K.S.N GOVT. DEGREE COLLEGE FOR WOMEN

An ISO Certified & Autonomous Institution

Affiliated to Sri Krishnadevaraya University - Ananthapuramu - A.P - 515002

NAAC A Grade (3.15/4.00) 3rd Cycle

DEPARTMENT OF COMPUTER SCIENCE

MINUTES OF BOARD OF STUDIES MEETING

(As per the new regulations of APSCHE w.e.f. 2023-2024)

Date: 10th October, 2023

B.Sc Honours Computer Science Major: Semester I

B.Sc Honours Computer Science Major: Semester II

B.Sc Honours Computer Science Minor: Semester II (Optional)

B.Sc Honours/BA/B.Com Skill Enhancement Course: Semester II (Optional)

B.Sc Honours Certificate Course: Semester I (Optional)

Curriculum and Question Paper Pattern

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Constitution of the Board of Studies in Computer Science

	Category	Name & Designation of the Person	Chair Person /Member
1.	Head Department of Computer Science	**Dr. A. Renuka Devi** Lecturer in Computer Science	Chair Person
2.	Subject expert nominated by the Vice-Chancellor	**Prof. V. Raghunatha Reddy** Dept. Of Computer Science & Technology S K University, Anantapuramu.	Member
3.	Subject Expert from outside university nominated by the Academic Council	**Dr C. Shoba Bindu,** Professor, Department of CSE, JNTUA, Anantapuramu	Member
4.	Subject Expert from outside university nominated by the Academic Council	**G. Dayanandam** Lecturer in Computer Science GDC, Koduru	Member
5.	A representative from industry nominated by the principal	**J. Madhan Mohan** Thopstech Career Solutions, Banglore	Member
6.	Faculty Member	**Miss. G. Meena** Guest Faculty in Computer Science	Member
7.	Member College Alumna	**N. Hari Priya**	Member

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K.S.N GOVT. DEGREE COLLEGE FOR WOMEN
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NAAC A (3.15/4.00) Grade 3rd Cycle

Minutes of Board of Studies 2023-24

Department of Computer Science

Date: 10-10-2023

Members of the board of studies attended meeting under the chairmanship of Dr. A. Renuka Devi, Head of the Department of Computer Science on 10–10–2023 at 11:00 AM to discuss and finalize the following agenda.

AGENDA:

- To review the curriculum as prescribed by APSCHE with effect from Academic Year 2023-24.
- To discuss whether changes are required in the curriculum.
- To discuss and propose the criteria and pattern of internal assessment and external assessment.
- To offer value added Add On and Certificate Courses
- To consider the list of question paper setters and list of examiners.
- Any other subject with the permission of the Chairperson

Resolutions:

The members of BoS in Computer Science met on 10-10-2023 in the Department of Computer Science, KSN GDC for Women (A), under the chairmanship of Dr. A. Renuka Devi, Chairperson of the BoS of Computer Science Department and discussed the proposals on the curriculum and examination pattern for the B.Sc Honours Computer Science Major Semester I and Semester II, B.Sc Honours Computer Science Minor (Optional) Semester II, B.Sc/BA/B.Com Honours Skill Enhancement Course: Semester II (Optional). The following proposals are submitted as a part of the agenda for the consideration and approval by the honorable members of Board of Studies.

1. Considered and approved the syllabus for B.Sc Honours Computer Science Major Semester I (with exchange of Course 1 and course 2 computer science content) and Semester II, B.Sc Honours Computer Science Minor (Optional) Semester II, B.Sc Honours/BA/B.Com Skill Enhancement Course: Semester II (Optional) along with the model paper proposed by the Department.
2. Considered and approved the syllabus for Certificate Course titled Basics of Information technology.

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3. Considered and approved the question paper pattern for B.Sc Honours Computer Science Major Semester II, B.Sc Honours Computer Science Minor (Optional) Semester II, B.Sc /BA/B.Com Honours Skill Enhancement Course: Semester II (Optional). It is approved that the external examination shall be for 60 Marks (Pass marks: 25), and weightage for the internal assessment is 40 marks (Pass Marks: 15).

