NAAC: B+( CGPA 2.60) Estd: 1937

# SRR & CVR GOVT. DEGREE COLLEGE (Autonomous)

VIJAYAWADA – 520 004 :: KRISHNA DISTRICT:: ANDHRA PRADESH

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**Date: 02-12-2021**

## Department of Computer Science

The department of Computer Science has organized a Board of Studies(BoS) meeting with regard to revision and upgradation of Syllabus for **all Semesters** of Under-Graduate courses that have Computer Science, Data Science and Computer Applications as major subject during their course of study.

**Agenda:**

1. Framing and approval of course structure and syllabus for all semesters of UG Computer Science and Computer Applications programs.
2. Procedure for awarding internal marks
3. Presentation of proposed syllabus to BoS members.
4. Discussion on model question paper
5. Identifying industry oriented courses that can be offered as certificate courses to students
6. Identifying question paper setters and examiners for practical examinations.
7. Any other academic matters with the permission of the chairman

- **Members of Board of Studies**

| | | |
|---|---|---|
| 1. | Sri Vijayadeep Gummadi | Chairman, Dept of Computer Science |
| 2. | Dr. Y. K. Sundar Krishna | University Nominee, Krishna University |
| 3. | Dr. A. Kavitha | Subject Expert, Govt. College for Women(A), Guntur |
| 4. | Dr. K. S. Rajesh | Subject Expert, CSTS Govt. Kalasala, jangareddi Gudem |
| 5. | Smt. U. Lalitha | Industry Member |
| 6. | Sri. D. Manikanta | Alumni Member |
| 7. | Smt V. Lakshmi Sarvani | Member |
| 8. | Sri Ch. Bharat Kumar | Member |
| 9. | Smt. J. Sarada Lakshmi | Member |
| 10. | Smt. J. Pavani pravallika | Member |
| 11. | Kum. S. Tejaswini | Member |
| 12. | Sri U. vinod Kumar | Member |
| 13. | Kum T.Pavani | Member |
| 14. | Sri A. Manoj Kumar | Member |
| 15. | Smt. T. Karuna Latha | Member |
| 16. | Sri DPV.Phani Raja Kumar | Member |

- **Resolutions**

1. It was unanimously resolved to adopt the revised Syllabus for all semesters of B.Sc.(Computer Science) programs MECS, MSCS, MPCS, MCCS.

2. It was unanimously resolved to adopt the revised Syllabus for 1st, 2nd, 3rd and 4th semesters of B.Sc.(Data Science).
3. It was unanimously resolved to adopt the revised syllabus for 1st and 2nd semesters B. Sc(Computer Applications).
4. It was unanimously resolved to adopt the revised Syllabus for all semesters of B.Com (Computer Applications)
5. It was resolved to adopt the revised syllabus for E- Commerce subject offered during 2nd and 5th Semesters of bachelors of Business Administration.
6. It was unanimously resolved to adopt the revised E-Commerce syllabus offered during 2nd Semester B. Voc (Logistics)
7. It was unanimously resolved to adopt the revised syllabus for Life Skill Courses offered during the 1st and 2nd Semesters of B.Sc/ B.Com/ B.A
8. It was resolved to prepare model question paper and Question bank for all subjects of all semesters for the convenience of the students
9. It was unanimously resolved to follow and Adopt Krishna University pattern and guidelines for conducting practical sessions and examinations given from time to time.
10. The committee has approved the blue print for preparation of question paper.
11. It was unanimously resolved to split the total 100 marks of all core subjects into 40 marks for internal Assessment and 60 marks for Semester end examinations. External examination duration is of 3hours.
12. 60 marks in **External assessment** is divided as
    a. **20 marks** in **Section A** and
    b. **40 marks** in **Section B**

    40 marks in **Internal Assessment** is divided as
    c. 10 marks for Assignment,
    d. 5 marks for Viva/Assessment,
    e. 5 marks for Seminars,
    f. 10 marks for Project work and
    g. 10 marks for the Best of the two mid exams

13. It was resolved to allocate 50marks for End Semester Examination for Life Skill Courses with no internal assessment. Students have to answer 5 questions out of 10 Questions, with each question being given equal weightage.
14. The HoD has to prepare the list of Examiners and Paper Setters and will be submitted to the Academic Council
15. It was unanimously resolved to conduct examinations **OffLine/OnLine/Blended mode for this academic year because of prevailing COVID-19 situation**. The **discretion powers** of selecting

**MODE** of examinations are with the Principal and COE of this Institution. The Department will follow the instructions and pattern of examination given by the Principal and COE time to time.

16. Further the committee resolved to give empowerment for any small changes to the Chairman of BOS

17. The committee has approved that all the above resolutions will be effective for **three years** i.e., 2021-22,2022-23 and 2023-24 academic years.

**Signatures of the members of BOS :**

| | Name | Position | Signature |
|---|---|---|---|
| 1. | Sri Vijayadeep Gummadi | Chairman | 2/12/2021 |
| 2. | Dr. Y. K. Sundar Krishna | University Nominee | 2/12/2021 |
| 3. | Dr. A. Kavitha | Subject Expert | |
| 4. | Dr. K. S. Rajesh | Subject Expert | 2/12/21 |
| 5. | Smt. U. Lalitha | Industry Member | |
| 6. | Sri. D. Manikanta | Alumni Member | |
| 7. | Smt V. Lakshmi Sarvani | Member | |
| 8. | Sri Ch. Bharat Kumar | Member | |
| 9. | Smt. J. Sarada Lakshmi | Member | 2/12/21 |
| 10. | Smt. J. Pavani pravallika | Member | |
| 11. | Kum. S. Tejaswini | Member | |
| 12. | Sri U. vinod Kumar | Member | |
| 13. | Kum T.Pavani | Member | |
| 14. | Sri A. Manoj Kumar | Member | |
| 15. | Smt. T. Karuna Latha | Member | |
| 16. | Sri DPV.Phani Raja Kumar | Member | |

Principal

**SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA**

**DEPARTMENT OF COMPUTER SCIENCE**

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## II B. Sc (Computer Science and Data Science)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| IV | CSC N-4305 | OBJECT ORIENTATED PROGRAMMING THROUGH JAVA | 60 | 3 |

**Objectives:**

To introduce the fundamental concepts of Object-Oriented programming and to design & implement object oriented programming concepts in Java.

**Course Learning Outcomes**: At the end of this course student will be able to:

1. Understand the benefits of a well-structured program
2. Understand different computer programming paradigms
3. Understand underlying principles of Object-Oriented Programming in Java
4. Develop problem-solving and programming skills using OOP concepts
5. Develop the ability to solve real-world problems through software development in high-level programming language like Java

**UNIT – I**

**Introduction to Java:** Features of Java, The Java virtual Machine, Parts of Java

**Naming Conventions and Data Types:** Naming Conventions in Java, Data Types in Java, Literals

**Operators in Java:** Operators, Priority of Operators

**Control Statements in Java:** if... else Statement, do... while Statement, while Loop, for Loop, switch Statement, break Statement, continue Statement, return Statement

**Input and Output:** Accepting Input from the Keyboard, Reading Input with Java.util.Scanner Class, Displaying Output with System.out.printf(), Displaying Formatted Output with String.format()

**Arrays:** Types of Arrays, Three Dimensional Arrays (3D array), arrayname.length, Command Line Arguments

**UNIT – II**

**Strings:** Creating Strings, String Class Methods, String Comparison, Immutability of Strings

**Introduction to OOPs:** Problems in Procedure Oriented Approach, Features of Object-Oriented Programming System (OOPS)

**Classes and Objects:** Object Creation, Initializing the Instance Variables, Access Specifiers, Constructors

**Methods in Java:** Method Header or Method Prototype, Method Body, Understanding Methods, Static Methods, Static Block, The keyword 'this', Instance Methods, Passing Primitive Data Types to Methods, Passing Objects to Methods, Passing Arrays to Methods, Recursion, Factory Methods

