**B.Com Honors Computer Applications**

 **II YEAR, SEMESTER - IV**

**2024-25**

| **S.No** | **Name of the course in semester IV**  | **Course type** |
| --- | --- | --- |
| 1 | **DBMS WITH ORACLE AND PRACTICAL** | MAJOR |
| 2 | **PYTHON PROGRAMMING AND PRACTICAL** | MINOR |
| 3 | **OPERATING SYSTEMS AND PRACTICAL** | MINOR |
| 4 | **CYBER SECURITY** | SDC |

|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.comCA Hons.  |
| --- | --- | --- |
| Course Code**24-CAP-4C7** | **TITLE OF THE COURSE****DBMS WITH ORACLE** | **Semester-IV** |
| Teaching | Hours Allocated: 45 Hrs (**Theory**)**(3 Hrs./wk.)** | MAJOR |
| Pre-requisites | Basic knowledge about **DBMS WITH ORACLE SOFTWARE** |

**Course Objectives:**

1. To Understand the Database Fundamentals and Grasp the basic concepts of databases, including data models and database architectures.

2. To Learn the Database Design and Querying to Acquire skills in designing databases and querying data using SQL.

3. To Explore the Business Applications to Discover how databases are applied in business contexts like CRM and ERP systems.

4. To Emphasize Data Security and Privacy to understand the importance of data security and privacy in database management.

5. To Prepare for Career Roles and to Prepare for entry-level positions in database-related roles, such as database administrators and analysts.

**Course Outcomes:**

| **Si.No** | **On completing the course, the student will be able to:** | **Cognitive levels** |
| --- | --- | --- |
| **CO 1** | Understand and successfully apply logical database design principles, including E-R diagrams and database normalization |  **U** |
| **CO 2** | Design and build a simple database system and demonstrate competence with thefundamentals tasks involved with modeling, designing and implementing a DBMS |  **C** |
| **CO 3** | Model an applications data requirements using conceptual modeling tools likeER diagrams and design database schemas based on the conceptual model |  **An** |
| **CO 4** | Design and implement a small database project |  **C** |
| **CO 5** | Construct simple and moderately advanced database queries using SQL |  **E** |

**Course with focus on employability / entrepreneurship / Skill Development modules**

| **Skill Development** |  |  | **Employability** |  |  | **Entrepreneurship** |  |
| --- | --- | --- | --- | --- | --- | --- | --- |

**SYLLABUS**

Unit 1: Overview of Database Systems: Introduction: Database system, Characteristics (Database Vs File System), Database Users, Advantages of Database systems, Database applications. Data Models: Introduction; types of data models, Concepts of Schema, Instance and data independence; Three tier schema architecture for data independence; Database system structure, environment, Centralized and Client Server architecture for the database.

Case Study: 1. Describe the differences between Database systems and File based systems 2. Study about database models and their advantages and dis-advantages

 Unit 2: Relational Model: Introduction to relational model, Codd’s rules, concepts of domain, attribute, tuple, relation, constraints (Domain, Key constraints, integrity constraints) and their importance , concept of keys (super key, candidate key, primary key, surrogate key, foreign key) , relational Algebra & relational calculus. Normalization: Purpose of Normalization or schema refinement, concept of functional dependency, normal forms based on functional dependency(1NF, 2NF and 3 NF), Boyce-codd normal form(BCNF)

Case Study: Describe Relational model and normalization for database design

Unit 3: Entity Relationship Model: Introduction, Representation of entities, attributes, entity set, relationship, relationship set, constraints, sub classes, super class, inheritance, specialization, generalization using ER Diagrams, BASIC SQL: Database schema, data types, DDL operations (create, alter, drop, rename), DML operations (insert, delete, update), basic SQL querying (select and project) using where clause, arithmetic & logical operations, aggregation, grouping, ordering.

 Case Study: 1. Examine issues in data storage and query processing using SQL. 2. Create, maintain and manipulate a relational database using SQL

Unit 4: SQL: Nested queries/ sub queries, implementation of different types of joins, SQL functions(Date, Numeric, String, Conversion functions), Creating tables with relationship, implementation of key and integrity constraints, views, relational set operations , Transaction Control Language: commit, Rollback, Savepoint , DCL :Grant, Revoke

Case Study: Try to convert some sample data to information and show how it can you be used in decision making.

Unit 5: PL/SQL: Introduction, Structure , Control Structures , Cursors , Procedure , Function , Packages , Exception Handling ,Triggers. Transaction processing Concepts : Transaction State, Implementation of Atomicity and Durability, Concurrent Executions, Serializability, Recoverability, Implementation of Isolation, Testing for Serializability, Failure Classification, Storage, Recovery and Atomicity, Recovery algorithm.

Case Study: Outline the role and issues in Transaction management of data such as efficiency, privacy, security. Suggested

**TEXT BOOKS**

* Database Management Systems, 3rdEdition ,Raghurama Krishnan, Johannes Gehrke, TMH
* Database System Concepts,5thEdition ,Silberschatz, Korth, TMH

**CO-PO Mapping:**

**[‘1’: Slight (Low); ‘2’: Moderate (Medium); ‘3’: Substantial [High], ‘-’ : (No Correlation)]**

|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 | PSO3 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CO1 | 2 | 1 | 2 | 2 | 1 | - | 2 | 3 | 3 | 1 | 3 |
| CO2 | 3 | 1 | 2 | 2 | - | 1 | 2 | 3 | 3 | 2 | 3 |
| CO3 | 3 | 1 | 3 | 1 | - | 1 | 2 | 3 | 3 | 2 | 3 |
| CO4 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| Avg. | 2.75 | 1.25 | 2.25 | 1.75 | 0.5 | 0.75 | 1.75 | 2.75 | 2.75 | 1.75 | 2.5 |

**Programme Outcomes:**

| **S. No** | **On completing B.com CA Hons., the student will be able to:** |
| --- | --- |
| **PO 1** | **Knowledge:**Students gain knowledge in the fundamentals of Commerce and Finance by the completion of B.Com Programme |
| **PO 2** | **Critical thinking:** Students will focus on specializations and practical exposures which would equip the student to face the modern-day challenges in commerce and business |
| **PO 3** | **Problem-solving:** Students trained professionals for the Industries, Banking Sectors, Insurance Companies, Financing companies, Transport Agencies, Warehousing etc., to meet the well trained manpower requirements. |
| **PO 4** | **Effective Communication:** Students will be able to communicate effectively on scientific issues with the scientific community and society in writing effective reports and designing documentation, making effective presentations and receiving instructions. |
| **PO 5** | **Environment and sustainability:**Students will get communication and business management skills, especially in providing technical support. Manager, Selling Manager, Over all Administration abilities of the Company. |
| **PO 6** | **Ethics and social responsibility:**Imbibe and exercise ethics in their professional as well as personal practices. Develop ethical practice in planning experiments, and communicating complex concepts to the community.  |
| **PO 7** | **Life-long Learning:**Prepare to engage in independent and life-long learning in the broadest context of technological change  |
| **PO 8** | **Competencies for employment and Higher education:** Students present different type of works in academic and professional environments. |

