DEPARTMENT OF COMPUTER SCIENCE

COURSE CURRICULUM & MARKING SCHEME

B.Sc. PART – II
INFORMATION TECHNOLOGY

SESSION : 2022-23

ESTD: 1958

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

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

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

Phone : 0788-2212030

Website - www.govtsciencecollegedurg.ac.in, Email – autonomousdurg2013@gmail.com

B.Sc.
(Information Technology)

Part -II

DEPARTMENT OF COMPUTER SCIENCE
GOVT. V.Y.T. PG. AUTONOMOUS COLLEGE DURG
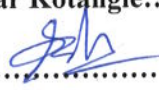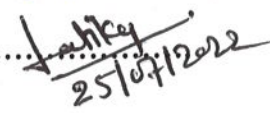### Approved syllabus for B.Sc. Computer Science by the members of Board of Studies for the Session 2022-23
The syllabus with the paper combinations is as under

B.Sc.-II:

Paper I: Digital Circuits & Computer H/W	Paper II: Object Oriented Programming with C++
Paper III: COMPUTER PRACTICAL	

The syllabus for B.Sc. Computer Science is hereby approved for the session 2022-23.

Name and Signatures
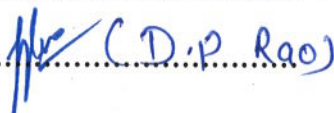
V.C. Nominee ……………………………..	**Departmental members**
Subject Expert ………………… (D.P.Rao)	1. HOD- Mr. Durgesh Kumar Kotangle……………..
Subject Expert………………………………	2. Mr. Dileep Kumar Sahu………………
Alumni(member)……………………………	3. Mrs. Latika Tamrakar………… 25/07/2022
Prof. from other Dept. of Sc. Faculty ……………	
Specialist from Industry ………………………………	

Syllabus and Marking Scheme for B. Sc. (IT) .-II YEAR
Session 2022-23

PAPER NO.	SUBJECT CODE	TITLE OF THE PAPER	MARKS ALLOTTED IN THEORY	
			Max	Min
I	BIT-201	Digital Circuits & Computer H/W	50	17
II	BIT-202	Object Oriented Programming with C++	50	17
III	BIT-203	Lab course/ Practical	50	17
		Total	150	

01	Theory papers	-	50
02	Practical	-	50
	Total Marks	-	100

Name and Signatures

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Prof. from other Dept. of Sc. Faculty……………….

Specialist from Industry …………………………….

Departmental members

1. HOD- Mr. Durgesh Kumar Kotangle……………..

2. Mr. Dileep Kumar Sahu……………….

3. Mrs. Latika Tamrakar………………….

DIGITAL CIRCUITS & COMPUTER H/W

Max Marks: 50   **Min Marks : 17**

Course Objective:

This course intended to provide understanding of data representation for digital logic , fundamental organization of a digital computer and Memory Organisation

Course Outcomes:

CO1: Apply the principles of Number System, Binary Code and Boolean Algebra

CO2: Acquire Knowledge about Logic Gates.

CO3: Design various Combinational Circuits.

CO4: Understanding of Multivibrator circuits

CO5: Understand Processor Organization and Memory Organization

N.B: Since the computer organization study is very vast & complicated, so that study is restricted to only the description and understanding part, fence the paper setter is requested to keep this important factor in mind.

UNIT-I (A) Number Systems :

Octal and hexadecimal number, decimal rep., complements, addition, subtraction, multiplication, division, fixed point rep, floating point rep., other binary code- gray code, excess 3 gray, 2421, etc. error detection code.

(B) Boolean Algebra :

Laws, demorgan's theorem, Simplification boolean expression & logic diagram, positive & negative logic, K-map and simplification of K-map.

UNIT-II Combinational circuits :

Half adder, full adder, flip-flop : SR, JK, D,T, sequential circuits : encoder, decoder, multiplexer, shift register, binary counters, BCD adder.

UNIT-III Multivibrator circuits :

Monostable, astable, bistable, smitt trigger, clocked RS, master-slave flip-flop, edge triggered flip-flop, latch.

