

**DEPARTMENT OF COMPUTER SCIENCE**  
**COURSE CURRICULUM & MARKING SCHEME**

**B.Sc. Part - III**  
**COMPUTER SCIENCE**

**SESSION : 2023-24**



**ESTD : 1958**

**GOVT. V.Y.T. PG AUTONOMOUS COLLEGE,**  
**DURG, 491001 (C.G.)**

(Former Name – Govt. Arts & Science College, Durg)

NAAC Accredited Grade A<sup>+</sup>, College with CPE - Phase III (UGC), STAR COLLEGE (DBT)

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**B.Sc.**  
**(Computer**  
**Science)**

**DEPARTMENT OF COMPUTER SCIENCE  
GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG**

**Approved syllabus for B.Sc. Computer Science by the members of Board of Studies for  
the Session 2023-24**

**The syllabus with the paper combinations is as under**

**B.Sc.-III:**

<b>Paper I: COMPUTER HARDWARE</b>	<b>Paper II: COMPUTER SOFTWARE</b>
<b>Paper III: COMPUTER PRACTICAL</b>	

**The syllabus for B.Sc. Computer Science is hereby approved for the session 2023-24.**

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**Syllabus and Marking Scheme for B.Sc. - III YEAR**  
**Session 2023-24**

PAPER NO.	SUBJECT CODE	TITLE OF THE PAPER	MARKS ALLOTTED IN THEORY	
			Max	Min
I	BCS-301	Computer Hardware	50	17
II	BCS-302	Computer Software	50	17
III	BCS-303	Lab course/ Practical	50	17
		<b>Total</b>	<b>150</b>	

01	Theory papers	-	100
02	Practical	-	50
	<b>Total Marks</b>	-	<b>150</b>

**Name and Signatures**

V.C. Nominee .....	Departmental members
Subject Expert .....	1. HOD: Mr. Dileep Kumar Sahu.....
Subject Expert.....	2. Mrs. Latika Tamrakar.....
Alumni(member).....	3. Dr. Sanat Kumar Sahu.....
Prof. from other Dept. of Sc. Faculty .....	
Specialist from Industry .....	

**GOVT.V.Y.T.PG.AUTO COLLEGE, DURG (C.G)**  
**SYLLABUS FOR AY 2023-24**  
**B.SC.III (Computer Science)**  
**Subject Code: BCS-301, Paper-I**  
**COMPUTER HARDWARE**

**Max Marks: 50**

**Min Marks: 17**

**Course Objective:**

1. To introduce the overall organization of the microcomputers and operating systems.
2. To introduce the interaction of common devices used with computers with operating software, excluding the Assembly languages, with special reference to DOS/WINDOWS.
3. To introduce the working of hardware components, Micro-Processor and various chips used in micro-computers by operating system, without the use of electronic circuitry.
4. To introduce the use of operating systems architecture with IBM-PC & clones, excluding Assembly language, with forms an important part of hardware.

**Course Outcomes:**

1. Understand the Organization of Micro-computers.
2. Explain about system hardware and organizations of personal computers
3. Explain about organization of operating system with system hardware
4. Understand the working process of DOS and their memory management techniques.
5. Understand the organization of hardware by operating system.

**UNIT-1: ORGANISATION OF MICRO-PROCESSOR& MICRO-COMPUTER:**

**1. Introduction & Organization of Micro-computer :**

- a) Basic components of micro-computer: Basic Block; Prom ram memory, Data memory, I/O Ports , Clock generator, Integration of functional blocks.
- b) Inter-connecting Components in a Micro-computer: Necessary functional blocks, bussed architecture for micro-computer, memory addressing; Addressing I/O ports, comparison of I/O mapped and memory mapped I/O.
- c) Input/ Output Techniques: Non-CPU devices, Program & interrupt controlled

**2. An introduction to the various as:**

- a) General understanding of different Micro-Processor or CPU: Intel 8088,286,386,486,586 Pentium, P54C, MMX P55C, Motorola 6800 & 88100 series; CYRIX & AMD CPUs.
- b) The Registers of CPU Give Example of Processor-8088, Register organization of 8088,scrach pad segment, pointer ,index and Flag, Registers.
- c) Memory addressing modes of Processor-8088 : segment offset; Data addressing modes, Addressing for branch instructions.
- d) I/O Addressing with p-8088: Memory mapped I/O & I/O mapped I/O.