4. Considered and approved the list of question paper setters and list of examiners.

5. Considered and approved the decision to conduct as many student centric activities as possible.

6. Considered and approved all the Proposed Activities of the Dept. of Computer Science for 2023-24.

Signatures of the Members:

S.No.	Name of the Member	Signature
1.	Dr. A. Renuka Devi (Chair Person)	
2.	Prof. V. Raghunatha Reddy (Subject expert nominated by the Vice-Chancellor)	
3	Dr. C. Shoba Bindu (Subject Expert from outside university nominated by the Academic Council)	
4	G. Dayanandam (Subject Expert from outside university nominated by the Academic Council)	
5	J. Madhan Mohan (industry representative)	
6	Miss. G. Meena (Faculty Member)	
7	N. Hari Priya College Alumna	

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ANNEXURE –I

KSN GOVERNMENT DEGREE COLLEGE FOR WOMEN (A)
ANANTAPURAMU

Department of Computer Science

Revised UG Syllabus under CBCS

With effect from 2023–2024 Academic Year

Structure for I Year B.Sc Honours Computer Science

Year	Semester	Major/ Minor	Paper Code	Title	Hrs per week	Credits	Marks		Total
							IA	EA	
First Year	I	Major	Course1	Essentials and Applications of Mathematical, Physical and Chemical Sciences	5	4	40	60	100
			Course2	Advances in Mathematical, Physical and Chemical Sciences	5	4	40	60	100
	II	Major/ Minor	C-201	Problem Solving using C	3	3	40	60	100
			C-201P	Problem Solving using C Lab	2	1	--	50	50
	II	Major	C-202	Digital Logic Design	3	3	40	60	100
			C-202P	Digital Logic Design Lab	2	1	--	50	50

SKILL ENHANCEMENT COURSE

Year	Semester	Paper Code	Title	Hrs per week	Credits	Marks
						EA
First Year	II		Digital Literacy	2	2	50

CERTIFICATE COURSE

Year	Semester	Title	Duration Hrs.
First Year	I	Basics of Information Technology	30

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COURSE 1: ESSENTIALS AND APPLICATIONS OF MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES (Hours: 5hrs/week Credits: 4)

Semester	Paper Code	Paper Title	Hrs/Week	Credits
I	Course1	Essentials and Applications of Mathematical, Physical and Chemical Sciences	05	04

Course Objectives

The objective of this course is to provide students with a comprehensive understanding of the essential concepts and applications of mathematical, physical, and chemical sciences. The course aims to develop students' critical thinking, problem-solving, and analytical skills in these areas, enabling them to apply scientific principles to real-world situations.

Learning outcomes

1. Apply critical thinking skills to solve complex problems involving complex numbers, trigonometric ratios, vectors, and statistical measures.
2. To explain the basic principles and concepts underlying a broad range of fundamental areas of physics and to Connect their knowledge of physics to everyday situations
3. To explain the basic principles and concepts underlying a broad range of fundamental areas of chemistry and to Connect their knowledge of chemistry to daily life.
4. Understand the interplay and connections between mathematics, physics, and chemistry in various applications. Recognize how mathematical models and physical and chemical
5. Principles can be used to explain and predict phenomena in different contexts.
6. To explore the history and evolution of the Internet and to gain an understanding of network security concepts, including threats, vulnerabilities, and countermeasures.

UNIT I: ESSENTIALS OF MATHEMATICS

Complex Numbers: Introduction of the new symbol i – General form of a complex number, Modulus-Amplitude form and conversions , Trigonometric Ratios: Trigonometric Ratios and their relations – Problems on calculation of angles Vectors: Definition of vector addition – Cartesian form – Scalar and vector product and problems Statistical Measures: Mean, Median, Mode of a data and problems

UNIT II: ESSENTIALS OF PHYSICS

Definition and Scope of Physics- Measurements and Units - Motion of objects: Newtonian Mechanics and relativistic mechanics perspective - Laws of Thermodynamics and Significance- Acoustic waves and electromagnetic waves- Electric and Magnetic fields and their interactions- Behaviour of atomic and nuclear particles- Wave-particle duality, the uncertainty principle- Theories and understanding of universe

UNIT III: ESSENTIALS OF CHEMISTRY

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Definition and Scope of Chemistry- Importance of Chemistry in daily life -Branches of chemistry and significance- Periodic Table- Electronic Configuration, chemical changes, classification of matter, Biomolecules- carbohydrates, proteins, fats and vitamins.

UNIT IV: APPLICATIONS OF MATHEMATICS, PHYSICS & CHEMISTRY

Applications of Mathematics in Physics & Chemistry: Calculus, Differential Equations & Complex Analysis

Application of Physics in Industry and Technology: Electronics and Semiconductor Industry, Robotics and Automation, Automotive and Aerospace Industries, Quality Control and Instrumentation, Environmental Monitoring and Sustainable Technologies.

Application of Chemistry in Industry and Technology: Chemical Manufacturing, Pharmaceuticals and Drug Discovery, Materials Science, Food and Beverage Industry.

UNIT V: ESSENTIALS OF COMPUTER SCIENCE

Number System-Binary, Octal, decimal, and Hexadecimal, Signals-Analog, Digital, Modem, Codec, Multiplexing, Transmission media, error detection and correction- Parity check and CRC, Networking devices- Repeater, hub, bridge, switch, router, gateway.

