**C21\_ Curriculum**   
**DIPLOMA IN COMPUTER ENGINEERING**



**OFFERED BY**

**STATE BOARD OF TECHNICAL EDUCATION & TRAINING, TELANGANA: HYDERABAD**

**V SEMESTER**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sl N  o | Course Code | Course Name | **Teaching Scheme** | | | | |  |  | | --- | --- | |  | Credit s | | **Examination Scheme** | | | | | | |
| Instruction Periods per week | | | Total  Period per  semes  ter | **Continuous internal evaluation** | | | **Semester end examination** | | | |
| L | T | P | Mid  Sem 1 | Mid  Sem 2 | Internal evaluati  on | |  |  | | --- | --- | |  | Max Mark s | | Min Mark s | Total Mark s | 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 CS-574 CS-584 | Python  Programming | 4 | 1 | 0 | 75 | 3 | 20 | 20 | 20 | 40 | 14 | 100 | 35 |
| 4 | .Net Programming  Through C# | 4 | 1 | 0 | 75 | 3 | 20 | 20 | 20 | 40 | 14 | 100 | 35 |
| 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 CS-506 | Cryptography and  Network Security | 4 | 1 | 0 | 75 | 3 | 20 | 20 | 20 | 40 | 14 | 100 | 35 |
| 6 | |  |  | | --- | --- | | Web Lab | Designing | | 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 CS-509 | Android  Programming Lab | 1 | 0 | 2 | 45 | 1.5 | 20 | 20 | 20 | 40 | 20 | 100 | 50 |
| 9 | System  Administration Lab  Project Work | 1 | 0 | 2 | 45 | 1.5 | 20 | 20 | 20 | 40 | 20 | 100 | 50 |
| 10 | CS-510 | 1 | 0 | 2 | 45 | 1.5 | 20 | 20 | 20 | 40 | 20 | 100 | 50 |
| 11 | CS-511 Activit | Skill Upgradation  ies: student performa | 0  nce i | 0 s to | 8  be as | 120  sessed t | 2.5  hrough | 0  Rubrics | 0 | Rubrics | |  | -- | - |
|  |  |  |  |  |  |  |

**ME-501 - INDUSTRIAL MANAGEMENT AND ENTREPRENEURSHIP**

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

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

**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.

Understand the line, staff and Functional organizations. 1.11   
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.

Understand organizational behaviour. 1.15   
1.16 Explain job analysis.

1.17 State motivation theories.

1.18 State Maslow ‘s Hierarchy of needs.

List out different leadership models. 1.19   
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.

2.2Relate the production department with other departments. 2.3State the need for planning and its advantages.

2.4Explain the stages of Production, planning and control. 2.5Explain routing methods.

2.6Explain scheduling methods.

2.7Explain dispatching.

2.8Draw PERT/CPM networks.

2.9Identify the critical path   
2.10 Problems on PERT & CPM.

**3Analyze the functions of Materials Management**  .

3.1State 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.

3.10Describe Cardex method.

3.11Objectives and functions of purchasing department 3.12 Explain purchasing procedures.

3.13 List out purchase records.

3.14Describe the stores equipments   
.

**4Compare Marketing, sales & Feasibility study**.

4.1Explain marketing functions.

4.2Explain Sales function.

4.3List out marketing conditions.

4.4Differentiate Sellers and Buyers ‘market.

4.5Differentiate monopoly, oligopoly, and perfect competition.

4.6Steps in conducting market and demand surveys.

4.7Advantages and disadvantages of market and demand surveys 4.8Differentiate product and production analysis.

4.9Identify the input materials, i.e. Bill of materials 4.10Explain the concept of cost..

4.11Explain break-even analysis..

4.12Evaluate Economic and Technical factors.

4.13Preparation of feasibility study.

4.14List out different products currently in demand with market or industry.

**5 Know the use of ISO 9000 & T.Q.M**   
 5.1Understand the concept of quality.

5.2Know the quality systems and elements of quality systems.

5.3Know the principles of quality Assurance.

5.4Know the evolution of ISO standards.

5.5Discuss ISO standards and ISO 9000 series of quality systems.

5.6State the constituents of ISO 9000 series of standards for quality systems. 5.7Benefits and Drawbacks of ISO 9000 series of standards.

5.8List out the beneficiaries of ISO 9000.