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## UNIT -2 SYSTEM HARDWARE ORGANISATIONS OF COMPUTERS:

### 1. Hardware Organization of the Personal Computer:

- a) Block diagram with various parts of PC.
- b) The Mother board of general PC: 8088 CPU,ROM&RAM, KEYBOARD & its interface, system timer/counters, Hardware interrupt vectoring, DMA controller& channels, interfacing to audio Speaker, Bus slots & facture cards.
- c) The Serial i/o ports.COM-1&COM-2.
- d) The parallel port for printer.
- e) Expansion slots for RAM.
- f) Disk controllers: For floppy, Hard disk, CD-ROM & cassetts drives.

### 2. The Video Display of PCs:

- a) Video monitors ,Monochrome & colour.
- b) Video display adapters & their video modes. Monochrome & colour graphics adapters.
- c) Video control through ANSI-SYS.
- d) Video control through ROM-BOIS;INT 10H.
- e) Direct video control, monochrome & colour graphics adapters.
- f) Installing customized character sets.

## UNIT 3 ORGANISATION OF OPERATING SYSTEM WITH SYSTEM HARDWARE:

### 1. The ROM-BIOS services:

- a) Introduction TOUNIX, ENIX, SUN, Solaris, DOS& MAC with special REFERENCE to DOS & windows, itsver. asDOS becomes more popular than others in PCs.
- b) The ROM-BIOS Diskette services, INT 13H.
- c) The ROM-BIOS serial port services, INT 14H.
- d) The ROM-BIOS KEYBOARD SERVICES, INT 16H.
- e) The ROM-BIOS printer services, INT 17H.
- f) Miscellaneous service provided by the ROM-BIOS: INT 05H,INT 11H,INT 12H,INT 18H,INT 19H,INT 1AH.

### 2.The Fundamental of Operating System viz.DOS/Windows:

- a) The loading of DOS& its basic structure: ROM bootstrap, IO.SYS, DOS,SYS& COMMAND.COM
- b) The execution of the programs under DOS:EXE functions, program segment prefix, features of COM&EXE program files.
- c) Device handling by DOS, FDD, HDD,CON, keyboard, PRN,AUX,CLOCK & NULL devices , block devices, character devices, driver installation sequence.
- d) File structures of DOS.
- e) The DOS interrupts: INT 20H-2FH.
- f) The DOS functions through INT21H Discuss only the understanding part of various other DOS function to handle hardware software.
- g) Installation of windows: important system files in windows.

## UNIT 4 ORGANIZATION&HANDLING BY OPERATING SYSTEM:

### 1. Disk and files under DOS:

- a) Logical structure of a disk organization of disk for use, boot record, PAI files, disk or root directory.
- b) File organization on a DOS disk: Logical volumes: Sub directories .volume labels.

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c) Manipulating files under DOS file attributes, data and time ,file Access, FCB functions.

**2. Memory Allocation, program loading and execution:**

- a) Memory management, under DOS: EXEC loader. memory management &its function,Modifying a program memory allocation.
- b) Loading and execution program under DOS: The EXEC function, memory consideration, and parameter blocks. Calling& returning from EXEC.
- c) Loading the program overlays through EXEC.

**UNIT-5 ORGANIZATION OF HARDWARE BY OPERATING SYSTEM:**

**1. interrupt handling through DOS:**

- a. Types of interrupt.
- b. Interrupt vector table in p.c.
- c. Interrupt service routines.
- d. Special interrupt in pc: clock interrupt, the c or I Break interrupt.DOS reserved interrupt INT 28H Patching memory resident routines.

**2. Filters for DOS:**

- a. Filters in operating system.
- b. Redirection of I/O under DOS.
- c. The filters supplied with DOS.
- d. Writing filters to run under DOS.
- e.

**3. Handling of Various Version of Windows O/S:**

- a. Setup installation.
- b. Trouble shooting.
- c. Networking feature.

**TEXT BOOK:**

1. HARDWARE AND SOFTWARE OF PERSONAL COMPUTERS -BY SANJAY K BOSE.

**SUPPORTING BOOKS:**

1. DIGITAL SYSTEM FROM GATES TO MICROPROCESSOR -BY SANJAY K BOSE.  
2. COMPUTER FUNDAMENTAL,ARCHITECTURE& ORGANIZATION -BY B.RAM.