Recommended books:

1. Functions of one complex variable by John.B.Conway, Springer- Verlag.
2. Elementary Trigonometry by H.S.Hall and S.R.Knight
3. Vector Algebra by A.R.Vasishtha, Krishna Prakashan Media(P)Ltd. 4.Basic Statistics by B.L.Agarwal, New age international Publishers
4. University Physics with Modern Physics by Hugh D. Young and Roger A. Freedman
5. Fundamentals of Physics by David Halliday, Robert Resnick, and Jearl Walker
6. Physics for Scientists and Engineers with Modern Physics" by Raymond A. Serway and John W. Jewett Jr.
7. Physics for Technology and Engineering" by John Bird
8. Chemistry in daily life by Kirpal Singh
9. Chemistry of bio molecules by S. P. Bhutan
10. Fundamentals of Computers by V. Raja Raman
11. Cyber Security Essentials by James Graham, Richard Howard, Ryan Olson

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Course 2: ADVANCES IN MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES

(Hours: 5 hrs/week **Credits:** 4)

Semester	Paper Code	Paper Title	Hrs/Week	Credits
I	Course2	Advances in Mathematical, Physical and Chemical Sciences	05	04

Course Objective:

The objective of this course is to provide students with an in-depth understanding of the recent advances and cutting-edge research in mathematical, physical, and chemical sciences. The course aims to broaden students' knowledge beyond the foundational concepts and expose them to the latest developments in these disciplines, fostering critical thinking, research skills, and the ability to contribute to scientific advancements.

Learning outcomes:

1. Explore the applications of mathematics in various fields of physics and chemistry, to understand how mathematical concepts are used to model and solve real-world problems.
2. To explain the basic principles and concepts underlying a broad range of fundamental areas of physics and to Connect their knowledge of physics to everyday situations.
3. Understand the different sources of renewable energy and their generation processes and advances in nanomaterials and their properties, with a focus on quantum dots. To study the emerging field of quantum communication and its potential applications. To gain an understanding of the principles of biophysics in studying biological systems. Explore the properties and applications of shape memory materials.
4. Understand the principles and techniques used in computer-aided drug design and drug delivery systems, to understand the fabrication techniques and working principles of nanosensors. Explore the effects of chemical pollutants on ecosystems and human health.
5. Understand the interplay and connections between mathematics, physics, and chemistry in various advanced applications. Recognize how mathematical models and physical and chemical principles can be used to explain and predict phenomena in different contexts.
6. Understand and convert between different number systems, such as binary, octal, decimal, and hexadecimal. Differentiate between analog and digital signals and understand their characteristics. Gain knowledge of different types of transmission media, such as wired (e.g., copper cables, fiber optics) and wireless (e.g., radio waves, microwave, satellite).

UNIT I: ADVANCES IN BASICS MATHEMATICS

Straight Lines: Different forms – Reduction of general equation into various forms –Point of intersection of two straight lines

Limits and Differentiation: Standard limits – Derivative of a function –Problems on product rule and quotient rule

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Integration: Integration as a reverse process of differentiation – Basic methods of integration

Matrices: Types of matrices – Scalar multiple of a matrix – Multiplication of matrices – Transpose of a matrix and determinants

UNIT II: ADVANCES IN PHYSICS

Renewable energy: Generation, energy storage, and energy-efficient materials and devices. Recent advances in the field of nanotechnology: Quantum dots, Quantum Communication- recent advances in biophysics- recent advances in medical physics- Shape Memory Materials.

UNIT III: ADVANCES IN CHEMISTRY

Computer aided drug design and delivery, nano sensors, Chemical Biology, impact of chemical pollutants on ecosystems and human health, Dye removal - Catalysis method

UNIT IV: ADVANCED APPLICATIONS OF MATHEMATICS, PHYSICS & CHEMISTRY

Mathematical Modelling applications in physics and chemistry Application of Renewable energy: Grid Integration and Smart Grids, Application of nanotechnology: Nanomedicine,

Application of biophysics: Biophysical Imaging, Biomechanics, Neurophysics,

Application of medical physics: Radiation Therapy, Nuclear medicine

Solid waste management, Environmental remediation- Green Technology, Water treatment.

UNIT V: Advanced Applications of computer Science

Milestones of computer evolution - Internet, history, Internet Service Providers, Types of Networks, IP, Domain Name Services, applications.