**Inheritance:** Inheritance, The keyword 'super', The Protected Specifier, Types of Inheritance

**UNIT – III**

**Polymorphism:** Polymorphism with Variables, Polymorphism using Methods, Polymorphism with Static Methods, Polymorphism with Private Methods, Polymorphism with Final Methods, final Class

**Type Casting:** Types of Data Types, Casting Primitive Data Types, Casting Referenced Data Types, The Object Class

**Abstract Classes:** Abstract Method and Abstract Class

**Interfaces:** Interface, Multiple Inheritance using Interfaces

**Packages:** Package, Different Types of Packages, The JAR Files, Interfaces in a Package, Creating Sub Package in a Package, Access Specifiers in Java, Creating API Document

**Exception Handling:** Errors in Java Program, Exceptions, throws Clause, throw Clause, Types of Exceptions, Re – throwing an Exception

**UNIT – IV**

**Streams:** Stream, Creating a File using FileOutputStream, Reading Data from a File using FileInputStream, Creating a File using FileWriter, Reading a File using FileReader, Zipping

and Unzipping Files, Serialization of Objects, Counting Number of Characters in a File, File Copy, File Class

**Threads:** Single Tasking, Multi Tasking, Uses of Threads, Creating a Thread and Running it, Terminating the Thread, Single Tasking Using a Thread, Multi Tasking Using Threads, Multiple Threads Acting on Single Object, Thread Class Methods, Deadlock of Threads, Thread Communication, Thread Priorities, thread Group, Daemon Threads, Applications of Threads, Thread Life Cycle

**UNIT – V**

**Applets:** Creating an Applet, Uses of Applets, <APPLET> tag, A Simple Applet, An Applet with Swing Components, Animation in Applets, A Simple Game with an Applet, Applet Parameters

**Java Database Connectivity:** Database Servers, Database Clients, JDBC (Java Database Connectivity), Working with Oracle Database, Working with MySQL Database, Stages in a JDBC Program, Registering the Driver, Connecting to a Database, Preparing SQL Statements, Using jdbc–odbc Bridge Driver to Connect to Oracle Database, Retrieving Data from MySQL Database, Retrieving Data from MS Access Database, Stored Procedures and CallableStatements, Types of Result Sets.

**TEXT BOOKS:**


1. Core Java: An Integrated Approach, Authored by Dr. R. Nageswara Rao & Kogent Learning Solutions Inc.
2. E.Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGraw- Hill Company
3. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline Series, TMH.
4. Deitel & amp; Deitel. Java TM: How to Program, PHI (2007)

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA
## II BSc (Computer Science)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| IV | CSC N-4305 | OPERATING SYSTEMS | 60 | 3 |

**Course Objectives**

- To familiarize with the concepts, services and functionalities of Operating Systems.

**Course Outcomes**

Upon successful completion of the course students will be able to:

1. Differentiate the types of operating systems
2. Choose appropriate process scheduling algorithm to improve system performance.
3. Analyze memory management techniques, concepts of virtual memory and disk scheduling.
4. Understand the implementation of file systems and directories along with the interfacing of IO devices with the operating system.
5. Choose an appropriate algorithm to avoid deadlocks.

**UNIT - I**

**Operating System Introduction:** Operating Systems Objectives and functions, Computer System Architecture, OS Structure, OS Operations, Evolution of Operating Systems - Simple Batch, Multi programmed, time shared, Parallel, Distributed Systems, Real-Time Systems, Operating System services.

**UNIT - II**

Process and CPU Scheduling - Process concepts - The Process, Process State, Process Control Block, Threads, Process Scheduling - Scheduling Queues, Schedulers, Context Switch, Preemptive Scheduling, Dispatcher, Scheduling Criteria, Scheduling algorithms, Case studies: Linux, Windows.

Process Coordination - Process Synchronization, The Critical section Problem, Synchronization Hardware, Semaphores, and Classic Problems of Synchronization, Monitors, Case Studies: Windows.

**UNIT - III**

Memory Management and Virtual Memory - Logical & physical Address Space, Swapping, Contiguous Allocation, Paging, Structure of Page Table. Segmentation, Segmentation with Paging, Virtual Memory, Demand Paging, Performance of Demanding Paging, Page Replacement Page Replacement Algorithms, Allocation of Frames.

**UNIT - IV**

File System Interface - The Concept of a File, Access methods, Directory Structure, File System Mounting, File Sharing, Protection, File System Structure, Mass Storage Structure - Overview of Mass Storage Structure, Disk Structure, Disk Attachment, Disk Scheduling.

**UNIT - V**

Deadlocks - System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery from Deadlock.

**REFERENCES BOOKS:**


1. Operating System Principles, Abraham Silberchatz, Peter B. Galvin, Greg Gagne 8th Edition, Wiley Student Edition.
2. Principles of Operating Systems by Naresh Chauhan, OXFORD University Press
3. Operating systems - Internals and Design Principles, W. Stallings, 6th Edition, Pearson.
4. Modern Operating Systems, Andrew S Tanenbaum 3rd Edition PHI.
5. Operating Systems A concept - based Approach, 2nd Edition, D. M. Dhamdhere, TMH.
6. Principles of Operating Systems, B. L. Stuart, Cengage learning, India Edition.
7. Operating Systems, A. S. Godbole, 2nd Edition, TMH


2/12/2021

# SRR&CVR GOVT DEGREE COLLEGE (A):: VIJAYAWADA

## III B. Sc (Computer Science)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| V | CSC-5305-5 | DATABASE MANAGEMENT SYSTEMS | 60 | 3 |

**Course Objective:**

This course enables students to design, develop and manage databases using SQL.

**Course Learning Outcomes:**

Upon successful completion of the course, a student will be able to:

1. Familiarize the fundamental concepts of DBMS with special emphasis on relational data model.
2. Design database using ER diagrams.
3. Apply normalization to reduce redundancy in database.
4. Demonstrate the DDL and DML commands.
5. Develop SQL, PL/SQL programs

**UNIT I**

**Overview of Database Management System:** Introduction, file-based system, Drawbacks of file-Based System ,Data and information, Database, Database management System, Objectives of DBMS, Evaluation of Database management System, Classification of Database Management System, DBMS Approach, advantages of DBMS, Anis/spark Data Model, data models, Components and Interfaces of Database Management System. Database Architecture, Situations where DBMS is not Necessary, DBMS Vendors and Their Products.

**UNIT II**

**Entity-Relationship Model**: Introduction, the building blocks of an entity relationship diagram, classification of entity sets, attribute classification, relationship degree, relationship classification, reducing ER diagram to tables, enhanced entity-relationship model (EER model), generalization and

specialization, **IS A** relationship and attribute inheritance, multiple inheritance, constraints on specialization and generalization, aggregation and composition, entity clusters, connection types, advantages of ER modeling.

**UNIT III**

**Relational Model:** Introduction, CODD Rules, relational data model, concept of key, relational integrity, relational algebra, relational algebra operations, advantages of relational algebra, limitations of relational algebra, relational calculus, tuple relational calculus, domain relational Calculus (DRC). QBE

**UNIT IV**

**Structured Query Language:** Introduction, History of SQL Standard, Commands in SQL, Data Types in SQL, Data Definition Language, Selection Operation, Projection Operation, Aggregate functions, Data Manipulation Language, Table Modification Commands, Table Truncation, Imposition of Constraints, Join Operation, Set Operation, View, Sub Query, Embedded SQL.