**Program Specific Outcomes (PSO's):**

| **S. No** | **On completing B.com. CA Hons., the student will be able to:** |
| --- | --- |
| **PSO 1** | This programme provides Students to become a Computer based Accountant in any Business organization. |
| **PSO 2** | Acquires ability to predict, the programme will provide students with success in competitive exams for Pursuing professional courses CA, CS, ICWA and staff selection commissionusing laboratory and instrumentation techniques. |
| **PSO 3** | Comprehend the structure, This programme provides jobs as programmer , soft skill developer and Computer operator. |

**Proposed Activities:**

Skill Development:

* Case studies on queries.
* Creating database entities.
* Applying the principles of various online tools and AI tools.

**Co-curricular activities and Assessment Methods**

1. Continuous Internal Evaluation (CIA): Monitoring the progress of student’s learning
2. Class Tests, Worksheets, Quizzes, and Industrial visits.
3. Student seminars, PPT presentations, Projects and Assignments and Group Discussions: Enhances critical thinking skills and personality.
4. SemesterEnd Examination (SEE): Critical indicator of student’s learning and teaching methods adopted by teachers throughout the semester.

|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.com. CA Hons.  |
| --- | --- | --- |
| Course Code**24-CAP-4C7** | **TITLE OF THE COURSE****DBMS WITH ORACLE** | **Semester-IV** |
| **Time: 3 hrs** | **QUESTION PAPER-BLUE PRINT**  | **Max Marks: 75** |

**Blue Print for The Question Paper Setting**

| **S.** **No.** | **Type of Question** | **To be given in the Question Paper** | **To be answered** |
| --- | --- | --- | --- |
| **No. of Questions** | **Marks allotted to each question** | **Total Marks** | **No. of Questions** | **Marks allotted to each question** | **Total Marks** |
|  **1** | **Section - A****(Very Short Questions)** | **5** | **2** | **10** | **5** | **2** | **10** |
| **2** | **Section – B(Short Questions)** | **8** | **5** | **40** | **5** | **5** | **25** |
| **3** | **Section - C(Essay Questions)** | **6** | **10** | **60** | **4** | **10** | **40** |
|  | **Total Marks** | **110** | **Total Marks** | **75** |

| **Chapter No.** | **Very Short Questions2 Marks**  | **Short Questions5 Marks** | **Essay Question10 Marks** | **Marks allotted to the** **Chapter** |
| --- | --- | --- | --- | --- |
| **UNIT –1** | **1** | **2** | **1** | **22** |
| **UNIT –2** | **1** | **2** | **1** | **22** |
| **UNIT - 3** | **1** | **0** | **2** | **22** |
| **UNIT –4** | **1** | **2** | **1** | **22** |
| **UNIT - 5** | **1** | **2** | **1** | **22** |
| **Total No. of Questions** | **5** | **8** | **6** | **110** |

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| --- | --- | --- |
| Course Code**24-CAP-4C7** | **TITLE OF THE COURSE****DBMS WITH ORACLE** | **Semester-IV** |
| **Time: 3 hrs** | **MODEL QUESTION PAPER** | **Max Marks: 75** |

**SECTION – A**

**Answer the following questions (5X2=10M)**

1. Define Database?

2. What is Information?

3. DDL Commands?

4. What is Entity?

5. PL/SQL datatypes?

**SECTION-B**

**Answer any Five of the following Questions (5 x 5 = 25M)**

6. Differentiate the data and information?.

7. List any three objectives of DBMS?

8. What are the drawbacks of a file-based system?

 9. Sketch DBMS architecture?

10. What are the datatypes in SQL?

11. Write the structure of a PL/SQL program?

12. Explain the where clause in SQL Commands?

13. Define Database Trigger?

**SECTION-C**

Answer All The Questions. Each question carries 10 marks (4X10= 40M)

1. Explain about Components of DBMS?.
2. Describe data models in detail.
3. Explain about ER Model with suitable example.?
4. Explain Data Manipulation Language commands with examples?
5. Write a detailed note on Aggregate functions?
6. Describe the Structure of PL/ SQL?

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| --- | --- | --- |
| Course Code**24-CAP-4C7** | **TITLE OF THE COURSE****DBMS WITH ORACLE** | **Semester-IV** |
| **Time: 3 hrs** |  **QUESTION BANK** | **Max Marks: 75** |

**UNIT – 1**

**2MARKS**

1. Define Database?

2. What is information?

**5 MARKS**

1. Explain Data and Information.
2. List any three objectives of DBMS?
3. Define DBMS. List the advantages of DBMS.
4. Define data and database?

**9 MARKS**

1. Discuss in detail about evolution and objectives of Database Management Systems?
2. Discuss in detail about classification of Database Management Systems.
3. Explain briefly about Database Management Systems.

**UNIT - 2**

**2MARKS**

1. Define Database vendor?

2. What is data model?

**5 MARKS**

1. Why is database design important?
2. Explain the characteristics of File processing system?
3. List the drawbacks of file-based system
4. Write about DBMS Vendors.

**9 MARKS**

1. What are the three levels of Architecture?
2. What are the various Data Models for Database systems?
3. Discuss in detail about database architecture with a neat diagram.
4. What is DBMS? Explain the advantages of DBMS

**UNIT - 3**

**2MARKS**

1. Define attribute?

2. What is codd rules?

**5 MARKS**

1. Explain different types of attributes?
2. Define multivalued and derived attribute
3. Explain about aggregation with an example?
4. List the CODD’S rules
5. Explain different types of entities?
6. Write a note on relationship degrees.

**9 MARKS**

1. What is an entity relationship model? Explain with an example? (Or) Discuss about building blocks of an Entity-Relationship with examples.
2. What is normalization? Explain about DB tables and normalization?
3. Explain Codd’s relational database rules?
4. What is Normalization? Explain 1NF, 2NF and 3NF with examples.

**UNIT- 4**

**2MARKS**

1. Define Datatypes in SQL?

2. What is DDL commands?

**5 MARKS**

1. Discuss about referential integrity?
2. Explain difference between delete and truncate command in SQL.
3. Explain different types of attributes?
4. What are data types of SQL?
5. Explain select command with example.
6. Write the syntax and example for any two set operations.