Ethical and social implications: Network and security concepts- Information Assurance Fundamentals, Cryptography-Symmetric and Asymmetric, Malware, Firewalls, Fraud Techniques- Privacy and Data Protection

Recommended books:

1. Coordinate Geometry by S.L.Lony, Arihant Publications
2. Calculus by Thomas and Finny, Pearson Publications
3. Matrices by A.R.Vasishtha and A.K.Vasishtha, Krishna Prakashan Media(P)Ltd.
4. "Renewable Energy: Power for a Sustainable Future" by Godfrey Boyle
5. "Energy Storage: A Nontechnical Guide" by Richard Baxter
6. "Nanotechnology: Principles and Applications" by Sulabha K. Kulkarni and Raghvendra A. Bohara
7. "Biophysics: An Introduction" by Rodney Cotterill
8. "Medical Physics: Imaging" by James G. Webster
9. "Shape Memory Alloys: Properties and Applications" by Dimitris C. Lagoudas
10. Nano materials and applications by M.N.Borah
11. Environmental Chemistry by Anil.K.D.E.
12. Digital Logic Design by Morris Mano
13. Data Communication & Networking by Bahrouz Forouzan.

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Course201: Problem Solving using C (Hours/Week: 03 Total Hours: 45 Credits: 03)

Semester	Paper Code	Paper Title	Hrs/Week	Credits
II	C201	Problem Solving using C	03	03

Course Objectives

1. To explore basic knowledge on computers.
2. Learn how to solve common types of computing problems.
3. Learn to map problems to programming features of C.
4. Learn to write good portable C programs.

Course Outcomes

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

1. Understand the working of a digital computer and Fundamental constructs of Programming
2. Analyze and develop a solution to a given problem with suitable control structures
3. Apply the derived data types in program solutions
4. Use the C language constructs in the right way
5. Apply the Dynamic Memory Management for effective memory utilization

UNIT-I Introduction to computer and programming: Introduction, Basic block diagram and functions of various components of computer, Concepts of Hardware and software, Types of software, Compiler and interpreter, Concepts of Machine level, Assembly level and high-level programming, Flowcharts and Algorithms

Fundamentals of C: History of C, Features of C, C Tokens-variables and keywords and identifiers, constants and Data types, Rules for constructing variable names, Operators, Structure of C program, Input /output statements in C-Formatted and Unformatted I/O

UNIT-II Control statements: Decision making statements: if, if else, else if ladder, switch statements. Loop control statements: while loop, for loop and do-while loop. Jump Control statements: break, continue and goto.

UNIT-III Derived data types in C: Arrays: One Dimensional arrays - Declaration, Initialization and Memory representation; Two Dimensional arrays -Declaration, Initialization and Memory representation. **Strings**: Declaring & initializing string variables; String handling functions, Character handling functions

UNIT-IV Functions: Function Prototype, definition and calling. Return statement. Nesting of functions. Categories of functions. Recursion, Parameter Passing by address & by value, Local and Global variables.

Storage classes: automatic, external, static and register.

Pointers: Pointer data type, Pointer declaration, initialization, accessing values using pointers. Pointer arithmetic. Pointers and arrays, pointers and functions.

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UNIT-V Dynamic Memory Management: Introduction, Functions-malloc, calloc, realloc, free **Structures:** Basics of structure, structure members, accessing structure members, nested structures, array of structures, structure and functions, structures and pointers.

Unions - Union definition; difference between Structures and Unions.

Text Books:

1. E. Balagurusamy, —Programming in ANSICl, Tata McGraw Hill, 6th Edn, ISBN-13: 978-1- 25-90046-2

2. Herbert Schildt, —Complete Reference with C, Tata McGraw Hill, 4th Edn., ISBN- 13: 9780070411838, 2000

3. Computer fundamentals and programming in C, REEMA THAREJA, OXFORD UNIVERSITY PRESS

Reference Books

1. E Balagurusamy, COMPUTING FUNDAMENTALS & C PROGRAMMING – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.

2. Ashok N Kamthane, Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.

3. Henry Mullish&HuubertL.Cooper: The Spirit of C An Introduction to modern Programming, Jaico Pub. House,1996.

4. Y kanithkar, let us C BPB, 13 th edition-2013, ISBN:978-8183331630,656 pages.

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1: Activity: Quiz on computer hardware and software concepts

Evaluation Method: Objective-based quiz assessing knowledge and understanding

Unit 2: Activity: Problem-solving using Decision-Making Statements

Evaluation Method: Correctness of decision-making logic

Unit 3: Activity: Array and String Program Debugging

Evaluation Method: Identification and correction of errors in code

Unit 4: Activity: Pair Programming Exercise on Functions

Evaluation Method: Collaboration and Code Quality

Unit 5: Activity: Structured Programming Assignment

Evaluation Method: Appropriate use of structures and nested structures

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Model Question Paper

I B.Sc. Honours (Computer Science) - II Semester

Paper Title: Problem Solving Using C

Time: 3 hours | Max. Marks: 60

SECTION – A

Answer any Five of the following questions. 5 x 4 = 20 M

1. Explain block diagram of a computer.
2. What is Variable? How to define a variable.
3. When do we use break? Give an example.
4. Write about do-while loop.
5. List out Character handling functions in brief.
6. Explain function declaration and definition.
7. Write about Pointer Arithmetic.
8. Write about array of Structures with example.