**UNIT V**

**PL/SQL:** Introduction, Shortcoming in SQL, Structure of PL/SQL, PL/SQL Language Elements, Data Types, Operators Precedence, Control Structure, Steps to Create a PL/SQL, Program, Iterative Control, Cursors, Steps to create a Cursors, Procedure, Function, Packages, Exceptions Handling, Database Triggers, Types of Triggers.

**TEXT BOOKS:**


1. Database System Concepts by Abraham Silberschatz, Henry Korth, and S. Sudarshan, McGraw hill
2. Database Management Systems by Raghu Ramakrishnan, McGrawhill
3. Fundamentals of Database Systems by R. Elmasri and S. Navathe


**REFERENCE BOOKS**


1. Principles of Database Systems by J. D. Ullman
2. SQL: The Ultimate Beginners Guide by Steve Tale.

# SRR&CVR GOVT DEGREE COLLEGE (A):: VIJAYAWADA

## III B.Sc (Computer Science) Semester –V

## Revised Syllabus 2021-22

## DATA BASE MANAGEMENT SYSTEM

## QUESTION BANK

### UNIT-I

**Essay Questions 8 Marks**

1. Explain the Advantages and Disadvantages of DBMS.
2. What is data model? Explain types, advantages and disadvantages of data models.
3. Explain the Architecture of DBMS (or) Explain Three level schema architecture.
4. What are the main components and interfaces of DBMS?

**Short Questions 4 Marks**

5. What is data and Information?
6. What are the disadvantages (or) drawbacks of Traditional File processing system?
7. What are various Objectives of DBMS?
8. What are the Characteristics of DBMS Approach?

### UNIT-II

**Essay Questions 8 Marks**

9. Explain types of entities, attributes (Or) Explain basic notations of ER Model. (Or) Explain building blocks of ERD.
10. Explain Generalization and Specialization, Aggregation and composition.
11. Explain constraint specification techniques in EER Model. (Or) What is Subtype Discriminator? (Or) What is the difference between Partial Completeness and Total Completeness?

**Short Questions 4 Marks**

12. What is Relationship Participation? Explain Relationship Degree in detail.
13. Explain how to reduce the ERD into tables.
14. Explain advantages of ER Model.
15. What is Entity Clustering? Explain it in detail with an example

### UNIT-III

**Essay Questions 8 Marks**

16. Explain EF Codd's Relational Database Rules
17. Discuss about Relational Algebra Operators with examples?

**Short Questions 4 Marks**

18. Explain about various Keys and their characteristics.

19. Explain Relational Data Model.

20. What is Relational Calculus? Explain Tuple and Domain relational calculus

21. Explain QBE.

## UNIT-IV

**Essay Questions 8 Marks**

22. What is SQL? Explain components of Sql?(DDL,DML AND DCL)

23. Discuss about SQL Join Operators (OR) Explain different types of Joins available in SQL

24. Discuss about sub queries, nested queries and correlated sub queries.

**Short Questions 4 Marks**

25. Explain constraints in Sql.

26. Explain data types in Sql.

27. Explain Aggregate functions in Sql.

## UNIT-V

**Essay Questions 8 Marks**

28. Explain Structure of PL/SQL?

29. Explain control structures in PL/SQL?

30. Explain PACKAGES concept in PL/SQL?

31. What is cursor? Explain how to create cursors.

32. Explain Database Trigger? What are the types of Trigger?

**Short Questions 4 Marks**

33. Explain procedure concept in Pl/Sql?

34. Explain FUNCTIONS concept in Pl/Sql?

35. Explain Exception handling in Pl/Sql?

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## III B. Sc (Computer Science) Semester –V

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| V | CSC-5305-6 | SOFTWARE ENGINEERING | 60 | 3 |

**Course Objectives**

To familiarize with the phases of Software Development Life Cycle while developing a project.

**Course outcomes**

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

- Estimate the effort, duration and cost of a project.
- Develop SRS document for a project.
- Develop a detailed design for a project
- Develop user friendly interface suitable for a project.
- Design test cases to estimate the quality of the project

**UNIT I**

**INTRODUCTION:** Software Engineering Process paradigms - Project management - Process and Project Metrics – software estimation - Empirical estimation models - Planning - Risk analysis - Software project scheduling.

**UNIT II**

**REQUIREMENTS ANALYSIS:** Requirement Engineering Processes – Feasibility Study – Problem of Requirements – Software Requirement Analysis – Analysis Concepts and Principles – Analysis Process – Analysis Model

**UNIT III**

**SOFTWARE DESIGN:** Software design - Abstraction - Modularity - Software Architecture - Effective modular design - Cohesion and Coupling - Architectural design and Procedural design - Data flow oriented design.

**UNIT IV**

**USER INTERFACE DESIGN AND REAL TIME SYSTEMS:** User interface design - Human factors - Human computer interaction - Human - Computer Interface design - Interface design - Interface standards.

**UNIT V**

**SOFTWARE QUALITY AND TESTING:** Software Quality Assurance - Quality metrics - Software Reliability - Software testing - Path testing – Control Structures testing - Black Box testing – Integration, White Box testing, Validation and system testing.- Reverse Engineering and Re-engineering.

## TEXT BOOKS:


1. Roger Pressman S., "Software Engineering: A Practitioner's Approach", 7th Edition, McGraw Hill, 2010.
2. Software Engineering Principles and Practice by Deepak Jain Oxford University Press
3. Sommerville, "Software Engineering", Eighth Edition, Pearson Education, 2007


**REFERENCE BOOKS:**


1. Pfleeger, "Software Engineering: Theory & Practice", 3rd Edition, Pearson Education, 2009
2. Carlo Ghazi, Mehdi Jazayari, Dino Mandrioli, "Fundamentals of Software Engineering", Pearson Education, 2003

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## III BSc (Computer Science)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| VI | CSC 7305B | WEB TECHNOLOGIES | 45 | 3 |

**Course Objective**

- To enable students with the design and development of web site.

**Course Outcomes**

Upon completion of the course students will be able to:

1. understand the web architecture and web services.
2. practice latest web technologies and tools by conducting experiments.
3. design interactive web pages using HTML and Style sheets.
4. study the framework and building blocks of .NET Integrated Development Environment.
5. provide solutions by identifying and formulating IT related problems.

**UNIT – I**

**HTML:** Basic HTML, Document body, Text, Hyper links, adding more formatting, Lists, Tables using images. More HTML: Multimedia objects, Frames, Forms towards interactive, HTML document heading detail

**UNIT – II**

Cascading Style Sheets: Introduction, using Styles, simple examples, your own styles, properties and values in styles, style sheet, formatting blocks of information, layers.

**UNIT – III**

Introduction to JavaScript: What is DHTML, JavaScript, basics, variables, string manipulations, mathematical functions, statements, operators, arrays, functions. Objects in JavaScript: Data and objects in JavaScript, regular expressions, exception handling

**UNIT – IV**

DHTML with JavaScript: Data validation, opening a new window, messages and confirmations, the status bar, different frames, rollover buttons, moving images,

**UNIT – V**

XML: defining data for web applications, basic XML, document type definition, presenting XML, document object model. Web Services.

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## III BSc (Computer Science)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| VI | CSC 8305B1 | DISTRIBUTED SYSTEMS | 45 | 3 |

**Course Objectives**

- To expose the fundamentals of distributed computer systems, assuming the availability of facilities for data transmission.
- To discuss multiple levels of distributed algorithms, distributed file systems. distributed databases, security and protection.

