threats.

(OR)

9(b) Discuss any three techniques for learning passwords.

10(a) Explain the benefits of Internet Protocol Security.

(OR)

10(b) Write about the characteristics of a firewall.

11a) Discuss the types of intruders.

(OR)

11(b) Write short notes on (a) multi-threat malware (b) mobile code

12(a) Explain the steps to design a firewall

(OR)

12(b) Discuss cyber-crime.

PART-C **4×5=20 Marks**

Instructions: **(1) Answer one question each from 13,14, 15 and 16.**

(2)Each Question is of internal choice type

(3)Each question carries Five marks.

13(a) Encrypt the message “PAY MORE MONEY” using Hill Cipher with the encryption key matrix

. Show the calculations and result.

(OR)

13(b) Explain how a worm propagates.

14(a) Explain the message authentication code.

(OR)

14(b) Explain digital rights management

15(a) Explain (a) Backdoor (b) Trojan Horse (c) Logic bomb (d) Zombie

(OR)

15(b) Discuss in detail about worm technologies.

16(a) Explain the types of firewalls.

(OR)

16(b) Describe the principal categories of users of digital rights management systems.

CS-506-WEB DESIGNING LAB

Course Title :	Web Designing Lab	Course Code	CS-506
Semester	V	Course Group	Practical
Teaching Scheme in Periods(L:T:P)	1:0:2	Credits	1.5
Methodology	Lecture + Practical	Total Contact Hours	45
CIE	60 Marks	SEE	40 Marks

Pre requisites

Knowledge of Computer Operation.

Course Content and Blue Print of Marks for SEE

Unit No	Unit name	Hours/ Periods	Marks for SEE			Marks weightage	%Weightage
			Coding	Compilation	Execution		
1	Web Designing Lab	45	20	10	10	40	100
	Total	45	40			40	100

Course outcomes

Course Outcome		CL	Linked PO	Teaching Hours
CO1	Write programs using HTML and XML	R, U, A	1,2,3,4,7	10
CO2	Write Programs using Java Script	R, U, A	1,2,3,4,7	15
CO3	Write Programs using PHP	R,U, A	1,2,3,4,7	20
			Total Sessions	45

Legends: R = Remember U= Understand; A= Apply and above levels

List of Programs.

1. Create a HTML page that uses the tags like head, title, body etc.
2. Create a HTML page that uses formatting tags, bookmark.
3. Create a HTML page that uses anchor tag and image tag.
4. Create a HTML page that uses marquee tag.
5. Create a HTML page that uses unordered list and ordered list.
6. Create a HTML page that uses style attribute ,target attribute.
7. Create a HTML page that uses frames and different presentation formats, colors.

8. Create a HTML page with a table consisting of a header, body and footer.
9. Create a HTML page that uses attributes of table tag like border , cellpadding , cellspacing , rowspan , colspan,alignment , width , height .
10. Create time table or diploma memo using all table tags and attributes.
11. Create a HTML page with a form containing various controls.
12. Create a style sheet to set the background color, position and dimensions of a HTML element.
13. Create a HTML page that uses CSS on border properties using all attributes .
14. Create a simple XML file that contains student data.
15. Create a XML file using namespace.

JAVA SCRIPT

16. Develop JavaScript code using all operators.
17. Develop JavaScript code using conditional statements
18. Develop JavaScript code using iterative statements.
19. Develop JavaScript code to implement sorting.
20. Develop JavaScript code that uses recursion.
21. Develop JavaScript code that displays date in various formats.
22. Develop JavaScript code using String Methods.
23. Develop JavaScript code using functions and recursive functions.
24. Develop JavaScript code using Arrays.
25. Develop JavaScript code using Array methods.

PHP

26. Develop PHP program using all operators.
27. Develop PHP program using conditional and iterative statements.
28. Develop PHP program using Date methods.
29. Develop PHP program using String Methods.
30. Develop PHP program on functions.
31. Develop PHP program using Arrays and Array methods.
32. Develop PHP program to perform DDL and DML operations on a database table.
33. Develop a PHP program to set a cookie.
34. Develop PHP program using sessions.

Suggested Student Activities

Student activity like mini-project, quizzes, etc. should be done in group of 5-10 students.

