Basic English

Applicable for BA/BBA/BCA/BSc First Year students

B.A., BCA, BBA, B.com. BSc. I Year Semester

L T P C

1 0 2 2

Course Code: 25ECS020

Course Description:

This paper is especially designed for vernacular medium background learners. The syllabus is structured to build foundational English skills in Grammar, Vocabulary, Reading, Writing, Listening, and Speaking considering NEP guidelines under Aility Enhancement Course.

Course Objectives:

1. To develop basic proficiency in English language skills: listening, speaking, reading, and writing.

2. To strengthen grammar and vocabulary knowledge for academic and everyday use.

3. To help students communicate confidently in social and academic settings.

Course Outcomes:

By the end of the course, students will be able to:

1. Understand and use basic grammar structures accurately.

2. Communicate simple ideas effectively in spoken and written English.

3. Participate in basic conversations and listening tasks with improved confidence.

Articulation Matrix

(Program Articulation Matrix is formed by the strength of correlation of COs with POs and PSOs. The strength of correlation is indicated as 3 for substantial (high), 2 for moderate (medium) correlation, and 1 for slight (low) correlation

CO / PO / PSO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 10	PSO 1	PSO 2	PSO 3
CO1	-	3	-	-	-	-	-	1	2	-	-	-	-
CO2	-	3	-	-	-	-	-	1	2	-	-	-	-
CO3	-	3	-	-	-	-	-	1	2	-	-	-	-
CO4	-	3	-	-	-	-	-	1	2	-	-	-	-
CO5	-	3	-	-	-	-	-	1	2	-	-	-	-

SYLLABUS

UNIT 1: (15 Hours)

My Boyhood Days by Rabindranath Tagore

Grammar:

Parts of Speech (Noun, Pronoun, Verb, Adjective, Adverb, Preposition, Conjunction, Interjection)

Articles (A, an, The)

Vocabulary:

Everyday vocabulary: Days, months, colors, numbers, common objects Synonyms & Antonyms (basic)

Word formation (prefixes/suffixes)

Reading:

Reading short stories, newspaper snippets, and messages

Writing:

Sentence construction: Simple and compound sentences

Activities:

Fill-in-the-blanks, sentence making

Vocabulary crossword / flashcards

Listening Skills

Listening Practice:

Listening to short conversations and announcements

Speaking Skills

Speaking Practice:

Introducing oneself and others

Activities:

True/False based on audio clips

Fill in the blanks while listening

Story-based comprehension exercises

Tools: Use of recorded dialogues, YouTube education channels, English audio stories

UNIT 2: (15 Hours)

Wings of Fire (chapter-1) by APJ Abdul Kalam

Grammar:

Sentence structure: Subject + Verb + Object

Types of Sentences: Affirmative, Negative, Interrogative

Vocabulary:

Words from texts (context-based learning)

Homophones and commonly confused words

Reading:

Skimming and scanning techniques

Understanding main ideas and details

Comprehension Practice

Writing

Paragraph writing: Descriptive and narrative

Activities:

Jumbled sentences/paragraphs for reordering

Listen and answer questions

Listening Skills

Listening for specific information (names, dates, directions)

Speaking Skills

Introducing oneself and others

Asking and answering simple questions

Expressing likes, dislikes, opinions

Tools: conversation videos, peer dialogues, speaking module

UNIT 3: (15 Hours)

The Last Leaf by O' Henry

Grammar:

Tenses: Present Simple, Past Simple

Subject-Verb Agreement

Vocabulary:

Descriptive adjectives

Action verbs

Reading:

Answering WH-questions (who, what, where, etc.)

Sentence completion and paragraph sequencing

Writing

Informal writing: Email, message, diary entry

Activities:

Guided writing tasks

Picture-based paragraph writing

Functional English:

Greetings, apologies, thanks, requests

Daily conversation starters

Activities:

Role-play (at shop, college, bus stop, etc.)   **Total: 45 Hours**

Tools: conversation videos, peer dialogues, speaking modules

Text Books

Students' Handbook, Basic English (Prescribed Text, Exercises & Worksheets)
References:

1. Board of Editors. Using English a Course book for Undergraduate Engineers and Technologists. Orient Black Swan Limited, Hyderabad: 2015