**Course Outcomes**

- Create models for distributed systems.
- Apply different techniques learned in the distributed system.

**UNIT I**

Introduction to Distributed Computing Systems, System Models, and Issues in Designing a Distributed Operating System, Examples of distributed systems.

**UNIT II**

Features of Message Passing System, Synchronization and Buffering, Introduction to RPC and its models, Transparency of RPC, Implementation Mechanism, Stub Generation and RPC Messages, Server Management, Call Semantics, Communication Protocols and Client Server Binding.

**UNIT III**

Introduction, Design and implementation of DSM system, Granularity and Consistency Model, Advantages of DSM, Clock Synchronization, Event Ordering, Mutual exclusion, Deadlock, Election Algorithms.

**UNIT IV**

Task Assignment Approach, Load Balancing Approach, Load Sharing Approach, Process Migration and Threads.

**UNIT V**

File Sharing Semantics, File Caching Schemes, File Replication, Atomic Transactions, Cryptography, Authentication, Access control and Digital Signatures.

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## III BSc (Computer Science)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| VI | CSC 8305B2 | CLOUD COMPUTING | 45 | 3 |

**Course Objectives:**

The student will learn about the cloud environment, building software systems and components that scale to millions of users in modern internet, cloud concepts capabilities across the various cloud service models including Iaas, Paas, Saas, and developing cloud based software applications on top of cloud platforms.

**Course Outcomes**

1. Compare the strengths and limitations of cloud computing
2. Identify the architecture, infrastructure and delivery models of cloud computing
3. Apply suitable virtualization concept.
4. Choose the appropriate cloud player , Programming Models and approach.
5. Address the core issues of cloud computing such as security, privacy and interoperability
6. Design Cloud Services and Set a private cloud

**Unit 1**

**Cloud Computing Overview** – Origins of Cloud computing – Cloud components - Essential characteristics – On-demand self-service , Broad network access , Location independent resource pooling , Rapid elasticity , Measured service

**Unit II**

Cloud scenarios – Benefits: scalability , simplicity , vendors ,security. Limitations – Sensitive information - Application development – Security concerns - privacy concern with a third party - security level of third party - security benefits Regularity issues: Government policies

**Unit III**

**Cloud architecture**: Cloud delivery model – SPI framework , SPI evolution , SPI vs. traditional IT Model

**Software as a Service** (SaaS): SaaS service providers – Google App Engine, Salesforce.com and google platfrom – Benefits – Operational benefits - Economic benefits – Evaluating SaaS **Platform as a Service** ( PaaS ): PaaS service providers – Right Scale – Salesforce.com – Rackspace – Force.com – Services and Benefits

**Unit IV**

**Infrastructure as a Service** ( IaaS): IaaS service providers – Amazon EC2 , GoGrid – Microsoft soft implementation and support – Amazon EC service level agreement – Recent developments – Benefits

**Cloud deployment model** : Public clouds – Private clouds – Community clouds - Hybrid clouds - Advantages of Cloud computing

**Unit V**

**Virtualization**: Virtualization and cloud computing - Need of virtualization – cost , administration , fast deployment , reduce infrastructure cost - limitations

**Types of hardware virtualization**: Full virtualization - partial virtualization - para virtualization

**Desktop virtualization**: Software virtualization – Memory virtualization - Storage virtualization – Data virtualization – Network virtualization **Microsoft Implementation**: Microsoft Hyper V – Vmware features and infrastructure – Virtual Box - Thin client

**REFERENCE BOOKS**


1. Cloud computing a practical approach - Anthony T.Velte , Toby J. Velte Robert Elsenpeter TATA McGraw- Hill , New Delhi - 2010
2. Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online - Michael Miller - Que 2008
3. Cloud Computing, Theory and Practice, Dan C Marinescu, MK Elsevier.
4. Cloud Computing, A Hands on approach, Arshadeep Bahga, Vijay Madisetti, University Press
5. Mastering Cloud Computing, Foundations and Application Programming, Raj Kumar Buyya, Christenvecctiola, S Tammarai selvi, TMH

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## I Year Common to BA / B.Sc / B.Com

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| II | LS N-2014 | INFORMATION & COMMUNICATION TECHNOLOGY | 30 | 2 |

**Objectives:**
To gain knowledge of basic ICT tools they use in their day to day life as well as in office and research.

**Course outcomes:** Upon completion of the course, student will be able to:

1. Understand the literature of social networks and their properties.
2. Develop skills to use various social networking sites like twitter, flickr, etc.
3. Work with mailing services and G-Suite
4. Learn few GOI digital initiatives in higher education.
5. Get acquainted with internet threats and security mechanisms.

**UNIT-I:** (08 hrs)
Fundamentals of Internet: What is Internet?, Internet applications,Internet Addressing – Entering a Web Site Address, URL–Components of URL, Searching the Internet, Browser –Types of Browsers,Introduction to Social Networking: Twitter, Tumblr, LinkedIn, Facebook, flickr, Skype, yahoo, YouTube, WhatsApp .

**UNIT-II:**(08 hrs)
E-mail: Definition of E-mail -Advantages and Disadvantages –User Ids, Passwords, Email Addresses, Domain Names, Mailers, Message Components, Message Composition, Mail Management.

G-Suite: Google drive, Google documents, Google spread sheets, Google Slides and Google forms.

**UNIT-III**:(10 hrs)
Overview of Internet security, E-mail threats and secure E-mail, Viruses and antivirus software, Firewalls, Cryptography, Digital signatures, Copyright issues.

What are GOI digital initiatives in higher education? (SWAYAM, SwayamPrabha, National Academic Depository, National Digital Library of India, E-Sodh-Sindhu, Virtual labs, e-acharya, e-Yantra and NPTEL).

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## I BSc (Computer Applications)

### Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| I | | COMPUTER FUNDAMENTALS AND OFFICE TOOLS | 60 | 3 |

**Course Objectives:**

To introduce the fundamental concepts of Computers, Hardware, Software and able to interact with documentation, Power point, and Spreadsheet.

**Course Outcomes:**

1. To learn about Basics of Computers
2. To learn about basics of Hardware Components
3. To learn about basics of Operating System Software
4. To learn about basics of Application System Software
5. To practice handful exercises on Documentation, Spreadsheet, Presentation

**Unit-I: Basics of Computers :**Definition of a Computer - Characteristics and Applications of Computers – Block Diagram of a Digital Computer – Classification of Computers based on size and working – Central Processing Unit – I/O Devices.

**Unit-II:** Primary, Auxiliary and Cache Memory – Memory Devices. Software, Hardware, Firmware and People ware – Definition and Types of Operating System – Functions of an Operating System – MS-DOS – MS Windows – Desktop, Computer, Documents, Pictures, Music, Videos, Recycle Bin, Task Bar – Control Panel.

**Unit-III: MS-Word:** Features of MS-Word – MS-Word Window Components – Creating, Editing, Formatting and Printing of Documents – Headers and Footers – Insert/Draw Tables, Table Auto format – Page Borders and Shading – Inserting Symbols, Shapes, Word Art, Page Numbers, Equations – Spelling and Grammar – Thesaurus – Mail Merge.

**Unit-IV: MS-PowerPoint:** Features of PowerPoint – Creating a Blank Presentation -Creating a Presentation using a Template - Inserting and Deleting Slides in a Presentation – Adding Clip Art/Pictures -Inserting Other Objects, Audio, Video - Resizing and Scaling of an Object – Slide Transition – Custom Animation.