1. Each group should do any one of the following type of activity or any other similar activity related to the course with prior approval from the course coordinator and program coordinator concerned.
2. Each group should conduct different activity and no repetition should occur.
3. Visit different web sites relevant to topics. Listen to the lectures and submit a handwritten report
4. Coding competitions

CS-507-PYTHON PROGRAMMING LAB

Course Title :	Python Programming Lab	Course Code	CS-507
Semester	V	Course Group	Practical
Teaching Scheme in Periods(L:T:P)	1:0:2	Credits	1.5
Methodology	Lecture + Practical	Total Contact Periods:	45
CIE	60 Marks	SEE	40 Marks

Pre requisites

This course requires the basic skills of programming and hardware

Course outcomes

On successful completion of the course, the students will be able to attain below Course Outcomes (CO):

Course Outcome		Teaching Hours
CO1	Build a Personal computer	**3**
CO2	Develop program using controls structures and applies	**10**
CO3	Build classes, modules and packages	**6**
CO4	Develop multithread application and handles runtimes exceptions	**6**
CO5	Design Graphical user interface and Validates data	**10**
CO6	Process Data and Program Raspberry Pi	**10**
		45

Course Contents

Sl.No	UNIT Name
1	Prepare a Personal System
2	Basic Of Python Programming
3	Classes, Modules and Packages
4	Multithreading and Exception Handling.
5	Graphical user interface and Regular expressions
6	File, Database and Interfacing to Raspberry PI

Text Books

1. Kenneth A. Lambert, The Fundamentals of Python: First Programs, 2011, Cengage Learning.
2. Think Python First Edition, by Allen B. Downey, Orielly publishing.

Reference Books

1. James Payne, Beginning Python using Python 2.6 and Python 3, Wrox publishing
2. Paul Gries, Practical Programming: An Introduction to Computer Science using python 3,The Pragmatic Bookshelf, 2nd edition (4 Oct. 2013)
3. Charles Dierach, Introduction to Computer Science using Python

4. Introduction to Computation and Programming Using Python. John V. Guttag, The MIT Press.
5. Raspberry Pi Cookbook 2014 by Simon Monk
6. Core Python Programming 2018 by R. Nageswara Rao
7. Python: For Beginners: by Timothy C. Needham
8. Sams Teach Yourself Python Programming for Raspberry Pi in 24 Hours Second Edition, Sams publication by Christine Bresnahan, Richard Blum
9. Python Programming Fundamentals- A Beginner's Handbook 2018 by Nischay kumar Hegde

Suggested E-learning references

1. https://www.python.org/about/gettingstarted/
2. https://www.w3schools.com/python/
3. https://www.programiz.com/python-programming
4. https://www.tutorialspoint.com/python/index.htm
5. https://realpython.com/start-here/
6. https://www.codecademy.com/learn/learn-python
7. https://www.dataquest.io/blog/learn-python-the-right-way/

Mapping outcomes with program outcomes

(Course outcome linkage to cognitive learning)

S.No	Outcome	CL	Linked PO	Teaching Hours
CO1	Build a Personal computer	**R,U,A**	**1,2,3,4,7**	**3**
CO2	Develop program using controls structures and applies	**R,U,A**	**1,2,3,4,7**	**10**
CO3	Build classes, modules and packages	**R,U,A**	**1,2,3,4,7**	**6**
CO4	Develop multithread application and handles runtimes exceptions	**R,U,A**	**1,2,3,4,7**	**6**
CO5	Design Graphical user interface and Validates data	**R,U,A**	**1,2,3,4,7**	**10**
CO6	Process Data and Program Raspberry Pi	**R,U,A**	**1,2,3,4,7**	**10**
				45

List of Experiments

1. Write a python program using control structures
2. Write a python program to find the factorial of a number
3. Write a python program to perform matrix addition and multiplication
4. Write a python programs to make use of tuples, list and dictionary
5. Write a python program which consists of multiple threads
6. Write a python program to handle exception with multiple except statements with single try
7. Write a python program using nested try statements
8. Design Graphical user interface application