5.9Understand 5-S principles and ZERO DEFECT 5.10Know TQM concept and elements.

**6Understand Industrial legislation & safety and role of entrepreneur and**  **entrepreneurial development**   
 6.1Describe employer and employee relations.

6.2Objectives, functions, advantages and disadvantages of Trade Unions. 6.3Explain Causes and settlements of industrial disputes..

6.4List out Welfare activities..

6.5List out the rights and responsibilities of employees and employers. 6.6List out the salient features of Indian Factories Act.

6.7 Explain the importance of safety at Work place.

6.8List out the important provisions related to safety.

6.9Explain hazard and accident.

6.10Explain the causes of accidents..

6.11Define the word entrepreneur..

6.12Difference between entrepreneurship and management.

6.13Explain, expectations, role and qualities of an entrepreneur..

6.14Determine the role of entrepreneurs in promoting Small Scale Industries. 6.15Describe the details of self-employment schemes.

6.16Explain the method of product selection.

6.17Explain the method of site selection.

6.18List the financial assistance programs.

6.19List out the organizations that help an entrepreneur 6.20Importance of Start-ups   
6.21Different Start-up schemes   
6.22Features and Eligibility for startup registration 6.23Benefits of Start-ups

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| --- | --- | --- | --- | --- |
| **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 | CO2 Understand the Functions of Production Management | R, U, A | 2,5,6 | 12 |
| CO3 | CO3 Analyse the functions of Materials Management. | U, A | 1,6,7 | 13 |
| CO4 | CO4 Compare Marketing, sales & Feasibility study. | U, A | 1,6,7, | 12 |
| CO5 | CO5 Know the use of ISO 9000 & T.Q.M | U, A | 1,6,7 | 13 |
| CO6 | 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 |

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| **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 TE on the network.

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| 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 |

|  |  |
| --- | --- |
| 8.(b) State the ERG theory of motivation. | OR |

|  |
| --- |
| **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 *Instructions:*** 1. Answer **ALL** questions.   2. Each question carries **ONE** mark. | 8 X 1 = 8 |

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 *Instructions:*** 1. Answer **ALL** questions.   2. Each question carries **THREE** marks. | 4 X 3 = 12 |

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**  1.1Describe the anatomy of web page.

1.2Illustrate the format of web page.

1.3Identify various Web page elements.

1.4Explain the process of navigation through web pages 1.5State the steps in building a web site   
1.6State the steps in launching a web site.

1.7State the steps in maintaining a web site.

1.8Describe the importance of HTML.

1.9Use the basic tags <html>, <head>, <title>, <body>.

1.10Use the following tags with attributes,   
 <h1> to <h6>, <q>, <strong>, <cite>, <big>, <small>, <ins>, <del> 1.11Use the following presentation tags with attributes,   
 <b>, <i>, <u>, <strike>, <sub>, <sup>, <center>, <font>, <marquee>. **2.Use various HTML tags and apply style sheets.**

2.1Use the hyperlink and imaging tags with attributes.

2.2Use the <object> tag with all important attributes.

2.3Use the listing tags along with attributes.

2.4Use colors to various HTML elements.

2.5Use the following table creation tags with attributes,   
 <table>, <col>, <colgroup>, <tr>, <td>, <th>, <tbody>, <thead>, <tfoot> 2.6Use 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

3.1.1Describe the organization of data in the form of XML.

3.1.2State the significance of Namespace

3.1.3Compare and Contrast DTD and Schema

3.1.4Understand the parsing process of XML by DOM and SAX.

3.1.5List the applications of XML

3.2Explain 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.**

4.1Describe the need for client side scripting.

4.2List various client side scripting languages.

4.3Use various operators.

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

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

4.6Write small programs using conditional and iterative statements.

4.7Understand the process of debugging JavaScript code.

4.8Implement 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.

4.9Implement 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.

4.10List various Objects provided by JavaScript.

**5.Introduction to PHP.**

5.1Understand the installation of PHP   
5.2PHP basics and features   
5.3Embedding PHP in HTML.

5.4List and explain various Data types with examples. 5.5Declare variables and constants.

5.6Use various Operators.

5.7Implement various conditional statements with examples 5.8Implement various loop statements with examples   
5.9Write programs using loops and conditional statements 5.10Explain about Strings and String Methods.