**9 MARKS**

1. Explain set operations with examples.
2. Explain aggregate functions with examples.
3. Define Integrity Constraint. Explain different types of integrity constraints in detail.
4. List and explain various DML, DDL commands in sql?
5. Write a detailed note on constraints.

**UNIT - 5**

**2MARKS**

1. Define exception?

2. What is cursor?

**5 MARKS**

1. Define Exception
2. What is a function? Write the syntax for defining a function is PL/SQL?
3. Explain about the structure of PL/SQL?
4. Write the steps to create a PL/SQL program

**9 MARKS**

1. Explain the structure of the PL/SQL program.
2. What is Exception Handling? Explain Exception Handling.
3. Define procedure, function and package. Explain the difference between procedure and function in PL/SQL?
4. Discuss implicit cursor and its various attributes.
5. Explain different control structures in PL/SQL with examples.

|  | **PVKN Govt. College (Autonomous)****Chittoor** | **Program** II B.com. CA Hons.  |
| --- | --- | --- |
| Course Code**24-CAP-4C7P** | **TITLE OF THE LABORATORY COURSE****DBMS WITH ORACLE PRACTICAL** | **Semester-IV** |
| Teaching | Hours Allocated: 30 Hrs (**Practical**)**(2 Hrs./wk.)** | MAJOR |
| Pre-requisites | Basic knowledge about SQL queries |

**Course Objectives:**

1. To determine acidic and basic ions in a given mixture.
2. To enable the students to develop analytical skills in inorganic quantitative analysis.
3. To familiarize students with the usage of different lab equipment and reagents for radical analysis.

**Course Outcomes:**

| **COs** | **On Completion of the course, the students will be able to** | **Cognitive Domain** |
| --- | --- | --- |
| **CO1** | Understand the basic concepts of Computer Software and Hardware | **Understand** |
| **CO2** | Apply the concepts of real time objects that might applied in Ms-Office tools | **Apply** |
| **CO3** | Prepare laboratory for required qualitative analysis using excel | **Apply** |
| **CO4** | Identify and present the presentations | **Analyze** |

**Course with focus on employability / entrepreneurship / Skill Development modules**

| **Skill Development** | **Yes** |  | **Employability** | **Yes** |  | **Entrepreneurship** |  |
| --- | --- | --- | --- | --- | --- | --- | --- |

**Syllabus: 50 M**

**LIST OF EXPERIMENTS**

**SQL:**

**Cycle-I**:Aim:Marketingcompanywishestocomputerizetheiroperationsbyusing following tables.

TableName:Client-Master

Description:Usedtostoreclientinformation

| Column Name | DataType | Size | Attribut e |
| --- | --- | --- | --- |
| CLIENT\_NO | Varchar2 | 6 | Primarykey |
| NAME | Varchar2 | 20 | Notnull |
| ADDRESS1 | Varchar2 | 30 |  |
| ADDRESSS | Varchar2 | 30 |  |
| CITY | Varchar2 | 15 |  |
| PINCODE | Varchar2 | 8 |  |
| STATE | Varchar2 | 15 |  |
| BAL\_DUE | Number | 10,2 |  |

TableName: Product\_Master

Description:Usedtostoreproduct information

| ColumnName | DataType | Size | Attribute |
| --- | --- | --- | --- |
| PRODUCT\_NO | Varchar2 | 6 | Primarykey |
| DESCRIPTION | Varchar2 | 15 | Notnull |
| PROFIT\_PERCENT | Number | 4,2 | Notnull |
| UNIT\_MEASUE | Varchar2 | 10 |  |
| QTY\_ON\_HAND | Number | 8 |  |
| REORDER\_LVL | Number | 8 |  |
| SELL\_PRICE | Number | 8,2 | Notnull, cannotbe 0 |
| COST \_PRICE | Number | 8,2 | Notnull,cannotbe 0 |

TableName: Salesman\_master

Description:Usedtostoresalesman informationworkingforthecompany.

| ColumnName | Data Type | Size | Attribut e |
| --- | --- | --- | --- |
| SALESMAN\_NO | Varchar2 | 6 | Primary key |
| SALESMAN\_NAME | Varchar2 | 20 | Notnull |
| ADDRESS1 | Varchar2 | 30 |  |
| ADDRESS2 | Varchar2 | 30 |  |
| CITY | Varchar2 | 20 |  |
| PINCODE | Number | 8 |  |
| STATE | Vachar2 | 20 |  |
| SAL\_AMT | Number | 8,2 | Not null, cannotbe0 |
| TGT\_TO\_GET | Number | 6,2 | Not null, cannotbe0 |
| YTD\_SALES | Number | 6,2 | Notnull |
| REMARKS | Varchar2 | 20 |  |

Table Name: SALES- ORDERDescription:Usedto store client’s orders

| ColumnName | DataType | Size | Attribut e |
| --- | --- | --- | --- |
| ORDER\_NO | Varchar2 | 6 | Primarykey |
| CLIENT\_NO | Varchar2 | 6 | ForeignKey |
| ORDER\_DATE | Date |  |  |
| DELY\_ADDRESS | Varchar2 | 25 |  |
| SALESMAN\_NO | Varchar2 | 6 | ForeignKey |
| DELY\_TYPE | Char | 1 | Delivery:part(p)/full(f)anddefault‘F’ |
| BILL\_YN | Char | 1 |  |
| DELY\_DATE | Date |  | Can’tbelessthanorderdate |
| ORDER\_STATUS | Varchar2 | 10 | Values(“InProcess”,“Fulfilled”,“BackOrder”,“Cancelled. |

TableName: SALES\_ORDER\_DETAILS

Description:Usedtostore client’sorderwithdetailsofeachproduct ordered.

| ColumnName | DataType | Size | Attribut e |
| --- | --- | --- | --- |
| ORDER\_NO | Varchar2 | 6 | Primarykeyreferences SALES\_ORDERtable |
| PRODUCT\_NO | Varchar2 | 6 | ForeignKeyreferencesSALES\_ORDER\_table |
| QTY\_ORDERED | Number | 8 |  |
| QTY\_ DISP | Number | 8 |  |
| PRODUCT\_RATE | Number | 10,2 | Foreign Key |

Solvethe followingqueriesbyusingabove tables.