**REFERENCE BOOK:**

1. IBM PC-XT AND CLONES: -BY GOVINDRAJALU.  
2. MICROPROCESSOR AND INTERFACING: -BY DOUGLAS HALL.  
3. INSIGHT THE IBM-PC: -BY PETER NORTON.  
4. MICROPROCESSOR SYSTEM: 8086/8088 FAMILY -BY LIU AND GIBSON.  
ARCHITECTURE, PROGRAMMING &DESIGN:

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**GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE DURG**  
**SYLLABUS FOR AY (2023-24)**  
**BSC- III (Computer Science)**  
**Subject Code: BCS-302, Paper-II**  
**COMPUTER SOFTWARE**

**Max Marks: 50**

**Min Marks : 17**

**Course Objective:**

1. To introduce Data Base Management System concepts.
2. To introduce the Relational Database Management System and Relational Database Design.
3. To introduce the RDBMS software and utility of query language.
4. To introduce basic concept of GUI Programming and database connectivity using Visual Basic

**Course Outcomes:**

1. Understand The Visual Basic Integrated Development Environment (IDE) and its wealth of development tools.
2. Build effective user interfaces with Visual Basic controls, forms, and other GUI components.
3. Learn the use of the debugging and testing tools available in Visual Studio.
4. Use Database access using Visual Basic's ADO Control and data-aware components like the Data Grid and Data Environment Designer.
5. Use the Packaging and Deployment tool to deliver completed applications to end users.

**UNIT-I CONCEPT OF D.B.M.S AND DATA MODELS:**

**(A) Introduction to DBMS:** Purpose of Database system, view of data ,Data Modeling Database languages Transaction Management, Storage Management, Database Administrator and user, Database system structure.

**(B) E-R Model:** Basic concepts, constraints, keys mapping constant, E-R Diagram, weak and strong Entity sets, E-R Database Schema Reduction of an E-R Schema to table.

**UNIT-II RELATIONAL DATABASEMANAGEMENT SYSTEM:**

**(A) Relational model:**Structure of Relational Database, Relational Algebra, Domain Relational Calculus, Extended Relational Algebra Operation, Modification of Database, Views.

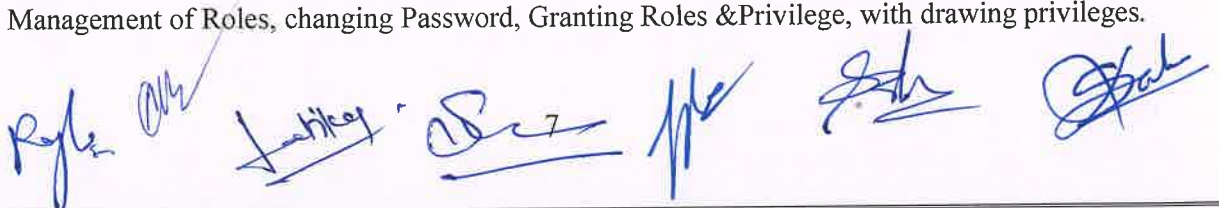
**(B) Relational Database Design:** Pitfalls in Relational Database Designing Decomposition Functional Dependencies, Normalization: 1NF, 2NF, BCNF, 3NF, 4NF, 5NF

**UNIT-III INTRODUCTION TO RDBMS SOFTWARE –ORACLE:**

**(A) Introduction:** Introduction to Personal and enterprises Oracle, Data Types Commercial Query Language SQL, SQL \*PLUS.

**(B) DDL and DML:** Creating table, Specifying Integrity Constraint, Modifying Existing Table, Dropping Table, Inserting Deleting and Updating Rows in as Table, Where Clause, Operators ORDER BY GROUP BY GROUP Function, SQL Function, JOIN, Set Operation SQL Sub Queries. Views: what views Create, Drop and Retrieving data from views.

**(C) Security, Management of Roles, changing Password, Granting Roles &Privilege, with drawing privileges.**





(D)PL/SQL Block Structure in PL/SQL, Variable and constants, Running PL/SQL in the SQL \*PLUS, Database Access with PL/SQL, Exception Handling, Record Data type in PL/SQL, Triggers in PL/SQL.

#### UNIT-IV G.U.I. PROGRAMMING:

(A) **Introduction to Visual Basic:** Event Driven Programming, IDE, introduction to object, controlling object, modules and events, working with forms, MDI form, working with standard controls.