SECTION – B

Answer any Five of the following questions. 5 x 8 = 40 M

9. (a) What is Software? Explain various types of Software.

(or)

(b) Explain the structure of C program with an example.

10. (a) Describe Decision making statements with an example.

(or)

(b) Explain while and for loops with sample program.

11. (a) What is an Array? Explain Two-dimensional array declaration, initialization, accessing elements.

(or)

(b) Define String. Explain String handling functions

12. (a) Write about Parameter passing by address and by value.

(or)

(b) Explain different Storage Classes with suitable examples.

13. (a) Explain Dynamic Memory Management in detail.

(or)

(b) What are the differences between Structures and Unions.

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Course201P: Problem Solving using C Lab (Hours/Week: 02 Total Hours: 30 Credits: 01)

Semester	Paper Code	Paper Title	Hrs/Week	Credits
II	C201P	Problem Solving using C Lab	02	01

List of Experiments

1. A. Write a program to calculate simple & compound interest
   B. Write a C program to interchange two numbers.
2. Find the biggest of three numbers using C.
3. Write a c program to find the sum of individual digits of a positive integer.
4. A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence.
5. Write a c program to check whether a number is Armstrong or not.
6. Write a c program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
7. Write a c program that implements searching of given item in given list
8. Write a c program that uses functions to perform the following: Addition of two matrices Multiplication of two matrices.
9. Write a program for concatenation of two strings.
10. Write a program for length of a string with and without String Handling functions
11. Write a program to demonstrate Call by Value and Call by Reference mechanism
12. Write a Program to find GCD of Two numbers using Recursion
13. Write a c program to perform various operations using pointers.
14. Write a c program to read data of 10 employees with a structure of 1.employee id 2.aadar no, 3.title, 4.joined date, 5.salary, 6.date of birth, 7.gender, 8.department.
15. Write a Program to demonstrate dynamic arrays using Dynamic Memory Management functions

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Course 202P: Digital Logic Design (Hours/Week: 03 Total Hours: 45 Credits: 03)

Semester	Paper Code	Paper Title	Hrs/Week	Credits
II	C202	Digital Logic Design	03	03

Course Objectives

To familiarize with the concepts of designing digital circuits.

Course Outcomes

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

1. Understand how to Convert numbers from one radix to another radix and perform arithmetic operations.
2. Simplify Boolean functions using Boolean algebra and k- maps
3. Design adders and subtractors circuits
4. Design combinational logic circuits such as decoders, encoders, multiplexers and demultiplexers.
5. Use flip flops to design registers and counters.

UNIT – I

Number Systems: Binary, octal, decimal, hexadecimal number systems, conversion of numbers from one radix to another radix, r's, (r-1)'s complements, signed binary numbers, addition and subtraction of unsigned and signed numbers, weighted and unweighted codes.

UNIT – II

Logic Gates and Boolean Algebra: NOT, AND, OR, universal gates, X-OR and X-NOR gates, Boolean laws and theorems, complement and dual of a logic function, canonical and standard forms, two level realization of logic functions using universal gates, minimizations of logic functions (POS and SOP) using Boolean theorems, K-map (up to four variables), don't care conditions.

UNIT – III

Combinational Logic Circuits – 1: Design of half adder, full adder, half subtractor, full subtractor, ripple adders and subtractors, ripple adder / subtractor.

UNIT – IV

Combinational Logic Circuits – 2: Design of decoders, encoders, priority encoder, multiplexers, demultiplexers, higher order decoders, demultiplexers and multiplexers, realization of Boolean functions using decoders, multiplexers.

UNIT – V

Sequential Logic Circuits: Classification of sequential circuits, latch and flip-flop, RS- latch using NAND and NOR Gates, truth tables, RS, JK, T and D flip-flops, truth and excitation tables, conversion of flip- flops, flip-flops with asynchronous inputs (preset and clear).

Design of registers, shift registers, bidirectional shift registers, universal shift register, design of ripple counters, synchronous counters and variable modulus counters.

Text Books:

1. M. Morris Mano, Michael D Ciletti, "Digital Design", 5th edition, PEA.

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Reference Books:

1. Kohavi, Jha, "Switching and Finite Automata Theory", 3rd edition, Cambridge.
2. Leach, Malvino, Saha, "Digital Principles and Applications", 7th edition, TMH.
3. Roth, "Fundamentals of Logic Design", 5th edition, Cengage.