1. Retrievethe list of names, cityand thestateofall theclients.
2. Listall theclientswhoarelocatedin‘Mumbai’or‘Bangalore’.
3. Listthevariousproductsavailablefromtheproduct\_mastertable.
4. Findthenames ofsalesman who haveasalaryequal toRs.3000.
5. Listthenamesofallclientshaving‘a’asthesecond letterintheirnames.
6. ListallclientswhoseBaldueisgreaterthanvalue1000.
7. Listthe clients whostayin acitywhosefirstletteris‘M’.
8. Listallinformationfromsales-ordertableforordersplacedinthemonthofJuly.
9. Listthe products whosesellingpriceisgreater than 1000and less thanorequal to3000.
10. Findtheproductswhosesellingpriceisgreaterthan1000andalsofindthe new selling price as original selling price 0.50.

# Cycle-IISupplier

Aim: A manufacturing company deals with various parts and various suppliers supplytheseparts.Itconsistsofthreetablestorecorditsentireinformation.Those are as follows.

Supplier(Supplier\_No,Sname,City,status)Part(Part\_no,pname,color,weight,city, cost) Shipment (supplier\_No, Part\_no, city) JX(project\_no, project\_name, city) SPJX(Supplier\_no, part\_no, project\_no,city)

1. GetsuppliernumbersandstatusforsuppliersinChennaiwith status>20.
2. Getproject namesforprojectssuppliedbysupplier ’S’.
3. Getcolors of parts supplied bysupplierS’.
4. Getpart numbers forparts suppliedto anyprojectinMumbai.
5. Findtheid’sofsupplierswhosupplyaredorpinkparts.

***Cycle–IIIEmployeeDatabase***

Aim: An enterprise wishes to maintain a database to automate its operations. Enterprise divided into a certain departments and each department consists of employees. The following two tables describes the automation schemas.

Emp(Empno,Ename,Job,Mgr,Hiredate,Sal,Comm,Deptno) Dept(Deptno, Dname, Loc)

1. Listthedetailsof employeeswhohavejoinedbeforetheendofSeptember ’81.
2. Listthenameoftheemployeeanddesignationoftheemployee,whodoesnotreportto anybody.
3. Listthename,salaryandPFamountofalltheemployees(PFiscalculatedas10%of salary)
4. Listthenames ofemployeeswho aremorethan 2yearsold intheorganization.
5. Determinethenumber ofemployees,who aretakingcommission.
6. Updatetheemployeesalaryby20%,whoseexperienceisgreaterthan 12years.
7. Determinethe department doesnot contain anyemployees.
8. Createaview,whichcontainsemployeenameandtheirmanagernames working in sales department.
9. Determinetheemployees,whosetotalsalaryisliketheminimum salary of any department.
10. Listthedepartmentnumbersandnumberofemployeesineachdepartment.

**PL/SQLPROGRAMS**

1. WriteaPL/SQLprogramtocheckthegivenstringis palindromeo rnot.
2. The HRD manager has decide to raise the employee salaryby15% write a PL/SQLblocktoaccepttheemployeenumberandupdatethesalaryofthat employee. Display appropriate message based on the existence of the record in Emp table.
3. WriteaPL/SQLprogramtodisplaytop10rowsin Emptablebasedon their job and salary.
4. WriteaPL/SQLprogram toraisetheemployeesalaryby10%fordepartment number 30 people and also maintain the raised details in the raise table.
5. CreateaproceduretoupdatethesalariesofEmployeesby20%,for those who are not getting commission
6. WriteaPL/SQLproceduretoprepareanelectricitybillbyusing following table. Table used: Elect

| Name | Null? | Type |
| --- | --- | --- |
| MNNO | NOTNULL | NUMBER(3) |
| CNAME |  | VARCHAR2(20) |
| CUR\_READ |  | NUMBER(5) |
| PREV\_READ |  | NUMBER(5) |
| NO\_UNITS |  | NUMBER(5) |
| AMOUNT |  | NUMBER(8,2) |
| SER\_TAX |  | NUMBER(8,2) |
| NET\_AMT |  | NUMBER(9,2) |

1. Createatriggertoavoidanytransactions(insert,update,delete)onEMPtableon Saturday & Sunday.

**B.Com Honors Computer Applications (MINOR)**

 **II YEAR, SEMESTER - III**

**2024-25**

|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.comCA Hons.  |
| --- | --- | --- |
| Course Code**24-CAP-4C3M** | **TITLE OF THE COURSE****Course : PYTHON PROGRAMMING** | **Semester-IV** |
| Teaching | Hours Allocated: 45 Hrs (**Theory**)**(3 Hrs./wk.) 3CREDITS** | **MINOR** |
| Pre-requisites | Basic knowledge about **programming in python**  |

**Course Objectives:**

* To Learn Python syntax, data types, and control structures.
* To Gain proficiency in writing and executing Python scripts
* To develop algorithmic thinking and problem-solving techniques using Python.
* To engage in group coding exercises and projects, and participate in peer code reviews.

**Course Outcomes:**

| **Si.No** | **On completing the course, the student will be able to:** | **Cognitive levels** |
| --- | --- | --- |
| **CO 1** | Understand and successfully Exhibit a thorough understanding of Python syntax, data types, and control structures, enabling the effective creation and execution of Python scripts |  **U** |
| **CO 2** | Demonstrate the ability to design Python programs using principles such as modularity, encapsulation, and abstraction |  **C** |
| **CO 3** | Implement object-oriented programming (OOP) concepts effectively to design scalable and maintainable Python code. |  **An** |
| **CO 4** | Critically analyze Python code to identify its functionality, efficiency, and potential areas for improvement. |  **C** |
| **CO 5** | Evaluate algorithms and data structures implemented in Python for their effectiveness in solving specific problems. |  **E** |

**Course with focus on employability / entrepreneurship / Skill Development modules**

| **Skill Development** |  |  | **Employability** |  |  | **Entrepreneurship** |  |
| --- | --- | --- | --- | --- | --- | --- | --- |

**Syllabus:**

Unit-I Getting Started with Python: Introduction to Python , Python Keywords , Identifiers , Variables , Comments, Data Types , Operators, Input and Output , Type Conversion , Debugging . Flow of Control, Selection , Indentation , Repetition , Break and Continue Statement , Nested Loops . Strings- String Operations , Traversing a String , String handling Functions.

Case Study: 1. Study the features that make Python different from Procedural Languages.

Unit-II Functions: Functions, Built-in Functions, User Defined Functions, recursive functions, Scope of a Variable Python and OOP: Defining Classes, Defining and calling functions passing arguments, Inheritance, polymorphism, Modules – date time, math, Packages. Exception Handling- Exception in python, Types of Exception, User-defined Exceptions.

Case Study: 1. Present a report of how Exception handling is different from JAVA Exceptional Handling.

Unit-III List: Introduction to List, List Operations, Traversing a List, List Methods and Built-in Functions. Tuples and Dictionaries, Introduction to Tuples, Tuple Operations, Tuple Methods and Built-in Functions, Nested Tuples. Introduction to Dictionaries, Dictionaries are Mutable, Dictionary Operations, Traversing a Dictionary, Dictionary Methods and Built-in functions.