5.11 Implement arrays   
5.11.1Understand single and multi dimensional arrays. 5.11.2Declare an array.

5.11.3Manipulate an array.

5.11.4Array Methods.

5.11.5Write programs using arrays and Array Methods.

**6Advanced Server side scripting using PHP.**

6.1Implement functions   
 6.1.1Define user defined function.

6.1.2State the importance of user defined function. 6.1.3Describe the process of passing arguments.

6.1.4Explain the scope and lifetime of variables.

6.1.5Write programs using functions.

6.1.6Using Recursive Functions.

6.2Object orientation in PHP   
 6.2.1 Define PHP Classes.

6.2.2 Creating objects in PHP.

6.2.3 Calling member functions.

Inheritance 6.2.4   
6.2.5 Function overriding   
6.2.6 Creating a class constructor.

6.3Working 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.

Creating Session Cookie. 6.4.4   
6.4.5 Understand Session function in PHP

6.4.6 Use session variables.

6.5Implement 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/DE](https://www.w3schools.com/html/)[FAULT.asp](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** | **CO2** Develop Web pages using HTML and CSS | **R,U, A** | **1,2,3,4,7** |  |
| **CO3** | **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**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| S.No | Unit Name | R | | | U | A | Remarks |
| 1 | Unit-I | 4 | 1 | | 9(a) | 13(a) |  |
| 2 | Unit-II |  |
| 3 | Unit-III | 2 | | 10(a) | 14(a) |  |
| 4 | Unit-IV |  |
| 5 | Unit-V | 3 | 5,6 | 9(b)  11(a) 11(b) | 13(b) 15(a) 15(b) |  |
| 6 | Unit-VI | 7,8 | 10(b) 11(a) 11(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 |

**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](https://www.amazon.in/Python-Programming-Fundamentals-Beginners-Handbook/dp/1545713553/ref=sr_1_4?ie=UTF8&qid=1528476121&sr=8-4&keywords=python+programming)  [Hegde](https://www.amazon.in/Python-Programming-Fundamentals-Beginners-Handbook/dp/1545713553/ref=sr_1_4?ie=UTF8&qid=1528476121&sr=8-4&keywords=python+programming)

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

|  |  |
| --- | --- |
| **1**  1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8  1.9 | **Python Introduction and Raspberry PI**  Define IOT  List applications of IOT  List Advantages and Disadvantages of IOT  Identify Components of Raspberry PI-3  List General purpose input and Output pins (GPIO) on Raspberry PI Build a PC using Raspberry PI-3  Install operating System into Raspberry PI  Familiarize to python programming language  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,](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#boolean) [Numbers](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#numbers)

2.4 Use Decision Makin[g Stateme](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#boolean)[nts to solv](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#numbers)e different problems

2.5 Use Loop Statements with example to solve problems which are iterative

2.6 Perform operation on [Lists,](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#lists) [Tuples,](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#tuples) [Sets,](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#sets) and [Dictionaries](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#dictionaries)

2.7 Identify members of [Lists,](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#lists) [Tuples,](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#tuples) [Sets,](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#sets) and [Dictionaries](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#dictionaries) using Membership Operator

2.8 Process strings using [opera](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#lists)[tors and](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#tuples) [built](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#sets)-in f[unctions](http://www.techbeamers.com/python-data-types-learn-basic-advanced/#dictionaries)

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.**  5.1 5.2 5.3 5.4 5.5 5.6 5.7  **6.**  6.1 6.2 6.3 6.4 6.5  6.6  6.7  6.8  6.9  6.10 6.11 | **Design Graphical user Interface and Regular Expressions** Design a Graphical User Interface using TKinter library Design GUI using different Geometry Managers  Use various Widgets in TKinter library  List attributes of widgets  Handle Events generated by various Widgets  Create patterns to use regular expressions  Validate data using regular expressions  **Data Processing and Programming Raspberry Pi**  Open, close, read, write, append data to files using programs  List modes of opening a file  Delete files and folders  Connect to MySql database  Perform creation of table, insert a row in a table, update an entry in a table and execute stored procedures  Store images using blob data type  Use Bread board, resistor, transistors, diode, capacitors, inductors, transformers and adaptors Work with I2C and SPI interface of Raspberry PI  Turn On and Off LED using python program  Make a buzzing sound with Raspberry Pi and python program  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 | 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 |

|  |  |  |  |
| --- | --- | --- | --- |
| |  |  | | --- | --- | | **Time: 1 hour** | **State Board of Technical Education Python Programming**  **CS-503---V Semester**  **Mid SEM -1 Model Paper** | | **Marks: 20** |
| **PART-A *Instructions:***  **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.*** | *4\*1 =4 marks*  *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. Each question carries three marks.***