SUGGESTED CO-CURRICULAR ACTIVITIES & EVALUATION METHODS:

Unit 1: Activity: JAM (Just a Minute) Session: Explaining Radix Conversion

Evaluation Method: Communication Skills and Knowledge Presentation

Unit 2: Activity: Boolean Algebra Assignment

Evaluation Method: Assignment Completion and Correctness

Unit 3: Activity: Hands-on Lab Activity: Building Adder and Subtractor Circuits

Evaluation Method: Lab Performance and Correctness of Circuit Implementation

Unit 4: Activity: Group Discussion: Applications of Decoders, Encoders, Multiplexers

Evaluation Method: Participation and Critical Thinking

Unit 5: Activity: Quiz on Flip-Flops and Register-Counter Design

Evaluation Method: Quiz Performance and Knowledge Retention

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Model Question Paper

I B.Sc. Honours (Computer Science) - II Semester

Paper Title: Digital Logic Design

Time: 2:30 hours

Max. Marks: 60

SECTION – A

Answer any Five of the following questions. 5 x 4 = 20 M

1. Explain different types of number systems. How convert a decimal number to binary?
2. How many two input NAND gates required to implement f (A, B, C) = ABC
3. Describe the basic logic gates (AND, OR, NOT) and their symbols.
4. What is a half adder? Provide its truth table and logic circuit diagram.
5. What are multiplexers and demultiplexers? Describe their applications.
6. What are the differences between latches and flip-flops in sequential circuits?
7. How many bits are required to represent -6410 in 1's and 2's complement form.
8. Explain the operation of a full subtractor and provide its truth table.

SECTION – B

Answer any Five of the following questions. 5 x 8 = 40 M

9. (a) Compare and contrast the binary, octal, decimal, and hexadecimal number systems.

(or)

(b) Explain step-by-step process of converting a binary number to its hexadecimal equivalent, and vice versa

10. (a) How to derive the complement and dual of a logic function. Explain with an example.

(or)

(b) What is minimization of Boolean functions? How to use K-map method to minimize Boolean Functions? Explain with an example.

11. (a) Design a full adder circuit using NAND gates and provide its truth table.

(or)

(b) Construct following Boolean expression using only Half Adders: D = ABC' +A'C + B'C, E = A'BC+AB'C

12. (a) Write about priority encoder in detail?

(or)

(b) Design a 4-to-1 multiplexer and provide its truth table. Explain its operation.

13. (a) Describe the construction and operation of a universal shift register.

(or)

(b) Design a synchronous counter using T flip flops which counts to 0, 3, 5, ...

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Course202P: Digital Logic Design Lab (Hours/Week: 02 Total Hours: 30 Credits: 01)

Semester	Paper Code	Paper Title	Hrs/Week	Credits
II	C202P	Digital Logic Design Lab	02	01

List of Experiments

The laboratory work can be done by using physical gates and necessary equipment or simulators.

Simulators: https://sourceforge.net/projects/gatesim/ or https://circuitverse.org/ or any free open-source simulator

1. Introduction to digital electronics lab- nomenclature of digital ICs, specifications, study of the data sheet, concept of Vcc and ground, verification of the truth tables of logic gates using TTL ICs.
2. Implementation of the given Boolean functions using logic gates in both SOP and POS forms
3. Realization of basic gates using universal gates.
4. Design and implementation of half and full adder circuits using logic gates.
5. Design and implementation of half and full subtractor circuits using logic gates.
6. Verification of stable tables of RS, JK, T and D flip-flops using NAND gates.
7. Verification of stable tables of RS, JK, T and D flip-flops using NOR gates.
8. Implementation and verification of Decoder and encoder using logic gates.
9. Implementation of 4X1 MUX and DeMUX using logic gates.
10. Implementation of 8X1 MUX using suitable lower order MUX.
11. Implementation of 7-segment decoder circuit.
12. Implementation of 4-bit parallel adder.
13. Design and verification of 4-bit synchronous counter.
14. Design and verification of 4-bit asynchronous counter.