(B) Overview of variables declaring, scope, arrays, user defined data types, constant, working with procedure: Function, subroutine, subroutine and property, working with data. Time format, string function, controlling program function: comparison and logical operator, if then statement, select case statement, looping structure, exiting a loop. Error trapping, Error Handling.

(C) **File Organization:** saving data to file, sequential and random access file the design and coding.

#### UNIT-V DATA BASE PROGRAMMING IN V.B.:

(A) **Introduction :** concept of DAO, RDO, ADO, input validation : field & form level validation, ADO object model, the Add object hierarchy, the connection object, the command object, record set object, parameter object, field object, record object, stream object error object, parameter object.

(B) **Using bound control to present ADO data:** Using the ADO data control, ADO data control properties, binding simple controls : data list, data combo, data grid data from wizard : single form wizard, grid from, master /detail from. Programming the ADO data control: Regress method, event, hierarchy coal flex, grid control.

(C) **Data Environment & data Report:** Creating connection, using command object in the data environment, Data environment option and operation, binding Form to the data environment, ADO events in the data report, Print preview, print, export, data report in code : data reports Events, binding data reports directly.

#### REFERENCE BOOKS:

- |                              |   |
|------------------------------|---|
| 1. DATA BASE SYSTEM CONCEPT  | - BY HERY F. KORTH, TATA MC GRAW HILL   |
| 2. FUNDAMENTAL OF DATA BASE  | - NAWATHE & ELMASRI (PEARSON EDUCATION) |
| 3. ORACLE COMPLETE REFERENCE | - BY ORACLE RESS.                       |
| 4. INTRODUCTION TO OOPS & VB | - BY V.K. JAIN, VIKAS PUBLISHING HOUSE  |
| 5. DATABASE PROGRAMMING VB6  | - BY B.P.B PUBLICATION.                 |

**GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE DURG**  
**SYLLABUS FOR: (2023-24)**  
**B.Sc. –II(Computer Science)**  
**Subject Code: BCS-303**  
**PRATICAL WORK**

1. Practical on oracle: at least 20 practical covering the PL/SQL Triggers, View.
2. Practical on Visual basic: At least 20 practical on VB that covering basic and data controls components.

**DIRECTIVES FOR STUDENTS, FACULTY AND EXAMINERS**

1. There shall be three sections (Section A, B, and C ) in each theory paper.
2. Section A shall contain very short answer type questions (One or two line answer) or objective type questions (fill in the blank). **(not multiple choice questions)**
3. Section B shall contain short answer type questions with the limit of 150 words
4. Section C shall contain long answer/ descriptive type questions. The students are required to answer precisely and the answer should not exceed the limit of 350 words.
5. The students are required to study the content mentioned in the curriculum exhaustively.

**EVALUATION PATTERN**

➤ **Theory 50 marks , Practical 50 marks**

Question Type	MM 50 (Marks X No. of Q.)
A (Very short Ans.)	1X10 = 10
B (Short Ans.)	3X5 = 15
C (Long Ans.)	5X5 = 25

**Name and Signatures**

<p>V.C. Nominee .....</p> <p>Subject Expert .....</p> <p>Subject Expert.....</p> <p>Alumni(member).....</p> <p>Prof. from other Dept. of Sc. Faculty .....</p> <p>Specialist from Industry .....</p>	<p><b>Departmental members</b></p> <p>1. HOD: Mr. Dileep Kumar Sahu.....</p> <p>2. Mrs. Latika Tamrakar.....</p> <p>3. Dr. Sanat Kumar Sahu.....</p>
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Corrigendum for UG Classes

**1. Section –A (very short answer question)**

There shall be 8/9/10 objective type questions (No multiple choice). All questions are compulsory; at least one from each unit.








**2. Section B, Section C**

There shall be 10 questions, two questions from each unit.

The candidate has to attempt one question from each unit.

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**GOVT. V. Y.T. P. G. AUTO. COLLEGE, DURG**  
**SYLLABUS FOR: (2023-24)**  
**B.Sc. - PART III**  
**(COMPUTER SCIENCE)**

**PRACTICAL MARKS DISTRIBUTION**

**Practical paper**

**Program 1 - 15**

**Program 2 - 15**

**Internal - 10**

**Viva - 10**

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**Total - 50**

Practical test will consist of 3hrs.

**Name and Signatures**

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