*2\*5=10 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

|  |  |  |
| --- | --- | --- |
| **Time: 1 hour** | **State Board of Technical Education** | **Marks: 20** |
| **Python Programming** |
| **CS-503---V Semester** |
| **Mid SEM -II Model Paper** |
|  |
| ***Instructions:*** | **PART-A** | *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. Each question carries three marks.***

*2\*5=10 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.

|  |  |  |  |
| --- | --- | --- | --- |
| **Time: 2 Hours** | **State Board of Technical Education, Telangana State**   **C21-Semester End Examination (SEE)**   **Model Paper- CS-503-Python Programming**   **Total Marks: 40** | | |
| ***Instructions:***  ***Answer all the following questions:*** | | **PART – A** | ***8 X1 M = 08 Marks*** |

***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.***  ***2. Each question carries three marks.***  9(a)Write different components of Raspberry PI. | ***MARKS: 4 X 3=12*** |

**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 thatdeniesaccess 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.**

1.1Define .NET Framework   
1.2List the features of .NET framework   
1.3Draw and grasp CLR architecture   
1.4Discuss about .NET framework and base class Library   
1.5List .NET languages   
1.6List 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 1.8List the applications of .NET

**2**  **Introduction to C#.NET**   
2.1Familiarize with C#.net   
2.2List features of C#.net

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

**3**  **Exception Handling and Multithreading**   
3.1Define Exception   
3.2List 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#**   
4.1Design 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   
4.8Define 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**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| S.No | Unit Name | R | | | U | A | Remarks |
| 1 | Unit-I | 4 | 1 | | 9(a) | 13(a) |  |
| 2 | Unit-II |  |
| 3 | Unit-III | 2 | | 10(a) | 14(a) |  |
| 4 | Unit-IV |  |
| 5 | Unit-V | 3 | 5,6 | 9(b)  11(a) 11(b) | 13(b) 15(a) 15(b) |  |
| 6 | Unit-VI | 7,8 | 10(b) 11(a) 11(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 |

|  |  |  |
| --- | --- | --- |
| **Time: 1 hour** | **State Board of Technical Education** | **Marks: 20** |
| **.Net Programming through C#** |
| **CS-574 V Semester** |
| **Mid SEM -1 Model Paper** |
|  |
| ***Instructions:*** | **PART-A** | *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. Each question carries three marks.***

5(a). Demonstrate the architecture of CLR.

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

*2\*3=6 marks*

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. Each question carries three marks.***

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

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

*2\*5=10 marks*

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

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

|  |  |  |  |
| --- | --- | --- | --- |
| |  |  | | --- | --- | | **Time: 1 hour** | **State Board of Technical Education .Net Programming through C#**  **CS-574 V Semester**  **Mid SEM -II Model Paper** | | **Marks: 20** |
| **PART-A**  ***Instructions:***  **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.*** | *4\*1 =4 marks*  *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.

|  |  |  |
| --- | --- | --- |
| **Time: 2 Hours** | **State Board of Technical Education, Telangana State**   **C21-Semester End Examination (SEE)**   **.Net Programming through C#**   **CS-574**   **Total Marks: 40** | |
| **PART – A *Instructions:***   ***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.***  ***2. Each question carries three marks.*** | | ***8\*1M = 08 Marks***  ***MARKS: 4\*3=12*** |
| 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***  ***2. Each question carries five marks*** | | ***MARKS: 4\*5=20*** |