Case Study: 1. What are the special features of dictionaries and try to analyze about the same features in any other language.

Unit-IV Introduction to NumPy, Array , NumPy Array , Indexing and Slicing , Operations on Arrays , Concatenating Arrays , Reshaping Arrays , Splitting Arrays , Statistical Operations on Arrays. Data Handling using Pandas , Introduction to Python Libraries, Series, DataFrame, Importing and Exporting Data between CSV Files and DataFrames, Pandas Series Vs NumPy ndarray.

Case Study: 1. Present a paper on advanced features of NumPy and Pandas.

Unit-V Plotting Data using Matplotlib: Introduction, Plotting using Matplotlib –Line chart, Bar chart, Histogram, Scatter Chart, Pie Chart. GUI Programming and Database Connectivity Using Python. Graphical User Interfaces. Using the Tkinter Module, Creating Label, Text, Buttons, info Dialog Boxes, Radiobutton, Checkbutton, Getting Input, Importing MySQL for Python , Connecting with a database, Forming a query in MySQL, Passing a query to MySQL.

Case Study: 1. Present a paper on the features and advantages of MySQL compared to other commercial Databases.

**Reference books**

1. Mark Lutz, Learning Python,5th Ed. O‟REILLY

2. Core Python Programming by Dr. R. Nageswara Rao

3. Problem Solving and Python Programming by E. Balaguru Swamy

4. Python programming: using problem solving approach by Reema Thareja.

 5. Albert Lukaszewski ,MySQL for Python,Packet Publishing

**Web Links:**

* 1. https://onlinecourses.swayam2.ac.in/cec21\_mg09/preview

**CO-PO Mapping:**

**[‘1’: Slight (Low); ‘2’: Moderate (Medium); ‘3’: Substantial [High], ‘-’ : (No Correlation)]**

|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 | PSO3 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CO1 | 2 | 1 | 2 | 2 | 1 | - | 2 | 3 | 3 | 1 | 3 |
| CO2 | 3 | 1 | 2 | 2 | - | 1 | 2 | 3 | 3 | 2 | 3 |
| CO3 | 3 | 1 | 3 | 1 | - | 1 | 2 | 3 | 3 | 2 | 3 |
| CO4 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| Avg. | 2.75 | 1.25 | 2.25 | 1.75 | 0.5 | 0.75 | 1.75 | 2.75 | 2.75 | 1.75 | 2.5 |

**Proposed Activities:**

Skill Development:

* Case studies on various aspects in developing
* Creating python using oops.
* Applying the principles of various online tools and AI tools.

**Co-curricular activities and Assessment Methods**

* Continuous Internal Evaluation (CIA): Monitoring the progress of student’s learning
* Class Tests, Worksheets, Quizzes, and Industrial visits.
* Student seminars, PPT presentations, Projects and Assignments and Group Discussions: Enhances critical thinking skills and personality.

Semester End Examination (SEE): Critical indicator of student’s learning and teaching methods adopted by teachers throughout the semester.

|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.com. CA Hons.  |
| --- | --- | --- |
| Course Code**24-CAP-4C3M** | **TITLE OF THE COURSE****PYTHON PROGRAMMING**  | **Semester-IV** |
| **Time: 3 hrs** | **QUESTION PAPER-BLUE PRINT**  | **Max Marks: 75** |

**Blue Print for The Question Paper Setting**

| **S.** **No.** | **Type of Question** | **To be given in the Question Paper** | **To be answered** |
| --- | --- | --- | --- |
| **No. of Questions** | **Marks allotted to each question** | **Total Marks** | **No. of Questions** | **Marks allotted to each question** | **Total Marks** |
|  **1** | **Section - A****(Very Short Questions)** | **5** | **2** | **10** | **5** | **2** | **10** |
| **2** | **Section – B(Short Questions)** | **8** | **5** | **40** | **5** | **5** | **25** |
| **3** | **Section - C(Essay Questions)** | **6** | **10** | **60** | **4** | **10** | **40** |
|  | **Total Marks** | **110** | **Total Marks** | **75** |

| **Chapter No.** | **Very Short Questions2 Marks**  | **Short Questions5 Marks** | **Essay Question10 Marks** | **Marks allotted to the** **Chapter** |
| --- | --- | --- | --- | --- |
| **UNIT –1** | **1** | **2** | **1** | **22** |
| **UNIT –2** | **1** | **2** | **1** | **22** |
| **UNIT - 3** | **1** | **0** | **2** | **22** |
| **UNIT –4** | **1** | **2** | **1** | **22** |
| **UNIT - 5** | **1** | **2** | **1** | **22** |
| **Total No. of Questions** | **5** | **8** | **6** | **110** |

|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.com. CA Hons.  |
| --- | --- | --- |
| Course Code**24-CAP-4C3M** | **TITLE OF THE COURSE****PYTHON PROGRAMMING** | **Semester-IV** |
| **Time: 3 hrs** | **QUESTION PAPER-BLUE PRINT**  | **Max Marks: 75** |

**SECTION-A**

**I. Answer any Five of the following. Each Question carries 2 Marks 5×2= 10 M**

1. What is python?

2. What is oop in python?

3. Discuss on list?

4. Define array?

5. Define MySQL?

**SECTION-B**

**II. Answer any Five of following. Each Question carries 5 Marks 5X5=25 M**

**6.** Write about python keywords?

7. What are strings in python?

8. Write the scope of variables?

9. Explain polymorphism?

10. What is exception?

11. Write about tuples?

12. What are concatenated arrays?

13. Explain the charts?

**SECTION-C**

**III. Answer any Four of following. Each Question carries 10 Marks 4X10=40 M**

14. Write about loops in python?

15. Explain the oops concepts in python?

16. Explain the exception in python?

17. Pandas Series Vs NumPy ndarray?

18. Explain the Plotting using Matplotlib?

19. Write about MySQL?

**Signature of the Signature of the BOS**

 **Members Chairman**

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|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.com. CA Hons.  |
| --- | --- | --- |
| Course Code**24-CAP-4C3M** | **TITLE OF THE COURSE****PYTHON PROGRAMMING** | **Semester-IV** |
| **Time: 3 hrs** | **QUESTION BAK**  | **Max Marks: 75** |