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SKILL ENHANCEMENT COURSE

Semester	Paper Code	Paper Title	Hrs/Week	Credits
II		DIGITAL LITERACY	2	2

By undergoing the Digital Literacy course, one should acquire basic knowledge on Computer and he/she is able to

CO1: Perform operations on the computer

CO2: Access the Internet and finding information of interest

CO3: Register for an E-mail account and operating it

CO4: Make bill payments and use other applications of Internet

CO5: Create, edit and format documents using a word processor

Unit-1: operate the elements of a computer and performing operations on the computer

Operate the elements of a computer including power cord, power switch, network connecting cable, USB ports, Mouse operations, Keyboard operations, interface icons, GUI elements, Editing options, perform operations including switching on the computer, logging in, locating a file, opening a file, printing a document, storing a file with proper extension, creating a folder/ sub folder in a volume on hard disk and desktop, shifting files from one folder to another, shutting off the computer

Unit-2: Access the Internet to browse information and E-mail operation

Access the Internet, use a search engine, find information on the topic of interest, register for a web-based E-mail account, access E-mail with attachments, reply to an E-mail, forward an E-mail and delete an E-mail message

Unit-3: Make bill payments, other applications using Internet and word processing

Make utility bill payments, booking bus/train tickets, bank transactions, personal transactions, job search through employment portals, mobile/DTH recharge, word processing basics, creating, editing and formatting of text, saving and printing of word document

Prescribed readings:

1. Appreciation of Digital Literacy Handbook published by Department of Electronics &Information Technology, Ministry of Communications & Information Technology, Government of India.

Web Resources:

1. https://youtu.be/b2X_j5Bz-VM
2. https://youtu.be/jln3-P6L2ro
3. https://youtu.be/cfDisqUMIvw
4. https://youtu.be/3h_PyURcdrc
5. https://youtu.be/EqN0LBcydBg

Note: Digital Literacy course should be taught by blending the practical demonstration of concepts with hands-on experience by learners using desktop/laptop computer and mobile handset devices

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Model Question Paper

I B.Sc /B. Com/ B.A Honours - (II Semester)

Paper Title: Digital Literacy

Time : 2 hours

Max. Marks: 50

SECTION -A

Answer any Five of the following questions. 5 x 4= 20M

1. Write about Power Cord and Power Switch
2. Write about Input Devices (Keyboard and Mouse)
3. Write steps in opening File and Printing a Document
4. Write Steps in Switching on a Computer and Shutting off the Computer
5. Write about Internet and Different types of Search Engines
6. Write Applications of Internet
7. Write steps in attaching files to an Email
8. Write Steps how you can book Train/Bus Tickets online
9. ~~Write Steps how you can search jobs in online job portal~~
10. ~~Write Steps to Recharge Mobile/DTH Online~~

SECTION -B

Answer any Three of the following questions. 3 x 10= 30M

9. Write Steps how you can Create a folder/subfolder
10. Explain Graphical User Interfaces and Icons
11. Write steps in Creating an Email Account
12. Write Steps in Composing and sending an Email Message
13. Write Steps in Creating, Editing and Formatting Text in MS Word Document
14. ~~Write Steps in Saving and Printing MS Word Document~~

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K.S.N. GOVERNMENT DEGREE COLLEGE FOR WOMEN (A)
ANANTAPURAMU
Department of Computer Science
Certificate Course 2023-2024
Basics of Information Technology

Objectives:

- To provide greater practical training as a part of the ITT Course through case studies and exercises
- To bring uniform reference material and coverage across all the branches as part of the course.
- To enable students go gain knowledge in the subject.
- To enable students to get hands-on practical exposure on use of computers.

Outcomes:

- Student can gain knowledge in Advanced Excel Concepts.
- Understand the Advanced Excel concepts Thoroughly

Syllabus

UNIT I

Basic Computer Concepts: Block diagram of a Computer, Characteristics of Computers, Input/output devices, Memory.

UNIT II

Introduction to MS-Word, Home Tab, Insert Tab, References Tab, Mailings Tab, View Tab

UNIT III

Basic Screen Overview of Excel, Navigating in a Worksheet, Excel Ribbon, Ribbon Tabs, Contextual Ribbon Tabs, Hiding the Ribbon, Customizing the Ribbon, Create a New Tab for the Ribbon, Add a Custom Group to a Ribbon Tab, Rename or Move Ribbon Tabs, Groups, Commands, Hide and Show Tabs on the Ribbon & Export and Import a Custom Ribbon, Quick Access Toolbar, customize & move, Add a Command to QAT.

UNIT IV

Data Types in Excel, Excel Options and Customisations, Help With Settings, Create Custom List, Find & Select, Smart Copy Paste, Managing Worksheets, Managing Rows &Columns, Understanding Naming of cells and ranges, Excel Name Manager, Tables, Table Formulas, Remove Duplicates, Converting a Table To Range and Slicers, Data Validation , Custom Input Messages & Error Messages, Find Cells That Have Data Validation, Remove Data Validation, Functions: Text functions, Mathematical Functions, Logical functions, Financial Functions. Consolidations, Pivot Tables & Charts, Generating Multiple Reports.

UNIT V

Introduction to MS-Power Point, Home Tab, Transitions Tab, Animations tab, Slide Show Tab

Certification: Course Completion Certificate will be issued after completion of course for those students have minimum attendance of 75%.