**Unit-V: MS-Excel:** Overview of Excel features – Creating a new worksheet, Selecting cells,

Entering and editing Text, Numbers, Formulae, Referencing cells – Inserting Rows/Columns –Changing column widths and row heights, auto format, changing font sizes, colors, shading.

**Prescribed Book:**

1.Fundamentals of Computers by Reema Thareja, Second Edition, Publishers :
2.Oxford University Press,India, ISBN: 9780199499274

**References:**

1. Fundamentals of Information Technology Including Lab Work by Vinod Babu Bandari, publishers : Pearson
2. Fundamentals of Computers by V.Raja Raman, Publishers : PHI
3. Microsoft Office 2010 Bible by John Walkenbach, Herb Tyson, Michael R.Groh and Faithe Wempen, Publishers : Wiley

2/12/2021

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## I BSc (Computer Applications)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| II | | PROGRAMMING IN C | 60 | 3 |

**Course Objectives:**

- This course exposes students to problem-solving techniques using C language.

**Course Learning Outcomes:**

Upon successful completion of the course, a student will be able to:

1. Develop an algorithm for solving a given problem.
2. Convert algorithms into executable C programs.
3. Choose a suitable decision making statements to develop a program
4. Develop programs using modular approach.
5. Simulate the operations on Arrays and Strings.
6. Develop programs using Structures and pointers concept.

**UNIT - I:** **12 Hrs**

**Introduction to Algorithms :** Algorithm - Key features of Algorithms - examples of Algorithms, Flow Charts.

**Introduction to C :** Structure of C Program, Writing the first C Program , Files used in C Program , Compiling and Executing C Programs , Using Comments, Keywords, Identifiers , Basic Data Types in C, Variables , Constants, I/O Statements in C , Operators in C , Type Conversion and Type Casting.

**UNIT - II: 16 Hrs**

**Decision Control and Looping Statements:** Introduction to Decision Control Statements, Conditional Branching Statements, Iterative Statements , Nested Loops , Break and Continue Statement, Goto Statement.

**Functions** : Introduction, using functions – Function declaration/ prototype – Function definition function call – return statement – Passing parameters , Recursive functions .

**UNIT - III: 16 Hrs**

**Arrays:** Introduction, Declaration of Arrays , Accessing elements of the Array – Storing Values in Array, One dimensional array -declaration, initialization, Accessing one dimensional array, assing one dimensional array to function, Two dimensional Arrays-declaration, initialization, Accessing two dimensional arrays, passing two dimensional arrays to functions.
**Strings:** Introduction , String and Character functions, String Operations using String functions- strcat() , strcmp() , strcpy() , strlen().

**8 Hrs**

**UNIT - IV:**
**Pointers:** declaring Pointer Variable, Pointer Expressions and Pointer Arithmetic , Passing Arguments to Functions using Pointers, Memory Allocation in C Programs, Drawbacks of Pointers.

**8 Hrs**

**UNIT – V:**
**Structures:** Introduction to structures, Arrays of Structures, Nested Structures .
**Union, and Enumerated Data Types:** Introduction to Union – accessing union elements , Enumerated Data Types.

**TEXT BOOKS:**
1. Computer Fundamentals and Programming in C by REEMA THAREJA from OXFORD UNIVERSITY PRESS

**REFERENCE BOOKS:**
1. E Balagurusamy— Programming in ANSI C Tata McGraw-Hill publications.
2. Brain W Kernighan and Dennis M Ritchie - The 'C' Programming language" - Pearson publications.
3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publications.
4. Yashavant Kanetkar - Let Us 'C' BPB Publications.

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## I B.Com (Computer Applications)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| I | | INFORMATION TECHNOLGY | 60 | 4 |

**Course Objectives:**

This course aims at providing exposure to students in Information Technology towards basic office applications.

***Learning Outcomes:***

Upon successful completion of the course, student will be able to:

1. Demonstrate basic understanding of computer hardware and software.
2. Apply skills and concepts for basic use of a computer.
3. Create personal, academic and business documents using MS office.
4. Create spreadsheets, charts and presentations.
5. Create database using MS-Access.

**Unit-I: Introduction:** Computer Definition - Characteristics and limitations of computer Hardware - Generations of Computer, Classification of Computers, Applications of Computer, Basic Components of PC, Computer Architecture - primary and secondary memories-input and output devices operating system-function of operating system-types of operating system-languages and its types

**Unit-II: MS word:** Word processing-Features- window components -Creating, saving, closing, opening and editing of a document-Moving and Coping a text Formatting of Text and paragraph-bullets and Numbering-Find and Replace-Insertion of tables- Headers and footers-page formatting-auto format page borders and shading-spelling and grammar-mail merge-macros

**Unit-III: MS Excel:** Features spread sheet-creating a new Work sheet-Cell-selecting cells, entering, and editing text, numbers- insert tables- formulas-types of function-templates-macros-Data sorting- charts -filtering-consolidation-grouping-pivot table

**Unit-IV: MS Power point:** Introduction - Starting-parts-Creating of tables-create presentation-inserting and deleting slides in a presentation-templates-Auto content Wizard-Slide show-Editing of presentation-Inserting objects and charts Simple Access Database - Working with Table

**Unit-V: MS Access:** Orientation to Microsoft Access Create Data Modify Table Data-Sort and Filter Records - Querying a Database - Create Basic Queries - Sort and Filter Data in a Query - Perform Calculations in a Query - Create Basic Access Forms - Work with Data on Access Forms - Create a Report - Add Controls to a Report - Format Reports.

**Reference Books:**


1. P.Mohan computer fundamentals- HimalyaPublications.
2. R.K.Sharma and Shashi K Gupta, computer fundamentals - Kalyani Publications
3. Fundamentals of Computers by Balagurusamy, Mcgraw-Hill
4. Computer Fundamentals Anita Goel Pearson India
5. Introduction to Computers Peter Norton
6. Fundamentals of Computers Rajaraman V Adabala N
7. Office 2010 All-in-One For Dummies Peter Weverka
8. MS-Office S.S.Shrivastava
9. MS-OFFICE 2010 Training Guide Prof. Satish Jain, M. Geetha, Kratka BPB Publications.

# SRR&CVR GOVT DEGREE COLLEGE

## I B.Com (Computer Applications)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| II | | E-COMMERCE AND WEB DESIGN | 60 | 4 |

**Course Objective:**

The objectives of the course are to introduce the concept of electronic commerce, and to understand how electronic commerce is affecting business enterprises, governments, consumers and people in general. Acquaint students with a fundamental understanding of the environment and strategies in the New Economy.

**Course Outcome:**

Upon completion of the course students will be able to:

(1) Understand the fundamental principles of eBusiness and e- Commerce and the role of Management
(2) Familiarize the underlying used technologies with emphasis on Internet Technologies,
(3) Recognize the fundamental principles of e-Business and e- Commerce
(4) identify applications of e-Commerce in relation to the applied strategic
(5) Develop and publish web pages using HTML5, CSS3 and Javascript
(6) Use tools and services of the internet in the development of a virtual e - commerce site

**Unit I: Introduction:** Meaning, nature, concepts, advantages, disadvantages and reasons for transacting online, types of E-Commerce, e-commerce business models (introduction , key elements of a business model and categorizing major E-commerce business models), forces behind e-commerce.

**Technology used in E-commerce:** The dynamics of World Wide Web and internet (meaning, evolution and features); Designing, building and launching e-commerce website (A systematic approach involving decisions regarding selection of hardware, software, outsourcing vs. in-house development of a website)

**Unit II: Security and Encryption:** Need and concepts, the e-commerce security environment: (dimension, definition and scope of e-security), security threats in the E-commerce environment (security intrusions and breaches, attacking methods like hacking, sniffing, cyber-vandalism etc.), technology solutions (Encryption, security channels of communication, protecting networks and protecting servers and clients)

**Unit III: E-payment System:** Models and methods of e–payments (Debit Card, Credit Card, Smart Cards, e-money), digital signatures (procedure, working and legal position), payment gateways, online banking (meaning, concepts, importance, electronic fund transfer, automated clearing house, automated ledger posting), risks involved in e-payments.