9 Design regular expression to validate given text
10. Constructing a PC using Raspberry PI and Board com processor
11. Installation of operating system using Raspberry PI
12. Turning ON/OFF LED with Raspberry PI and Python program
13. Buzzer sound with Raspberry PI and Python program
14. Write a python program for method overloading
15. Write a python program for method overriding
16. Write a python program for multiple inheritance
17. Write a python program for hybrid inheritance
18. Write a python program to perform operations on strings
19. Write a python program to slice a list
20. Write a python program to display multiplication tables
21. Write a python program to achieve thread synchronization in multithreaded environment
22. Design Graphical user interface application using different widgets
23. Design GUI using different Geometry Managers
24. Develop a python program to handle events generated by various widgets
25. Develop a python program to open, close, read, write, and append data into the files
26. Develop a python program to connect to MySql database
27. Develop a python program for creation of table, insert a row in a table, update an entry in a table
28. Develop a python program to execute stored procedures
29. Develop a python program to store images using blob data type

CS-578- .NET PROGRAMMING THROUGH C# LAB

Course Title :	.Net Programming through C# Lab	Course Code	CS-578
Semester	V	Course Group	Practical
Teaching Scheme in Periods(L:T:P):	1:0:2	Credits	1.5
Methodology	Lecture + Practical	Total Contact Hours	45
CIE	60 Marks	SEE	40 Marks

Pre requisites

This course requires the basic skills of programming.

Course Outcomes

On successful completion of the course, the students will be able to attain CO:

Course Outcome		Teaching Hours
CO1	Build Programs applying OOPs concepts	**11**
CO2	Developed multithreaded applications and handles exceptions	**11**
CO3	Window and web based application development	**11**
CO4	Data Access	**12**
		45

Course Contents

Sl. No	UNIT Name
1	Basic of C# and OOPs concepts
2	Exception handling and multi-threading
3	Window and web based application
4	Database access

Reference Books

1. Professional C# 5.0 and .NET 4.5.1 (WROX) - Christian Nagel (Author), Jay Glynn (Author), Morgan Skinner
2. C# 4.0 - The Complete Reference - Herbert Schildt.pdf
3. C# 5.0 IN A NUTSHELL Fifth Edition - Joseph Albahari and Ben Albahari

Suggested E-learning references

- https://www.tutorialspoint.com/linq/linq_tutorial.pdf

Mapping outcomes with program outcomes
(Course outcome linkage to cognitive learning)

Course Outcome		CL	Linked PO	Teaching Hours
CO1	Build Programs applying OOPs concepts	U/A	**1,2,3,4**	**11**
CO2	Developed multithreaded applications and handles exceptions	U/A	**1,2,3,4**	**11**
CO3	Window and web based application development	U/A	**1,2,3,4**	**11**
CO4	Data Access	A	**1,2,3,4**	**12**
			TOTAL	**45**

List of Experiments

1. C# Program to Check Whether the Entered Year is a Leap Year or Not.
2. C# Program to Calculate Acceleration
3. C# Program to Generate Random Numbers
4. C# Program to Illustrate the Use of Access Specifiers
5. C# Program to Demonstrate Multilevel Inheritance
6. C# Program to Illustrate Single Inheritance
7. C# Program to Illustrate Hierarchical Inheritance
8. C# Program to Illustrate Multilevel Inheritance with Virtual Methods
9. C# Program to Display Cost of a Rectangle Plot Using Inheritance
10. C# Program to Demonstrate IndexOutOfRange Exception
11. C# Program to Demonstrate DivideByZero Exception
12. C# Program to Demonstrate Multiple Exceptions
13. C# Program to Demonstrate Exception Handling for Stack Overflow
14. C# Program to Illustrate NullRefernce Exception
15. C# Program with multiple threads.
16. C# Program with anonymous Methods
17. C# Program with Lambda Expressions.
18. C# Program using Generic Classes.
19. Create desktop application using various controls.
20. Creation of Menus at design time.
21. Develop an application to control menus at run time.
22. Create an ASP page with various controls.
23. Create a ASP page with all validation controls.
24. Create an application performing CRUD operations.
25. Bind the Data to textbox control and Datagrid control.
26. C# program to navigate through a data source.
27. Uses query string, cookie and post method used to transfer data between pages with example program.