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ANNEXURE –II

K.S.N Government Degree College for Women (A)

Department of Computer Science

QUESTION PAPER PATTERN FOR SEM II (Major & Minor)

Time@3dHrs

Max.Marks: 60

SECTION - A

Answer any Five questions. 5X4 = 20M

1.

2.

3.

4.

5.

6.

7.

8.

(Two questions from each Unit I, II, III and One from each unit IV &V)

SECTION - B

Answer ALL questions. 5X8 = 40M

9. (a)

(or)

(b)

10. (a)

(or)

(b)

11. (a)

(or)

(b)

12. (a)

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(or)

(b)

13. (a)

(or)

(b)

(Set ONE question from each Unit-I, II, III, IV, V with internal choice)

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ANNEXURE – III

K.S.N Government Degree College for Women (A)
Department of Computer Science

INTERNAL ASSESSMENT EXAM PATTERN (CIA)

1. There will be two internal assessment examinations of 20 and 15 marks each.
2. **The Internal assessment in order to ensure the description of the abilities and other qualities a course seeks to develop will be tested in the form of CIA.**

S.No	Type of Assessment	Weightage Assigned
1	Assignments	5
2	Project-Work/ Seminar/ Group Discussion/ Role play / Quizzes/ Presentations	5
3	Cleaning, Greening and Attendance	5
4	Testing knowledge though Mid-term examinations (Mid -1 + Mid -2)	20+15
	Total	50

The marks Obtained by a Student for 50 Marks total of (Two Mid Exams for 35, Assignments 5, Class Room Activates 5, Clean & Green and Attendence5) shall be Scale down to 40 Marks

Scaled Marks =(Total Scored Marks ÷50) *40

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ANNEXURE – IV

K.S.N Government Degree College for Women (A)

Department of Computer Science

Proposed Panel of Examiners and Paper Setters

1.	G.Dayanandam Lecturer in Computer Science GDC,Koduru	Mobile Number:9885553539 Email id:gdayanandam@gmail.com
2.	M. Siva Sankar Lecturer in Computer Science GDC(M)(A), Anantapuramu	Mobile Number:9848375300 Email id:msiva1285@gmail.com
3.	K.T. Vijay Naik Lecturer in Computer Science GDC(M)(A), Anantapuramu	Mobile Number:9003105858 Email id:vijaynaik116@gmail.com
4.	A. MAdhavi Lecturer in Computer Applications GDC(M)(A), Anantapuramu	Mobile Number:9949672448 Email id:madhavi.alamuri@gmail.com
5.	Y. Anitha Lecturer in Computer Science GDC(M))(A), Kadapa	Mobile Number:8919992326 Email id:anithayarava@gcmkadapa.ac.in
6.	T.Manohar Reddy Lecturer in Computer Science GDC(M))(A),	Mobile Number:8919818677 Email id:manohar.thunga@gcmkadapa.ac.in
7.	P. Amarnatha Reddy Lecturer in Computer Science GDC, Nandikotkur	Mobile Number:9701427020 Email id:amaranatha.p@gmail.com
8.	C. Lakshminath Reddy Lecturer in Computer Science SRIT, Anantapuramu	Mobile Number:9010212523 Email id:laxminathareddy.cse@srit.ac.in
9.	D. Rajesh Babu Lecturer in Computer Science SRIT, Anantapuramu	Mobile Number:9966982288 Email id:dararajesh650@gmail.com
10.	T. Subramanyam Lecturer in Computer Science NTR GDC, Vayalpad	Mobile Number:9000305427 Email id:sbmtupakula@gmail.com

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11.	Y.S. Krupamai Lecturer in Computer Science Mobile Number:9059892960 NTR GDC, Vayalpad Email id: skrupamai@gmail.com
12.	Dr. B. Kavitha Lecturer in Computer Science Mobile Number:9912316680 KG GDC, Piler Email id:ballikavitha@yahoo.co.in
13.	Dr. Y. Jahnavi Lecturer in Computer science Mobile Number:9440535479 Dr. V.S. Krishna Govt. Degree & PG College (A), Visakhapatnam. Email id:yjahnavi.2011@gmail.com

Signatures of BoS Members:

S.No.	Name of the Member	Signature
1.	Dr. A. Renuka Devi (Chair Person)	
2.	Prof. V. Raghunatha Reddy (Subject expert nominated by the Vice-Chancellor)	
3	Dr. C. Shoba Bindu (Subject Expert from outside university nominated by the Academic Council)	
4	G. Dayanandam (Subject Expert from outside university nominated by the Academic Council)	
5	J. Madhan Mohan (industry representative)	
6	Miss. G. Meena (Faculty Member)	
7	N. Hari Priya College Alumna	

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