**Unit IV: On-line Business Transactions:** Meaning, purpose, advantages and disadvantages of transacting online, E-commerce applications in various industries like {banking, insurance, payment of utility bills, online marketing, e-tailing (popularity, benefits, problems

and features), online services (financial, travel and career), auctions, online portal, online learning, publishing and entertainment} Online shopping (Amazon, Snap deal, Alibaba, Flipkart, etc.)

**Unit V: Website designing:** Designing a home page, HTML document, Anchor tag Hyperlinks, Head and body section, Header section, Title, Prologue, links, colorful pages, comment, body section, heading horizontal ruler, paragraph, tabs, images and pictures, lists and their types, nested lists, table handling. Frames: Frameset definition, frame definition, nested framesets, Forms and form elements. DHTML and Style Sheets: defining Styles, elements of styles, linking a style sheet to a HTML document, inline styles, External style sheets, internal Style sheets & Multiple Style Sheets.

**References:**


1. E-commerce and E-business Himalaya publishers
2. E-Commerce by Kenneth C Laudon, PEARSON INDIA
3. Web Design: Introductory with MindTap Jennifer T Campbell, Cengage India
4. HTML & WEB DESIGN:TIPS & TECHNIQUES JAMSA, KRIS, McGraw Hill
5. Fundamentals Of Web Development by Randy Connolly, Ricardo Hoar, Pearson
6. HTML & CSS: COMPLETE REFERENCE POWELL,THOMAS, McGraw Hill

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## II B.Com (Computer Applications)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| III | | PROGRAMMING WITH C AND C++ | 60 | 4 |

**Course objective:**

- To learn the fundamental programming concepts and methodologies which are essential to building good C/C++programs.
- To practice the fundamental programming methodologies in the C/C++ programming language via laboratory experiences.
- To code, document, test, and implement a well-structured, robust computer program using the C/C++ programming language.
- To write reusable modules (collections of functions)

**Course outcomes:**

Upon completion of the course students will be able to:

1. Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
2. Understand dynamic memory management techniques using pointers, constructors, destructors, etc
3. Describe the concept of function overloading, operator overloading, virtual functions and polymorphism.
4. Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.
5. Demonstrate the use of various OOPs concepts with the help of programs.

**Unit-I: Introduction and Control Structures:**

History of 'C' - Structure of C program – C character set, Tokens, Constants, Variables, Keywords, Identifiers – C data types - C operators - Standard I/O in C - Applyingif and Switch Statements

**Unit-II: Loops and Arrays:**

Use of While, Do While and For Loops - Use of Break and Continue Statements - Array Notation and Representation - Manipulating Array Elements - Using Multi Dimensional Arrays

**Unit-III: Strings and Functions:**

Declaration and Initialization of String Variables - String Handling Functions -Defining Functions -Function Call - Call By Value, Call By Reference – Recursion

**Unit-IV: Classes and Objects**

Introduction to OOP and its basic features - C++ program structure - Classes andobjects - Friend Functions-Constructor – Types of constructors – Destructors- Polymorphism -constructor overloading, Method over loading and Operator over loading

# SRR&CVR GOVT DEGREE COLLEGE(A)::

# VIJAYAWADA

## II B.Com (Computer Applications)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| III | | DATABASE MANAGEMENT SYSTEM | 60 | 4 |

**Course Objective:**

This course enables students to design, develop and manage databases using SQL.

**Course Learning Outcomes:**

Upon successful completion of the course, a student will be able to:

1. Familiarize the fundamental concepts of DBMS with special emphasis on relational data model.
2. Design database using ER diagrams.
3. Apply normalization to reduce redundancy in database.
4. Demonstrate the DDL and DML commands.
5. Develop SQL, PL/SQL programs

**Unit-I: Overview of Database Management System:** Introduction, Data and Information, Database, Database Management System, Objectives of DBMS, Evolution of Database Management Systems, Classification of Database Management System.

**Unit-II: File-Based System**: File-Based System, Drawbacks of File-Based System , DBMS Approach, Advantages of DBMS, Data Models , Components of Database System, Database Architecture, DBMS Vendors and their Products.

**Unit-III: Entity–Relationship Model:** Introduction, The Building Blocks of an Entity– Relationship, Classification of Entity Sets , Attribute Classification, Relationship Degree, Relationship Classification, Generalization and Specialization, aggregation and composition, CODD'S Rules, Relational Data Model , Concept of ,Relational Integrity. Normalization-1NF, 2NF, 3NF, 4NF, 5NF

**Unit-IV: Structured Query Language:** Introduction, History of SQL Standard, Commands in SQL, Data types in SQL, Data Definition Language (DDL), Selection Operation Projection Operation, Aggregate Functions, Data Manipulation Language, Table Modification, Table Truncation, Imposition of Constraints, Set Operations, Sub queries, correlated sub-queries.

**Unit -V: PL/SQL:** Introduction, Structure of PL/SQL, PL/SQL Language Elements ,Data Types, Control Structure,, Steps to Create a PL/SQL Program, Iterative Control ,Cursors , Steps to Create a Cursor , Procedure, Function ,Packages ,Exceptions Handling, Database Triggers, Types of Triggers.

## Reference Books:


1. Paneerselvam: Database Management Systems, PHI.
2. David Kruglinski, Osborne, Data Management System McGraw Hill Publication.
3. Shgirley Neal and Kenneth LC Trunik Database Management Systems in Business – PHI.
4. Godeon C. EVEREST, Database Management – McGraw Hill Book Company.
5. MARTIN, Database Management – Prentice Hall of India, New Delhi.
6. Bipin C. Desai, "An Introduction to Database Systems", Galgotia Publications.
7. Korth, Database Management systems.
8. Navathe, Database Management systems.
9. S. Sumathi, S. Esakkirajan, Fundamentals of Relational Database Management Systems

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## III B.Com (Computer Applications)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| V | | PROBLEM SOLVING IN C | 60 | 4 |

**Course Objectives:**

This course exposes students to problem-solving techniques using C language.

**Course Learning Outcomes:**

Upon successful completion of the course, a student will be able to:

1. Develop an algorithm for solving a given problem.
2. Convert algorithms into executable C programs.
3. Choose a suitable decision making statements to develop a program
4. Develop programs using modular approach.
5. Simulate the operations on Arrays and Strings.
6. Develop programs using Structures and pointers concept.

**Unit- I:**

**Introduction to Algorithms and Programming Languages**: Algorithm – Key features of Algorithms – Some more Algorithms – Flow Charts.

**Introduction to C:** Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments – Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples – Type Conversion and Type Casting

**Unit-II:**

**Decision Control and Looping Statements:** Introduction to Decision Control Statements – Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Go to Statement

**Unit- III:**

**Functions**: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive function

**Unit- IV:**

**Arrays**: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array – Calculating the length of the Array – Operations on Array – one dimensional array for inter-function communication – Two dimensional Arrays –Operations on Two Dimensional Arrays, **Strings:** Introduction String and Character functions

**Unit-V:**

**Pointers:** Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – - Passing Arguments to Functions using Pointer – Pointer and Arrays – Passing Array to Function. **Structure, Union, and Enumerated Data Types:** Introduction – Nested Structures – Arrays of Structures – Structures and Functions - Unions – Enumerated Data Types.