**QUESTION BANK**

**UNIT 1**

2MARKS

1. Python?

2. Data types?

3. String in python?

4. What is comment?

5MARKS

1. Write string operations?

2. What is type conversion?

3. Data types?

9MARKS

1. What are I/O in python?

2. Write about loops?

3. Strings in python?

UNIT II

2MARKS

1. Functions?

2. Inheritance?

3. Polymorphism?

5MARKS

1. Write about modules?

2. What are packages?

3. Write about functions?

9MARKS

1. Explain inheritance?

2. Write the oops concepts?

3. Write about functions?

UNIT III

2MARKS

1. What is list?

2. Define dictionary?/

3. Tuple?

5MARKS

1. Write about list methods?

2. Write about dictionary?

3. Built in functions?

9MARKS

1. Explain the functions in python?

2. Write in detail about dictionary?

3. Write about lists?

UNIT IV

2MARKS

1. Array?

2. Reshaping arrays?

3. What are CSV files?

4MARKS

1. What is data handling?

2. Write about data frame?

3. Write about pandas?

9MARKS

1. Explain about Statistical Operations on Arrays

2. Explain data handling in details?

3. Pandas Series Vs NumPy ndarray.

UNIT V

2MARKS

1. Matplotlib

2. Scatter Chart

3. MySQL

5MARKS

1. Write about charts?

2. Write about queries in MySQL?

3. What is label?

9MARKS

1. Write about MySQL database in detail?

2. Passing a query to MySQL.

3. GUI Programming and Database Connectivity Using Python.

|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.comCA Hons.  |
| --- | --- | --- |
| Course Code**24-CAP-4C3M P** | **TITLE OF THE COURSE****PYTHON PROGRAMMING PRACTICAL** | **Semester-IV** |
| Teaching | Hours Allocated: 45 Hrs (**PRACTICAL**)**(2 Hrs./wk.) I CREDIT** | **MINOR** |
| Pre-requisites | Basic knowledge about **PYTHON PROGRAMMING** |

**LIST OF EXPERIMENTS**

1. Write a Program to check whether given number is Armstrong or not.

2. Write a Program to check whether given number is perfect or not.

3. Write a program to find factorial of given number using recursive function

4. Write a program to implement inheritance and polymorphism

5. Demonstrate a python code to print try, except and finally block statements

6. Write a program to demonstrate String handling functions

7. Write a program to input n numbers from the user. Store these numbers in a tuple. Print the maximum and minimum number from this tuple.

8. Write a program to enter names of employees and their salaries as input and store them in a dictionary

9. Write a program to implement statistical operations on arrays using numPy

10. Write a program to import and export CSV file to DataFrame.

11. Create the DataFrame Sales containing year wise sales and perform basic operation on it.

12. Visualize the plots using matplot lib.

13. Create GUI interface with different types button and labels

14. Create GUI interface and connect with MySQL database and perform CRUD(Create, Read, Update and Delete) operations.

|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.comCA Hons.  |
| --- | --- | --- |
| Course Code**24-CAP-5C4M** | **TITLE OF THE COURSE****Course : OPERATING SYSTEMS** | **Semester-IV** |
| Teaching | Hours Allocated: 45 Hrs (**Theory**)**(3 Hrs./wk.) 3CREDITS** | **MINOR** |
| Pre-requisites | Basic knowledge about **OS**  |

**Course Objectives:**

1. To know the basic Structure, Components and Organization of Operating System.

2. To learn the notation of a Process- a Program in Execution, Management, Scheduling and Classic Problems of Synchronization.

3. To gain knowledge in various Memory Management Techniques.

4. To understand Unix Operating System and Various File operations.

5. To Prepare for Career Roles and to Prepare for entry-level positions in database-related roles, such as database administrators and analysts.

**Course Outcomes:**

| **Si.No** | **On completing the course, the student will be able to:** | **Cognitive levels** |
| --- | --- | --- |
| **CO 1** | Understand the main components and Structure of Operating System & their functions. |  **U** |
| **CO 2** | Analyze various ways of Process Management & CPU Scheduling Algorithms. |  **C** |
| **CO 3** | Evaluate various device and resources like Memory, Time and CPU Management techniques in distributed systems |  **An** |
| **CO 4** | Apply different methods for Preventing Deadlocks in a Computer System. |  **C** |
| **CO 5** | Create and build an Application/Service over the UNIX operating system. |  **E** |

**Course with focus on employability / entrepreneurship / Skill Development modules**

| **Skill Development** |  |  | **Employability** |  |  | **Entrepreneurship** |  |
| --- | --- | --- | --- | --- | --- | --- | --- |

**Syllabus:**

Unit I Introduction: What is Operating System? ,History and Evolution of OS, Basic OS Functions, Computer System Architecture, Operating System Structure. System Structures: Operating System Services, User Operating System Interface, System Calls, Types of System Calls, Overview of UNIX Operating System, Basic Features of Unix Operating System.

Case Study : 1. Understanding and listing the basic differences between UNIX OS and Windows OS in usage, user interface, features etc.

Unit II Process Management: Process Concept, Operation on Processes, Communication in ClientServer Systems. Process Scheduling: Basic Concepts, Scheduling Criteria, Scheduling Algorithms, CPU Scheduling in UNIX.

Case Study: 1. Present your understanding on how CPU Scheduling is different in WINDOWS compared to UNIX/LINUX.

Unit III Synchronization: Process Synchronization, Semaphores: Usage, Implementation, The Critical Section Problem., Classic problems of synchronization. Deadlocks: Introduction, Deadlock Characterization, Necessary and Sufficient conditions for Deadlock, Deadlock Handling Approaches : Deadlock prevention, Deadlock Avoidance and Deadlock detection and Recovery .

Case Study: 1. Present your understanding of Deadlocks and new methodologies available in new Operating Systems released in the market.

Unit IV Memory Management: Overview, Swapping, Contiguous Memory Allocation, Paging, Paging Examples, Segmentation, Page Replacement Algorithms, Memory management in UNIX.

Case Study: 1. Present a paper on new methods used in Memory management in the present day Operating Systems .

Unit V Files and Directories in UNIX: Files, Directory Structure, File Operations, File System Implementation: File Allocation Methods, Comparison of UNIX and Windows.

Case Study: 1. Present a Paper on how UNIX treats regular files and directories differently from other operating systems.