28. C# program to find the positive number in the array using LINQ.
29. C# programs on various LINQ operators.

Suggested Student Activities

- Student activity like mini-project, quizzes, etc. should be done in group of 5-10 students.
- Coding competitions
- Quiz Competitions
- Advanced Topics Seminars
- Writing Reports

CS-588-ANDROID PROGRAMMING LAB

Course Title :	Android Programming Lab	Course Code	CS-588
Semester	V	Course Group	Practical
Teaching Scheme in Periods(L:T:P)	1:0:2	Credits	1.5
Methodology	Lecture + Practical	Total Contact Periods:	45
CIE	60 Marks	SEE	40 Marks

Pre requisites:

Knowledge of core java programming language and AWT event handling concepts.

Course outcomes

On successful completion of the course, the students will be able to attain below Course Outcomes (CO):

Course Outcome	
CO1	Setup environment to develop android applications and creating Android Virtual Device(AVD)
CO2	Use different Components of Android Studio IDE in developing applications and usage of Intents to send sms, dial a number and switching between activities.
CO3	Design GUI using User Interface elements and handle events generated by android components
CO4	Develop android applications using Android Services and to use SQLite database

Course Contents

Unit Number	Unit Name	Periods
3	Introduction to Android Environment setup	10
4	Understand the programming components of Android	10
5	Android User Interface(UI) controls	12
6	Android Services and Database	13
	Total	45

Recommended Books

1. Today's Smartphone Architecture by Malik Wallace and Rafael Calderon - *meseec.ce.rit.edu/551-projects/spring2016/2-6.pdf*
2. *https://**cs4720**.cs.virginia.edu/slides/**CS4720-MAD**-iOSAppComponents.pdf*
3. Professional Android 4 Application Development, Reto Meier, Wiley India, (Wrox) , 2012

4. Android Application Development for Java Programmers, James C Sheusi, Cengage Learning, 2013
5. Head First Android Development by Dawn Griffiths & David Griffiths - Oreilly publications
6. Android App Development for Dummies 3rd edition by Michael Burton - A Wiley brand
7. Hello, Android: Introducing Google's Mobile DevelopmentPlatform fourth edition by Ed Burnette - The pragmatic programmers
8. Busy Coder's Guide to Android Development by Mark L Murphy -
9. Android Programming: The Big Nerd Ranch Guide By Bill Philips, Chris Stewart and Kristin
10. Android Cookbook 2nd edition by Ian F.Darwin - O'Reilly

Suggested E-learning references

1. https://www.tutorialspoint.com/android/index.htm
2. https://developer.android.com/
3. https://www.sanfoundry.com/java-android-programing-examples
4. https://sites.google.com/site/hkustcomp4521/home/lab-exercises
5. https://www.vidyarthiplus.com/vp/attachment.php?aid=47906
6. https://www.javatpoint.com/android-tutorial
7. https://www.studytonight.com/android/
8. https://www.splessons.com/lesson/android-tutorial/

CO-PO Matrix

Course Outcome		CL	Linked PO	Teaching Hours
CO1	Setup environment to develop android applications.	**U, A**	**1,2,3,4,5,6,7**	**10**
CO2	Use different Components of Android Studio IDE in developing applications and usage of Intents to send sms, dial a number and switching between activities.	**U, A**	**1,2,3,4,5,6,7**	**10**
CO3	Design GUI using User Interface elements and handle events generated by android components	**U,A**	**1,2,3,4,5,6,7**	**12**
CO4	Develop android applications using Android Services and to use SQLite database	**U,A**	**1,2,3,4,5,6,7**	**13**
			Total Sessions	**45**

List of Experiments

1. Give the steps to setup Android Environment using
   (a) Android Studio IDE
   (b) Using Eclipse IDE
   (c) Create Android Virtual Device(AVD)