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   
 4.1.1Activities   
 4.1.2Services   
 4.1.3Content Providers   
 4.1.4Broadcast 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   
 4.4.1Define Intent   
 4.4.2Types of Intents   
 4.4.3Develop and android application using Intent to dial a number or to send SMS   
 4.4.4Develop and android application on explicitly switching between activities   
4.5 Explain the lifecycle of Android Activities   
 4.5.1List the Activity Callback functions   
 4.5.2Develop 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**   
6.1Define Android service   
6.2Explain the life cycle of Android Services   
6.3Develop simple Android application using Android service   
6.4Introduction to SQLite database   
6.5Explain the process of creating and opening a database in SQLite database 6.6Explain the process of creating tables in SQLite database   
6.7Explain the process of inserting data into SQLite database   
6.8Explain the process of retrieving data from SQLite database   
6.9Explain 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/](https://www.tutorialspoint.com/android/index.htm)   
8.<https://www.sanfoundry.com/java-android-programing-examples>9.[https://sites.google.com/site/hkustcomp4521/home/lab-exercises](https://www.sanfoundry.com/java-android-programing-examples) 10.[https://www.vidyarthiplus.com/vp/attachment.php?aid=47906](https://sites.google.com/site/hkustcomp4521/home/lab-exercises) 11.[https://www.javatpoint.com/android-tutorial](https://www.vidyarthiplus.com/vp/attachment.php?aid=47906)   
12.[https://www.studytonight.com/android/](https://www.javatpoint.com/android-tutorial)   
13.[https://www.splessons.com/lesson/andr](https://www.studytonight.com/android/)[oid-tutorial/](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**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| S.No | Unit Name | R | | | U | A | Remarks |
| 1 | Unit-I | 4 | 1 | | 9(a) | 13(a) |  |
| 2 | Unit-II |  |
| 3 | Unit-III | 2 | | 10(a) | 14(a) |  |
| 4 | Unit-IV |  |
| 5 | Unit-V | 3 | 5,6 | 9(b)  11(a) 11(b) | 13(b) 15(a) 15(b) |  |
| 6 | Unit-VI | 7,8 | 10(b) 11(a) 11(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 |

**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  Artificial Intelligence | To | | 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  Observations | From | | 12 |
| 5 | |  |  | | --- | --- | | Natural  Processing | Language | | 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.

State major design issues in speech recognition systems. 6.2   
6.3 Explain AI role in computer applications.

6.4 Explain AI role in robotics   
6.5 Explain AI role in flying with drones.

Explain the future of AI-driven car. 6.6   
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.

Explain the AI role in military application. 6.10

**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/>  
**Sugges[ted Student Activities](https://nptel.ac.in/courses/106/102/106102220/)**   
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 | Tools, Engineering  Experimentation and  Testing | Engineering  Practices for Society,  and Sustainability  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 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.

**8x1 = 8 Marks**

|  |  |
| --- | --- |
| **PART-B**  Answer **FOUR** questions. Each question carries **three** 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. 13(a) Explain about forward chaining algorithm.  **(OR)** 13(b) Explain about morphological analysis. | **4 x 3 = 12 Marks**  **4 x 5 = 20 Marks** |

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**  **S**ecurity-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.

|  |  |  |  |
| --- | --- | --- | --- |
| **4.** | **2Classical 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. | |
| **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.**  **6** | **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 |
| **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**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| S.No | Unit Name | R | | | U | A | Remarks |
| 1 | Unit-I | 4 | 1 | | 9(a) | 13(a) |  |
| 2 | Unit-II |  |
| 3 | Unit-III | 2 | | 10(a) | 14(a) |  |
| 4 | Unit-IV |  |
| 5 | Unit-V | 3 | 5,6 | 9(b)  11(a) 11(b) | 13(b) 15(a) 15(b) |  |
| 6 | Unit-VI | 7,8 | 10(b) 11(a) 11(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 |

**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 onequestion 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.

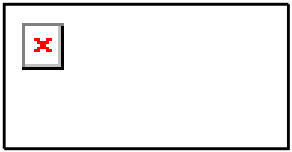
10(a) Explain the benefits of Internet Protocol Security.

(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/ Period  s | Marks for SEE | | | Marks weight  age | %Wei  ghtage |
| Codin g | Compi lation | Execut ion |  |  |
| 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.  2.  3.  4.  5.  6.  7. | Create a HTML page that uses the tags like head, title, body etc.  Create a HTML page that uses formatting tags, bookmark.  Create a HTML page that uses anchor tag and image tag.  Create a HTML page that uses marquee tag.  Create a HTML page that uses unordered list and ordered list.  Create a HTML page that uses style attribute ,target attribute.  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 | CO1 Build a Personal computer | **3** |
| CO2 | CO2 Develop program using controls structures and applies | **10** |
| CO3 | CO3 Build classes, modules and packages | **6** |
| CO4 | Develop multithread application and handles runtimes exceptions | **6** |
| CO5 | CO5 Design Graphical user interface and Validates data | **10** |
| CO6 | 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](https://www.amazon.in/Python-Programming-Fundamentals-Beginners-Handbook/dp/1545713553/ref=sr_1_4?ie=UTF8&qid=1528476121&sr=8-4&keywords=python+programming) 2018 by Nischay kumar [Hegde](https://www.amazon.in/Python-Programming-Fundamentals-Beginners-Handbook/dp/1545713553/ref=sr_1_4?ie=UTF8&qid=1528476121&sr=8-4&keywords=python+programming)