**Reference books**

1. Operating System Principles, Abraham Silberchatz, PeterB.Galvin, GregGagne 8thEdition, WileyStudentEdition.

2. Principles of Operating Systems by Naresh Chauhan, OXFORD University Press.

3. Tanenbaum A S, Woodhull A S, Operating System Design and Implementation,3rd edition, PHI 2006.

4. Unix Shell Programming-YashwantKanetkar

**Web Links:**

* 1. https://onlinecourses.swayam2.ac.in/cec21\_mg09/preview

**CO-PO Mapping:**

**[‘1’: Slight (Low); ‘2’: Moderate (Medium); ‘3’: Substantial [High], ‘-’ : (No Correlation)]**

|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PSO1 | PSO2 | PSO3 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CO1 | 2 | 1 | 2 | 2 | 1 | - | 2 | 3 | 3 | 1 | 3 |
| CO2 | 3 | 1 | 2 | 2 | - | 1 | 2 | 3 | 3 | 2 | 3 |
| CO3 | 3 | 1 | 3 | 1 | - | 1 | 2 | 3 | 3 | 2 | 3 |
| CO4 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| Avg. | 2.75 | 1.25 | 2.25 | 1.75 | 0.5 | 0.75 | 1.75 | 2.75 | 2.75 | 1.75 | 2.5 |

**Proposed Activities:**

Skill Development:

* Case studies on OS.
* Knowledge on process scheduling, deadlocks.
* Applying the principles of various online tools and AI tools.

**Co-curricular activities and Assessment Methods**

* Continuous Internal Evaluation (CIA): Monitoring the progress of student’s learning
* Class Tests, Worksheets, Quizzes, and Industrial visits.
* Student seminars, PPT presentations, Projects and Assignments and Group Discussions: Enhances critical thinking skills and personality.

Semester End Examination (SEE): Critical indicator of student’s learning and teaching methods adopted by teachers throughout the semester.

|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.com. CA Hons.  |
| --- | --- | --- |
| Course Code**24-CAP-5C4M** | **TITLE OF THE COURSE****OPERATING SYSTEMS**  | **Semester-IV** |
| **Time: 3 hrs** | **QUESTION PAPER-BLUE PRINT**  | **Max Marks: 75** |

**Blue Print for The Question Paper Setting**

| **S.** **No.** | **Type of Question** | **To be given in the Question Paper** | **To be answered** |
| --- | --- | --- | --- |
| **No. of Questions** | **Marks allotted to each question** | **Total Marks** | **No. of Questions** | **Marks allotted to each question** | **Total Marks** |
|  **1** | **Section - A****(Very Short Questions)** | **5** | **2** | **10** | **5** | **2** | **10** |
| **2** | **Section – B(Short Questions)** | **8** | **5** | **40** | **5** | **5** | **25** |
| **3** | **Section - C(Essay Questions)** | **6** | **10** | **60** | **4** | **10** | **40** |
|  | **Total Marks** | **110** | **Total Marks** | **75** |

| **Chapter No.** | **Very Short Questions2 Marks**  | **Short Questions5 Marks** | **Essay Question10 Marks** | **Marks allotted to the** **Chapter** |
| --- | --- | --- | --- | --- |
| **UNIT –1** | **1** | **2** | **1** | **22** |
| **UNIT –2** | **1** | **2** | **1** | **22** |
| **UNIT - 3** | **1** | **0** | **2** | **22** |
| **UNIT –4** | **1** | **2** | **1** | **22** |
| **UNIT - 5** | **1** | **2** | **1** | **22** |
| **Total No. of Questions** | **5** | **8** | **6** | **110** |

|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.com. CA Hons.  |
| --- | --- | --- |
| Course Code**24-CAP-5C4M** | **TITLE OF THE COURSE****OPERATING SYSTEMS** | **Semester-IV** |
| **Time: 3 hrs** | **QUESTION PAPER-BLUE PRINT**  | **Max Marks: 75** |

**SECTION-A**

**I. Answer any Five of the following. Each Question carries 2 Marks 5×2= 10 M**

1. Operating system?

2. What is process?

3. Define deadlock?

4. Files?

5. What is memory?

**SECTION-B**

**II. Answer any Five of following. Each Question carries 5 Marks 5X5=25 M**

6. Computer system architecture?

7. Features of UNIX OS?

8. What are basic operations on process?

9. Classic problems of synchronization

10. Memory management?

11. Write about Swapping?

12. Unix vs Windows?

13.Write about file allocation methods?

**SECTION-C**

**III. Answer any Four of following. Each Question carries 10 Marks 4X10=40 M**

14. Discuss about OS functions?

15. Write about UNIX OS overview?

16. Operation on Processes?

17. Explain about Deadlock?

18. Explain the paging?

19. What are file operations?

**Signature of the Signature of the BOS**

 **Members Chairman**

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|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.com. CA Hons.  |
| --- | --- | --- |
| Course Code**24-CAP-5C4M** | **TITLE OF THE COURSE****OPERATING SYSTEMS** | **Semester-IV** |
| **Time: 3 hrs** | **QUESTION BAK**  | **Max Marks: 75** |

**QUESTION BANK**

**UNIT 1**

**2MARKS**

1. OS

2. UNIX?

3. System architecture?

5MARKS

1. What are the features of OS?

2. User Operating System Interface?

3. Types of System Calls?

9MARKS

1. What are the functions of OS?

2. Basic Features of Unix Operating System?

3. Computer System Architecture?

**UNIT II**

**2MARKS**

1. Server?

2. Client?

3. Process?

4. Scheduling?

5MARKS

1. Write about client server?

2. What is scheduling criteria?

3. Write about CPU scheduling?

9MARKS

1. Operations on Process?

2. Scheduling in detail?

3. CPU Scheduling in UNIX.

UNIT III

2MARKS

1. Synchronization?

2. Deadlocks?

3. Backup and recovery?

5MARKS

1. Write the dead lock avoidance?

2. Write about process synchronization?

9MARKS

1. Write in detail about Deadlocks?

2. Write about semaphores?

UNIT IV

2MARKS

1. Memory?

2. Page replacement?

3. Segmentation?

5MARKS

1. Memory management?

2. Advantages of Paging?

3. Disadvantages of segmentation?

9MARKS

1. Write in detail about paging?

2. What is segmentation with example?

UNIT V

2MARKS

1. Files

2. Directory?

3. Windows?

5MARKS

1. File directory structure?

2. File allocation methods?

9MARKS

1. UNIX vs WINDOWS?

2. Explain File operations?

|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.comCA Hons.  |
| --- | --- | --- |
| Course Code**24-CAP-5C4MP** | **TITLE OF THE COURSE****OPERATING SYSTEMS PRACTICAL** | **Semester-IV** |
| Teaching | Hours Allocated: 45 Hrs (**PRACTICAL**)**(2 Hrs./wk.) I CREDIT** | **MINOR** |
| Pre-requisites | Basic knowledge about **OS PROGRAMMES** |

**LIST OF EXPERIMENTS**

1. Introducing the LINUX Native editor vi: Working on basics of creating and editing a text file using standard commands of vi.

2. Introduction to UNIX Operating System, Compare with Windows OS. Writing and executing simple Hello World C Program in UNIX Environment.