2. Develop an android application to display a message like “Hello World”
3. Develop android applications using following UI Layouts
   (a) Linear Layout
   (b) Relative Layout
   (c) List View
   (d) Grid View
   (e) Table Layout
4. Create an Android app to accept two numbers in two EditText(textfields) and display the sum of them in a Toast message on clicking a button
5. Create an Android app to accept a number in EditText and display the factorial of it in a Toast message on clicking a button.
6. Design a simple calculator application to perform addition, subtraction, multiplication and division using different buttons.
7. Design a simple android application to convert various country currencies.
8. Develop an android application to illustrate the use of
   (a) Button
   (b) ToggleButton
   (c) ImageButton
9. Develop an android application to illustrate the use of
   (a) CheckBox
   (b) RadioButton
10. Develop an android application to illustrate the use of Spinner(ComboBox) widget.
11. Develop an android application to illustrate the use of Datepicker widget.
12. Develop an android application to illustrate the use of Timepicker widget.
13. Develop an android application that uses multiple UI controls to create student registration form.
14. Develop an android application to handle events generated by user Interface controls.
15. Develop an android application to shift from one activity to another activity using a button with the help of Intents.
16. Develop an android application to send SMS using Intents.
17. Develop an android application to dial a number using Intents.
18. Explain the life cycle of Android Activities with an example program.
19. Explain the life cycle of fragments with an example program
20. Develop an android application using fragments.
21. Develop an android application using Android services.
22. Develop an android application to create and open a SQLite database.
23. Develop an android application to insert data into SQLite database
24. Develop an android application retrieve data from SQLite database
25. Develop an android application to update and delete data from SQLite database
26. Develop an android application that uses multiple UI controls to create student registration form and store the data into SQLite database.

Suggested list of student activities

Note: The following activities or similar activities for assessing 2.5 credits (Any one)

Student activity like mini-project, surveys, quizzes, etc. should be done in group of 3-5 students.

- Each group should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned course coordinator and programme co-coordinator.
- Each group should conduct different activity and no repeating should occur.

1. Study different Integrated Development Environments(IDEs) available for executing android programs and prepare a report.
2. Develop some simple GUI based applications like calculator etc using android controls.
3. Visit Library to refer to standard Books on Advanced java concepts, collect related material and prepare notes.
4. Refer to online content and videos to get more knowledge on database concepts.
5. Interact with industry people who are working in android technologies and prepare a report.
6. Compare different types of Operating Systems used in mobiles and submit a report.
7. Write assignments given by course coordinator.
8. Read all the course contents and should be able to write slip tests and surprise tests.
9. Prepare a seminar on a specific topic that is related to latest technologies in the mobile application development and present a Power Point Presentation(PPT) to all the peers.
10. Study IEEE papers on android programming and submit a report.
11. Prepare quiz on android programming related questions and conduct.
12. Participate in state level or national level technical conferences.
13. Develop simple android applications (apps).

CS-509- SYSTEM ADMINISTRATION LAB

Course Title :	System Administration Lab	Course Code	CS-509
Semester	V	Course Group	Practical
Teaching Scheme in Periods(L:T:P)	1:0:2	Credits	1.5
Methodology	Lecture + Practical	Total Contact Periods	45
CIE	60 Marks	SEE	40 Marks

Pre requisites

Basic knowledge on working of computer.

Course outcome

Course outcome	
CO1	Implement Install and configure Windows 2012 server and various services.
CO2	Implement Install and configure Linux and various services in Linux.

Course Content

Unit No	Unit Name	Hours/Periods
1	Implement Install and configure Windows 2012 server and various services.	**13**
2	Implement Install and configure Linux and various services in Linux.	**13**
	Total	**45**

Recommended Books

1. Windows server 2012 by Charlie Russel and Craig zacker
2. Mastering windows server 2012 R2 by Mark minasi
3. Unix and Linux System Administration hand book 4th edition by Garth snyder
4. Linux Administration by Jason cannon

E-References

1. https://www.tutorialspoint.com/windows_server_2012/windows_server_2012_tutorial.pdf
2. https://ptgmedia.pearsoncmg.com/images/9780735684690/samplepages/0735684693.pdf
3. https://docentinrete.files.wordpress.com/2012/05/manuale-2008-98-365-windowsserver.pdf
4. https://www.tutorialspoint.com/linux_admin/linux_admin_tutorial.pdf
5. https://www-uxsup.csx.cam.ac.uk/courses/moved.linuxadmin/whole.pdf