Intergratedcircuits :

RTL, DITL, TTL, CMOS, MOS.

UNIT-IV (A) Central Processing Unit :

Introduction, register organisation, stack organisation, Instruction formats, Addressing modes.

(B) I/O Organisation :

I/O interfaces, Data transfer, types and modes, interrupts, DMA, IOP.

UNIT-V Memory Organisation :
Memory hierarcy, main memory, Auxiliary memory, Associative memory, cache memory, virtual memory, memory management techniques.
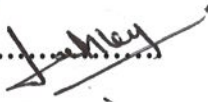

REFERENCE TAXT BOOK :
1. Integrated Electronics - Millman&Halkias
2. Principle of Electronics - V.K. Mehta
3. Digital Electronics - R.P. Jain
4. Computer System Architecture - Morris Mano
5. Digital Electronics & Computer Hardware - Morris Mano

RECOMMENDED BOOKS:

1. COMPUTER FUNDAMENTAL &ARCHITECTURE -BY B.RAM
2. COMPUTER TODAY   -BY. DONEH.SANDERS
3. COMPUTER FUNDAMENTAL   -BY RAJA RAMAN.
4. IBM PC_XT CLONE   -BYGOVINDARAJALU

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Subject Expert………………………………	Kotangle……………..
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GOVT.V.Y.T.P.G.AUTO.COLLEGE, DURG
SYLLABUS FOR: (2022-23)
B.Sc. (IT) – II Year
Subject Code: BIT202
Paper – II
Object Oriented Programming with C++

Max Marks: 50   Min Marks : 17

Course Objective:

This course intended to provide in-depth knowledge of Object oriented programming using C++.

Course Outcomes

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

CO 1: Discuss the concepts of programming designing and get hands on with selection and iterative building blocks for coding

CO 2: Describemodularprogrammingapproachandlearnuserdefinederiveddatatypes

CO 3: Discuss object oriented programming concepts and features of OOPs by implementing using C++

CO 4: Describe Inheritance in C++

CO 5: Describe pointers and their usage using C++ along with handling exception

NOTE: Examiners are requested to set unit wise questions papers.

UNIT-I Introduction to OPP : Advantages of OPP, the Object oriented approach, characteristics of object oriented languages : object, classes, inheritance, reusability, polymorphism and C++.

UNIT-II Function : function declaration, calling function, function definition, passing arguments to function, passing constant, passing value, fegerence argument, returning by reference, inline function, function overloading, default arguments in function.

UNIT-III Object and Classes, using the Classes Constructor, class destructor, object as function argument, copy constructor, struct and classes, array as class member, static class data, static member functions, friend function, friend class, operator overloading, type of inheritance, base class derive class, access speceifier, protected, member function.

UNIT-IV Pointers : & and * operator pointer variables, pointer to pointer, void pointer, pointer and array, pointer and functions, pointer and string, memory management, new and delete, pointer to object, this pointer, virtual function : virtual function, virtual member function, accesses with pointer, pure virtual function.

UNIT-V File and stream : C++ steams, C++ manipulators, Stream class, string I/O, char I/O, object I/O, I/O with multiple objects, disk I/O.

REFERENCE TEXT BOOKS:
1. Programming in C++ - E. Balaguruswami
2. Mastering in C++ - VenuGopal
3. Object Oriented Programming in C++ - Robert Lafore
4. Let us C++ - Y. KanetkaR
5. Digital Electronics - R.P. Jain
6. Computer System Architecture - Morris Mano
7. Digital Electronics & Computer Hardware - Morris Mano

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GOVT. V.Y.T. P.G. AUTONOMOUS COLLEGE DURG
SYLLABUS FOR: (2022-23)
B.Sc. (IT) – II Year
Subject Code: BIT-203
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.

PRACTICAL MARKS DISTRIBUTION

Practical paper

Program 1	- 15
Program 2	- 15
Internal	- 10
Viva	- 10
Total	- 50

Practical test will consist of 3hrs.

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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

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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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