3. Getting hands-on on basic UNIX Commands.

4. Write a program using the following system calls of UNIX OS fork, exec, getpid, exit, wait, close, opendir, readdir ?

5. Write a Simple shell script for basic arithmetic and logical calculations?

6. Write Shell script to check the given number is even or odd?

7. Write a shell script to swap the two integers?

8. Write Shell script to perform various operations on given strings.

9. Write Shell scripts to explore system variables such as PATH, HOME etc.

10. Write a shell script to display list of users currently logged in.

11. Write a shell script to delete all the temporary files.

12. Write a shell script to find the Factorial of a Number ?

13. Write C programs to implement the following Scheduling Algorithms: a) First Come First Serve. b) Shortest Job First. c) Round Robin.

 Reference Text Books:

1. Brian W. Kernighanand Rob Pike,“The UNIX Programming Environment” Prentice Hall India (Edition available in LRCandin the form of E Book on student resource).

2. Yashwant Kanetkar,“UNIXShellProgramming”BPBPublications(FirstEdition).

**DEPARTMENT OF COMPUTER APPLICATIONS**

**SKILL DEVELOPMENT COURSE FOR SEMESTER-IV**

**CYBER SECURITY**

|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.com  Hons.  |
| --- | --- | --- |
| Course Code24-CYS-4S1 | **TITLE OF THE COURSE****SDC: CYBER SECURITY** | **Semester-IV** |
| Teaching |  (**Theory**) | **(2 Hrs./wk.)** |
| Pre-requisites | Basic knowledge about CYBER SECURITY  | Credits: 2 |

**Course Objectives:**

Upon successful completion of the course, the students will be able

* To develop an understanding of cybercrimes and various legal perspectives involved.
* To develop a security model to handle mobile, wireless devices and related security issues of an organization.
* Use the cybercrime tools and methods in solving real world problems

**Course Outcomes:**

| **COs** | **On Completion of the course, the students will be able to** | **Cognitive Domain** |
| --- | --- | --- |
| **CO1** | Performoperations onthecomputerdata | **Knowledge** |
| **CO2** | RegisterforanE-mail accountandoperatingit | **Understand** |
| **CO3** | Apply learning and use the cyber security measures. | **Apply** |
| **CO4** | Makebillpayments anduseotherapplications ofInternet | **Analyze** |

**Course with focus on employability / entrepreneurship / Skill Development modules**

| **Skill Development** |  |  | **Employability** |  |  | **Entrepreneurship** |  |
| --- | --- | --- | --- | --- | --- | --- | --- |

**Syllabus:**

UNIT - I: 8hrs Introduction to Cybercrime: Introduction, Cybercrime: Definition and origins of the word, Cybercrime and Information Security, who are cyber criminals? classifications of cybercrimes, cybercrime: the legal perspectives, an Indian perspective, cybercrime and the Indian IT Act 2000, a Global perspective on Cybercrimes.

UNIT-II: 12hrs Cybercrime-Mobile and Wireless Devices: Introduction, Proliferation of Mobile and Wireless Devices, Trends in Mobility, Credit Card Frauds in Mobile and Wireless Computing Era, Authentication Service Security, Attacks on Mobile/Cell Phones. Mobile Devices: Security Implications for Organizations, Organizational Measures for Handling Mobile Devices-Related Security Issues, Organizational Security Policies and Measures in Mobile Computing Era, Laptops.

UNIT-III: 10hrs Tools and Methods Used in Cybercrime: Password Cracking, key loggers and Spywares, virus and worms, Trojan Horses and Backdoors, Steganography, attacks on wireless networks, Phishing and Identity Theft: Introduction, Phishing, Identity Theft (ID Theft).

**Text Books:**

1. Mark Rhodes, Ousley, Information Security, 1st Edition ,MGH, 2013.

2. Nina Godbole and SunitBelpure ¯ Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives , 1st Edition Publication Wiley, 2011.

**Activities Planned:**

1. Identify a user of internet, label him as a cybercriminal or not.

2. Checklist for reporting cybercrime at Cybercrime Police Station.

3. Checklist for reporting cybercrime online.

4. Reporting phishing emails.

5. Demonstration of email phishing attack and preventive measures.

6. Checklist for secure net banking

|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.com. CA Hons.  |
| --- | --- | --- |
| Course Code**24-CYS-4S1** | **TITLE OF THE COURSE****CYBER SECURITY** | **Semester-IV** |
| **Time: 3 hrs** | **QUESTION PAPER-BLUE PRINT**  | **Max Marks: 50** |

**Blue Print for The Question Paper Setting**

| **S. No.** | **Type of Question** | **To be given in the Question Paper** | **To be answered** |
| --- | --- | --- | --- |
| **No. of Questions** | **Marks allotted to each question** | **Total Marks** | **No. of Questions** | **Marks allotted to each question** | **Total Marks** |
| 1 | Section - A(Short Questions) | 8 | 5 | 40 | 4 | 5 | 20 |
| 2 | Section - B(Essay Questions) | 5 | 10 | 50 | 3 | 10 | 30 |
| **Total Marks** | **90** | **Total Marks** | **50** |

**BLUE PRINT FOR THE QUESTION PAPER SETTING**

| **Chapter Name** | **Essay Question10 Marks** | **Short Questions5 Marks** | **Marks allotted to the Chapter** |
| --- | --- | --- | --- |
| UNIT - I | 2 | 2 | 30 |
| UNIT - II | 2 | 3 | 35 |
| UNIT - III | 1 | 3 | 25 |
| **Total No. of Questions** | **5** | **8** | **90** |

|  | **PVKN Govt. College (Autonomous)****ChittoorDEPARTMENT OF COMPUTER APPLICATIONS** | **Program** II B.com. CA Hons.  |
| --- | --- | --- |
| Course Code**24-CYS-4S1** | **TITLE OF THE COURSE****CYBER SECURITY** | **Semester-IV** |
| **Time: 2 hrs** | **MODEL QUESTION PAPER** | **Max Marks: 50** |

**SECTION – A**

**Answer any Five of the following Questions 5X4 =20 Marks**

1. Classification of Cyber Crime?

2. Write about Information Security?

3. Authentication Service Security?

4. Credit Card Frauds in Mobile?

5. Security issues?

6. Password Cracking?

7. What is meant by phishing?

8. Attacks on wireless networks

 **SECTION – B**

**Answer any Five of the following Questions 3X10 =30 Marks**

9. Indian IT Act 2000?

10. Security Implications for Organizations?

11. Proliferation of Mobile and Wireless Devices?

12. Tools and Methods Used in Cybercrime?

13. Write in detail about Steganography?

**Signature of the Signature of the BOS**

 **Members Chairman**









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