Mapping Course outcomes with program outcome

Course Outcome		CL	Linked PO	Teaching Hours
CO1	Administration concepts and classification of Windows 2012 server	**R, U, A**	**1,2,3,4,7**	**13**
CO2	Install and configure Windows 2012 server and various services.	**R, U, A**	**1,2,3,4,7**	**13**
CO3	Install and configure Linux	**R,U, A**	**1,2,3,4,7**	**13**
CO4	Implement various services in Linux.	**U, A**	**1,2,3,4,7**	**06**
			Total Sessions	**45**

Legends: R = Remember U= Understand; A= Apply and above levels (Bloom's revised taxonomy)

LIST OF EXCERCISES:

WINDOWS 2012 SERVER ADMINISTRATION

1. Installation of Windows 2012 server operating system
2. Installation of device drivers in Windows-2012 server.
3. Creating and managing user & group accounts in Windows-2012 server
4. Implementation of NTFS file , folder & share permissions
5. Installation & Configuration of DHCP in Windows-2012 server.
6. Installation & Configuration of DNS in Windows-2012 server.
7. Installation & Configuration of RAS in Windows-2012 server.
8. Installation & Configuration of Local and Network Printer in Windows-2012 server.

LINUX ADMINSTRATION

1. Installation of LINUX operating system
2. Practice on Linux commands
3. Installation of device drivers in LINUX server.
4. Creating and managing user & group accounts in LINUX server
5. Installation & Configuration of DHCP LINUX server.
6. Installation & Configuration of DNS in LINUX server.
7. Installation & Configuration of Local and Network Printer in LINUX server.
8. Configuring firewall.
9. Backing up & restoring data.

CS-510-PROJECT WORK

Course Title :	Project Work	Course Code	CS-510
Semester	V	Course Group	Practical
Teaching Scheme in Periods(L:T:P)	1:0:2	Credits	1.5
Methodology	Lecture + Practical	Total Contact Periods	45
CIE	60 Marks	SEE	40 Marks

Prerequisites: Students should have the knowledge of various programming languages and practices inaddition to basic engineering skills.

Course Outcomes:

CO	Outcome
CO1	Analyze the realistic problem
CO2	Design the solution using various modules.
CO3	Coding using engineering tool.
CO4	Implementing and updating.

Should be in following Areas

1. Implement Image Processing Algorithms
2. Implement Cryptographic Algorithms.
3. Implement Algorithms in any computer application domain.
4. Implement solutions given in recent papers published in journals.
5. Design Micro Controller based application
6. Design Robot based applications
7. Use boards like Raspberry PI, Arduino Uno to design computer controlled application
8. Design Application using Sensors
9. Design Application using IOT
10. Data Science based project
11. Configure Cisco route
12. Mobile Applications
13. Establishing a computer network with required permission to resources like files and printers
14. rs for packet filtering, Packet routing, firewall configuration, bandwidth allocations.
15. Troubleshoot Computer Peripherals.
16. Develop Games
17. Design Web Portal with database to any organization
18. Learning Management Systems like Learning from videos, assignment submission, quizzes.
19. Online Examination with data persistence on Servers.
20. Examination Seating Plan particularly for Diploma Examinations

21. Student data base management System Consisting of modules Admission, Marks, Attendance, No Due certificate.
22. Library management System
23. Hostel Management System
24. Stores management System
25. Banking Software
26. Hospital Management System
27. Railway Reservations
28. Healthcare Management System.
29. Income tax calculator application.
30. Online Shopping Portal

CO / PO - MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	Mapped POs
CO1	3	3		1	2	1	1	1,2,4,5,6,7
CO2	3	3		1	2	1	1	1,2,4,5,6,7
CO3	3	3	2	1	2	1	1	1,2,3,4,5,6,7
CO4	3	3	2	1	2	1	1	1,2,3,4,5,6,7

CS-511-SKILL UPGRADATION

Course Title	Skill Upgradation	Course Code	CS-511
Semester	V	Course	Core
Teaching Scheme in periods	0:0:8	Credits	2.5
Methodology	Activities	Total Contact Periods	120
CIE	Rubrics	SEE	Nil

Rationale: This course is introduced for all semesters with a purpose of providing outside classroom experiences that lead to overall development of the students. One whole day is allocated for activities.