**REFERENCE BOOKS:**


1. Reema Thareja, Introduction to C programming, Oxford University Press.
2. E Balagurusamy, Computing Fundamentals & C Programming – Tata McGraw-Hill, 2008.
3. Ashok N Kamthane, Programming with ANSI and Turbo C, Pearson Publisher, 2002.
4. Henry Mulish & Hubert L.Coo Reema Thareja: The Spirit of C: An Introduction to Modern Programming, Jaico Publishing House,1996.

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## III B.Com (Computer Applications)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| V | | WEB TECHNOLOGIES | 60 | 4 |

**Course Objective**

- To enable students with the design and development of web site.

**Course Outcomes**

Upon completion of the course students will be able to:

1. understand the web architecture and web services.
2. practice latest web technologies and tools by conducting experiments.
3. design interactive web pages using HTML and Style sheets.
4. study the framework and building blocks of .NET Integrated Development Environment.
5. provide solutions by identifying and formulating IT related problems.

**Unit-I: Introduction**

HTML, XML, and WWW, Topologies, Bus, Star, Ring, Hybrid, Tree, Lan, Wan, Man. **HTML**: Basic HTML, Document body, Text, Hyper links, Adding more formatting, Lists, Tables using colors and images. **More HTML**: Multimedia objects, Frames, Forms towards interactive, HTML document heading..

**Unit-II: Cascading Style Sheets**

Introduction, using Styles, simple examples, your own styles, properties and values in styles, style sheet, formatting blocks of information, layers.

**Unit-III: Introduction to JavaScript**

What is DHTML, JavaScript, basics, variables, string manipulations, mathematical functions, statements, operators, arrays, functions.

**Unit-IV: Objects in JavaScript**

Data and objects in JavaScript, regular expressions, exception handling, built-in objects, events..

**Unit-V: DHTML with JavaScript**

Data validation, opening a new window, messages and confirmations, the status bar, different frames, rollover buttons, moving images, multiple pages in single download, text only menu system.

**REFERENCE BOOKS:**


1. Uttam Kumar Roy, Web Technologies, Oxford University Press.
2. Black Book HTML 5.0
3. Complete reference HTML 5.0
4. Web Technology, PHI Publications.

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## III B.Com (Computer Applications)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| V | | DATABASE MANAGEMENT SYSTEM | 60 | 4 |

**Course Objective:**

This course enables students to design, develop and manage databases using SQL.

**Course Learning Outcomes:**

Upon successful completion of the course, a student will be able to:

1. Familiarize the fundamental concepts of DBMS with special emphasis on relational data model.
2. Design database using ER diagrams.
3. Apply normalization to reduce redundancy in database.
4. Demonstrate the DDL and DML commands.
5. Develop SQL, PL/SQL programs

**Unit-I: Overview of Database Management System:** Introduction, Data and Information, Database, Database Management System, Objectives of DBMS, Evolution of Database Management Systems, Classification of Database Management System.

**Unit-II: File-Based System**: File-Based System, Drawbacks of File-Based System , DBMS Approach, Advantages of DBMS, Data Models , Components of Database System, Database Architecture, DBMS Vendors and their Products.

**Unit-III: Entity–Relationship Model:** Introduction, The Building Blocks of an Entity–Relationship, Classification of Entity Sets , Attribute Classification, Relationship Degree, Relationship Classification, Generalization and Specialization, aggregation and composition, CODD'S Rules, Relational Data Model , Concept of ,Relational Integrity.

**Unit-IV: Structured Query Language:** Introduction, History of SQL Standard, Commands in SQL, Data types in SQL, Data Definition Language (DDL), Selection Operation Projection Operation, Aggregate Functions, Data Manipulation Language, Table Modification, Table Truncation, Imposition of Constraints, Set Operations.

**Unit -V: PL/SQL:** Introduction, Structure of PL/SQL, PL/SQL Language Elements ,Data Types, Control Structure,, Steps to Create a PL/SQL Program, Iterative Control ,Cursors , Steps to Create a Cursor , Procedure, Function ,Packages ,Exceptions Handling, Database Triggers, Types of Triggers.

**Reference Books:**


1. Paneerselvam: Database Management Systems, PHI.
2. David Kruglinski, Osborne, Data Management System McGraw Hill Publication.
3. Shgirley Neal and Kenneth LC Trunik Database Management Systems in Business – PHI.
4. Godeon C. EVEREST, Database Management – McGraw Hill Book Company.
5. MARTIN, Database Management – Prentice Hall of India, New Delhi.
6. Bipin C. Desai, "An Introduction to Database Systems", Galgotia Publications.
7. Korth, Database Management systems.
8. Navathe, Database Management systems.
9. S. Sumathi, S. Esakkirajan, Fundamentals of Relational Database Management Systems

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## III B.Com (Computer Applications)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| VI | | E-COMMERCE | 60 | 4 |

**Course Objective**

The objectives of the course are to introduce the concept of electronic commerce, and to understand how electronic commerce is affecting business enterprises, governments, consumers and people in general.

**Course Outcome**

Upon completion of the course students will be able to:

1. understand principles of e-Business and e- Commerce and the role of Management
2. analyse various models of business
3. familiarize with the network issues involved in establishing e-Commerce.
4. Understand the legal issues involved in e-Commerce.
5. Analyse the infrastructural needs for establishing e-Commerce business.

**Unit-I:** Introduction to E-Commerce: Scope, Definition, e-Commerce and the Trade Cycle, Electronic Markets, Electronic Data Interchange, Internet Commerce. Business Strategy in an Electronic Age: Supply Chains, Porter's Value Chain Model, Inter Organizational Value Chains, Competitive Strategy, First Mover Advantage - Sustainable Competitive Advantage, Competitive Advantage using E-Commerce - Business Strategy,

**Unit-II:** Business-to-Business Electronic Commerce: Characteristics of B2B EC, Models of B2B EC, Procurement Management by using the Buyer's Internal Market place, Just in Time Delivery, Other B2B Models, Auctions and Services from traditional to Internet Based EDI, Integration with Back-end Information System, Role of Software Agents for B2B EC, Electronic marketing in B2B, Solutions of B2B EC, Managerial Issues, Electronic Data Interchange (EDI), EDI: Nuts and Bolts, EDI and Business,

**Unit-III:** Internet and Extranet : Automotive Network Exchange, Largest Extranet, Architecture of the Internet, Intranet and Extranet, Intranet software, Applications of Intranets, Intranet Application Case Studies, Considerations in Intranet Deployment, Extranets, Structures of Extranets, Extranet products and services, Applications of Extranets, Business Models of Extranet Applications, Managerial Issues. Electronic Payment Systems: Issues and Challenges, E-Marketing, Internet Marketing Techniques.

**Unit-IV:** Public Policy: From Legal Issues to Privacy : Legal Incidents, Ethical and Other Public Policy Issues, Protecting Privacy, Protecting Intellectual Property, Free speech, Internet Indecency and Censorship, Taxation and Encryption Policies, Other

Legal Issues: Contracts, Gambling and More, Consumer and Seller Protection in EC,

**Unit-V:** Infrastructure For EC : Network of Networks, Internet Protocols, Web- Based client/Server, Internet Security, Selling on the Web, Chatting on the Web, Multimedia delivery, Analyzing Web Visits, Managerial Issues, Equipment required for establishing EC Sites – Problems in Operation,

**Reference Books**


1. David Whiteley, "E-Commerce", Tata McGraw Hill, 2000.
2. E Business by Parag Kulakarni and Sunitha Jahirabadkar from Oxford University Press.
3. E Business by Jonathan Reynolds from Oxford University Press.
4. Eframi Turban, Jae Lee, David King, K. Michael Chung, "Electronic Commerce", Pearson Education, 2000.
5. R. Kalakota and A. B. Whinston, Frontiers of Electronic Commerce, Addison Wesley.
6. David Kosiur, Understanding Electronic Commerce, Microsoft Press.
7. Soka, From EDI to Electronic Commerce, McGraw Hill.