**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 | CO1 Build Programs applying OOPs concepts | **11** |
| CO2 | Developed multithreaded applications and handles exceptions | **11** |
| CO3 | 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/](https://www.tutorialspoint.com/android/index.htm)   
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](https://sites.google.com/site/hkustcomp4521/home/lab-exercises) 6.[https://www.javatpoint.com/android-tutorial](https://www.vidyarthiplus.com/vp/attachment.php?aid=47906)   
7.[https://www.studytonight.com/android/](https://www.javatpoint.com/android-tutorial)   
8.[https://www.splessons.com/lesson/andr](https://www.studytonight.com/android/)[oid-tutorial/](https://www.splessons.com/lesson/android-tutorial/)

**CO-PO Matrix**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Outcome** | | **CL** | **Linked PO** | **Teachin**  **g 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](https://www.tutorialspoint.com/android/android_linear_layout.htm)   
 (b)[Relative Layout](https://www.tutorialspoint.com/android/android_relative_layout.htm)   
 (c)[List View](https://www.tutorialspoint.com/android/android_relative_layout.htm)   
 (d)[Grid View](https://www.tutorialspoint.com/android/android_list_view.htm)   
 (e)[Table Layo](https://www.tutorialspoint.com/android/android_grid_view.htm)[ut](https://www.tutorialspoint.com/android/android_table_layout.htm)   
4.Cre[ate an Androi](https://www.tutorialspoint.com/android/android_table_layout.htm)d 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  Periods | Contact | | 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](https://www.tutorialspoint.com/windows_server_2012/windows_server_2012_tutorial.pdf) 3.[https://docentinrete.files.wordpress.com/2012/05/manuale-2008-98-365-windowsserver.p](https://ptgmedia.pearsoncmg.com/images/9780735684690/samplepages/0735684693.pdf)[df](https://docentinrete.files.wordpress.com/2012/05/manuale-2008-98-365-windowsserver.pdf) 4.[https://www.tutorialspoint.com/linux\_admin/linux\_admin\_tutorial.pdf](https://docentinrete.files.wordpress.com/2012/05/manuale-2008-98-365-windowsserver.pdf)   
5.[https://www-uxsup.csx.cam.ac.uk/courses/moved.linuxadmin/whole.p](https://www.tutorialspoint.com/linux_admin/linux_admin_tutorial.pdf)[df](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  Periods | Contact | | 45 |
| CIE | 60 Marks | SEE | 40 Marks |

**Prerequisites:** Students should have the knowledge of various programming languages and practices

in addition 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** | | | |
| Activity No | Activity | Periods | Frequency |
| 1 | Haritha Haram(plantation &Maintenance)/ Waste management /Swachh Bharat | 21 | 7 times in a semester  6 times in a semester |
| 2 | Mini projects | 18 |
| 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  2 times in a semester |
| 5 | Field Visits/Field Practice(also within the campus) | 14 |
| 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 Engineering profession. | 5,6,7 |
| **CO3** | Develop the set of justified moral principles of obligation, ideals that ought to be endorsed by the engineers and apply them 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 and prepare 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 2.5 credits. 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 |  |  | Environm  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  relevan t  informa tion; concern ed  to the topic | 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 little duties | | Performs nearly all duties | 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 does the assigned work; often needs  reminding | Usually does the assigned work; rarely needs  reminding | Does the  assigne d job without  having to be remind ed. | 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 most of the  talking; rarely allows  others to speak | Listens, but  sometimes talk too much | Listens and  contrib utes  to the relevant topic | |  |  | | --- | --- | |  | Listens and contributes precisely to the relevant topic and  exhibit  leadership  qualities | | 2  10/4=2  .5 |
|  |  |  |  |  | TOTAL |

***\*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.**