Course Objective:

1. To create an awareness on Engineering Ethics and Human Values.
2. To instill Moral, Social Values and Loyalty.
3. Create awareness about social responsibilities of Engineers
4. To improve Communication and Participation skills

Course Content and Blue Print of Marks for CIE			
ActivityNo	Activity	Periods	Frequency
1	Haritha Haram(plantation &Maintenance)/ Waste management /Swachh Bharat	21	7 times in a semester
2	Mini projects	18	6 times in a semester
3	Online Video Tutorials/ MOOCs in SWAYAM /NPTEL/ e-Journals	16	4 times in a semester
4	Seminars/Quizzes/ Technical Paper Presentations /Group discussions/ Participate in Tech fests and coding competitions	24	6 times in a semester
5	Field Visits/Field Practice(also within the campus)	14	2 times in a semester
6	Expert/Guest Lectures • Safety and Responsibilities of an Engineer • Occupational crime/Cyber crimes • Responsibility of engineers • Emerging technologies	27	4 Times in a semester
	Total Periods	120	

Note: in case Expert faculties are not available English faculty may handle the expert lectures or Video clips on the suggested lectures may be played and the suggested activities are flexible.

Course Outcomes:

CO	Outcome	CO/PO Mapping
CO1	Application of known knowledge on real time problems	1,2,3,4,5,6,7
CO2	Practice the moral values that ought to guide the Engineeringprofession.	5,6,7
CO3	Develop the set of justified moral principles of obligation,ideals that ought to be endorsed by the engineers and applythem in real life situations	5,7
CO5	Create awareness of saving environment through activities	3,4,5,7
CO6	Create awareness of Constitution of India	5

COURSE CONTENT:

SAFETY, RESPONSIBILITIES OF ENGINEERS

Safety and risk-definition- - assessment of safety and risk - risk benefit analysis and reducing risk-–Personal risk-Public risk-Reducing risk-Voluntary Risk-Collegiality and loyalty–Authority-Types- collective bargaining - occupational crime –Responsibility of engineers–Types-Social responsibility-Professional responsibility- confidentiality-conflicts of interest-liability

Evaluation:

The student must maintain a record of all activities conducted on ***skill upgradtion/ Activities*** day andprepare a soft copy of report and submit it to their mentor or upload to the institute website or mail.

The reports shall be evaluated by the mentors though rubrics and accordingly give the eligibility for 2.5credits. The student must have participated in at least 75% of activities to get eligibility.

CO-PO MAPPING MATRIX								
	Basic & Discipline knowledge	Problem Analysis	Design Development tools	Engineering Tools	Engineering for society and	Project Management	Lifelong learning	Mapped PO
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	
CO1	✓	✓	✓	✓	✓	✓	✓	1,2,3,4,5,6,7
CO2					✓	✓	✓	5,6,7
CO3					✓		✓	5,7
CO4			✓	✓	✓		✓	3,4,5,7
CO5					✓			5

FORMAT FOR STUDENT ACTIVITY ASSESSMENT

DIMENSION	Unsatisfactoy 1	Developing 2	Satisfactoy 3	Good 4	Exemplary 5	Score
Collection of Data	Does not collect any information relating to the topic	Collects very limited information; some relate to the topic	Collects some basic information; refer to the topic	Collects relevant information; concerned to thetopic	Collects a great deal of information; all refer to the topic	2
Fulfill team‟s roles & duties	Does not perform any duties assigned to the team role	Performs very littleduties	Performsnearly allduties	Performs all duties	Performs all duties of assigned team roles with presentation	4
Shares work equally	Always relies on others to do the work	Rarely doesthe assignedwork; often needs reminding	Usually does the assigned work; rarely needs reminding	Does the assigned job without having to be reminded.	Always does the assigned work without having to be reminded and on given time frame	2
Listen to other team mates	Is always talking; never allows anyone else to speak	Usually does mostof the talking; rarely allows others tospeak	Listens, but sometimes talk too much	Listensand contributes to the relevant topic	Listens and contributes precisely to the relevant topic and exhibit leadership qualities	2
					TOTAL	10/4=2.5

All student activities should be done in a group of 4-5 students with a team leader.

NOTE: **This is only an example. Appropriate rubrics may be devised by the concerned course co-coordinator for assessing the given activity.If the average score is greater than 1(>1), then 2.5 credits will be awarded to student.**