A. Manoj Kumar

U. Siva Lalitha

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## III B.Com (Computer Applications)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| VI | | PHP and My SQL | 60 | 4 |

**Course Objective**

- PHP and MySQL are incredibly powerful open source technologies that allow programmers and web developers to create functional websites and apps that go way beyond basic HTML.

**Course Outcomes:**

1. Write PHP scripts to handle HTML forms.
2. Write regular expressions including modifiers, operators, and meta characters.
3. Create PHP programs that use various PHP library functions, and that manipulate files and directories.
4. Analyse and solve various database tasks using the PHP language.
5. Analyse and solve common Web application tasks by writing PHP programs.

**Unit-I: Building blocks of PHP:** Variables, Data Types, Operators and Expressions, Constants. Flow Control Functions in PHP: Switching Flow, Loops, Code Blocks and Browser Output. Working with Functions: Defining Functions, Calling functions, returning the values from User-Defined Functions, Variable Scope, Saving State between Function calls with the Static statement, more about arguments,

**Unit-II: Working with Arrays:** Arrays, Creating Arrays, Some Array-Related Functions. Working with Objects: Creating Objects, Object Instance. Working with Strings, Dates and Time: Formatting Strings with PHP, Investigating Strings with PHP, Manipulating Strings with PHP, , Using Date and Time Functions in PHP.

**Unit-III: Working with Forms**: Creating Forms, Accessing Form - Input with User defined Arrays, Combining HTML and PHP code on a single Page, Using Hidden Fields to save state, Redirecting the user, Sending Mail on Form Submission, Working with File Uploads. Working with Cookies and User Sessions: Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables, passing session IDs in the Query String, Destroying Sessions and Unsetting Variables, Using Sessions in an Environment with Registered Users.

**Unit-IV: Working with Files and Directories**: Including Files with include(), Validating Files, Creating and Deleting Files, Opening a File for Writing, Reading or Appending, Reading from Files, Writing or Appending to a File, Working with Directories, Open Pipes to and from Process Using popen (), Running Commands with exec(), Running Commands with system ( ) or passthru ( ). Working with Images: Understanding the Image-Creation Process, Necessary Modifications to PHP, Drawing a New Image, Getting Fancy with Pie Charts, Modifying Existing

Images, Image Creation from User Input,

**Unit-V: Interacting with MySQL using PHP:** MySQL Versus MySQLi Functions, Connecting to MySQL with PHP, Working with MySQL Data. Creating an Online Address Book: Planning and Creating Database Tables, Creating Menu, Creating Record Addition Mechanism, Viewing Records, Creating the Record Deletion Mechanism, Adding Sub-entities to a Record, Joins: Cross Joins, Outer Joins, Self Joins .

## REFERENCE BOOKS:


1. Julie C. Meloni, PHP MySQL and Apache, SAMS Teach Yourself, Pearson Education (2007).
2. Xue Bai Michael Ekedahl, The Web Warrior Guide to Web Programming, Thomson (2006).

# SRR&CVR GOVT DEGREE COLLEGE(A):: VIJAYAWADA

## III B.Com (Computer Applications)

## Revised Syllabus 2021-22

| Semester | Course Code | Course Title | Hours | Credits |
|---|---|---|---|---|
| VI | | TALLY | 60 | 4 |

**Course Objectives:**

This course is designed to impart knowledge regarding concepts of Financial Accounting Tally is an accounting package which is used for learning to maintain accounts. As this course is useful for Commerce students to get placements in different offices as well as companies in Accounts departments.

**Course Out Comes:**

1. After successfully qualifying practical examination, students will be awarded certificate to work with well-known accounting software i.e. Tally ERP.9
2. Student will do by their own create company, enter accounting voucher entries including advance voucher entries, do reconcile bank statement, do accrual adjustments, and also print financial statements, etc. in Tally ERP.9 software .
3. Students do possess required skill and can also be employed as tally data entry operators.

**Unit-I:** Introduction to Tally: Introduction, Software versions of Tally, Terminology related to Accounts credit & Debit, Journal, Ledger, Voucher, Group etc. Difference between ManualAccounting and Accounting Packages. Features and advantages of Tally.

**Unit-II:** Introduction of Tally Software, Creation of a company, Gateway of Tally, AccountsInformation, Groups, pre defined Groups, Creation of New Groups, Creation of sub Group.

**Unit-III:** Ledgers, Ledger Creation – Single and multiple Ledgers, Displaying & altering Ledgers,configure Ledger, Stock Ledger, Ledgers and their Group Allocation.

**Unit-IV:** Vouchers –types of vouchers – recording of vouchers – entry of payment voucher, Receipt voucher, sales voucher, purchase voucher, Journal Voucher, Contra Voucher, Debit & Credit Note. Creating New Voucher types, customizing the Existing voucher types, Alternation of Voucher, Deletion of Voucher.

**Unit-V:** Final Accounts: Customizing the final accounts – Profit and Loss Account, Balance Sheet. Key board shortcuts in Tally. Generating the Reports from Tally, Trial Balance, Account Books, Sales, Purchase, Journal Registers, Statement of Accounts, Day Book, List of Accounts.

**REFERENCE BOOKS:**


1. K. Kiran Kumar, Tally ERP9.
2. Tally 9 In Simple Steps, Kogent solutions Inc., John Wiley & Sons, 2008.
3. Narmata Agarwal, Financial Accounting on Computers Using Tally, Dreamtech Press, 2000.

Unit-I:

Electronic Commerce: Definition, Types, advantages and disadvantages, E-Commerce transaction on World Wide Web. Electronic market-Online shopping, Three models of Electronic Market - e-Business.

Unit-II:

Supply Chain Management: Definition, Benefits, goals, functions, characteristics, Strategies of SCM, Electronic logistics and its implementation in business houses - Electronic Data Interchange (EDI): Benefits of EDI, applications, limitations, EDI Model.

Unit-III:

Electronic Payment Systems: Types of EPS- Traditional and Modern payment systems, electronic cash, steps for electronic payment, payment security -e-Security- cryptography, hacker, secure electronic transaction, secure-socket layer.

Unit-IV:

Customer Relationship Management: Components of CRM, CRM Architecture, architectural components of a CRM solution, Electronic CRM, Need for Electronic CRM, E-CRM applications.

Unit-V:

HTML- Navigating the World Wide Web, Preparing to Publish on the Web, HTML and XHTML, Learning the basics of HTML, structure of HTML, creating simple web pages, formatting text with HTML, adding images, color and background, table creation, designing forms.

References:


1. PT Joseph SJ, E-Commerce: An Indian Perspective, Prentice Hall of India.
2. Effraim Turban, Joe Lee, David Kind-H Michael Chung, E-Commerce, A Management Perspective - Pearson Education Asia.
3. Pandey US & Shukla Er.S., E-Commerce & M-Commerce Technology, S.Chand& Company New Delhi.
4. Gary P. Schneider, E-Commerce Strategy Technology & Implementation, Cengage Learning, New Delhi-2009.
5. Trepper, E-Commerce Strategies, PrenticeHall of India, New Delhi. 2006
6. Jonathan Reynolds, E-Business A Management Perspective, Oxford University Press.

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