2. Richards, C. Jack. Interchange Students' Book-2 New Delhi: CUP, 2015.

3. Bailey, Stephen. Academic Writing: A practical guide for students. New York: Rutledge, 2011.

4. Means,L. Thomas and Elaine Lang Lois. English & Communication for Colleges. Cengage Learning, USA: 2007

5. Redston, Chris &Gillies Cunningham Face2Face (Pre-intermediate Student's Book& Workbook) Cambridge University Press, New Delhi: 2005

6. Comfort, Jeremy, et al. Speaking Effectively: Developing Speaking Skills for Business English. Cambridge University Press, Cambridge: Reprint 2011

7. Dutt P. Kiranmai and Rajeevan Geeta. Basic Communication Skills, Foundation Books: 2013

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Mandsaur University
Department Of Allied Science

Course Objective:

- To give understanding of the theoretical and practical aspects of the use of trigonometric function and Matrices.
- To develop analytical ability to solve real-world problems using system of linear equations.
- To study the basics of logic set theory concepts with their application.
- To study the basics of set theory concepts with their application.
- To apply statistical concepts to real-world problems in computer application.

Course Outcomes (COs)

1. Understand the concept of sequence and series.
2. Apply quadratic formula to solve quadratic equation.
3. Analyze mean, median and mode for finding central value of a given data set.
4. Evaluate logical Connectives and truth table for solving computer models.
5. Evaluate some set inclusion and exclusion problem using computational method.

Articulation Matrix

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CO/PO/PSO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2
CO1	3	2	1	1	1	1	-	-	-	1	1	1
CO2	3	2	1	-	1	-	-	-	-	1	1	1
CO3	1	2	2	1	2	-	-	-	-	1	1	1
CO4	1	3	2	1	2	1	-	-	-	1	2	1
CO5	1	2	2	1	1	-	-	-	-	1	2	2

High-3 Medium-2 Low-1

Unit- I: Sequence and series   12 Hours

Sequences, Arithmetic progression, Arithmetic means, Geometric Progression, Sum to infinity of a G.P., Arithmetico–geometric sequence, Sum to n terms of special Sequences. The Binomial Theorem, Some applications of Binomial theorem, Binomial theorem for any index. Exponential Series, Logarithmic Series.

Unit- II: Trigonometry , Matrices and Quadratic Equations   12 Hours

Angles & their Measurement, Values of Trigonometric Ratios, Height and Distances. Elementary Matrices and types of matrices. Solution of quadratic equations, Symmetric functions of roots, Graph of a quadratic polynomial, Applications.

Unit- III: Statistics   12 Hours

Frequency Distribution, Measure of Central Tendency: Mean, Mode, Median, Measures of variation: Mean deviation, Standard Deviation.

Unit- IV: Mathematical Logic   **12 Hours**

Statements and notations, Connectives: Negation, Conjunction, And Disjunction. Statement formulas and truth tables. Tautologies, Tautological implications, contradiction contingency.

Unit- V: Set Theory   **12 Hours**

Basic concepts of set theory, notation, inclusion and equality of sets, the power set, types of sets, operations on set, Venn diagrams.

Total: 60 Hours

Reference Books:

1. Sarkar, S. K. (2008). *A Textbook of Discrete Mathematics*. S. Chand Publishing.
2. Rangachari, M. S. (1993). Mathematics education—some remedies. *Current Science*, 64(4), 218-220.
3. Kolman, B., Busby, R. C., & Ross, S. (1995). *Discrete mathematical structures*. Prentice-Hall, Inc..
4. Gupta, S. C., & Kapoor, V. K. (2020). *Fundamentals of mathematical statistics*. Sultan Chand & Sons.
5. *Mathematics by M. S. Rangachari.*

List of e-Learning Resources:

1. https://nptel.ac.in/
2. https://www.coursera.org/
3. https://www.edx.org/course/advanced-algorithmics-and-graph-theory-with-python?index=product&queryID=106bd43f975a7c909005bc27e62f3c98&position=3&v=1&linked_from=autocomplete&c=autocomplete

HOD
Department of Mathematics
Mandsaur University, Mandsaur (458001)

L-3 T-1 P-0 C-4

25SACS010T: Computer fundamental

Course Objectives
- To know about the basics of computers including their characteristics and generations.
- To learn about input and output devices and understand their functions.
- To know about the software development life cycle (SDLC).
- To know about the role of program language translators such as assemblers, compilers, and interpreters.
- To learn about the history and features of DOS including files, directories, and commands.

Course Outcomes (COs)
1. Understand the characteristics and generations of computers.
2. Apply knowledge of input and output devices to classify and describe their functions.
3. Analyze programming logic-building techniques using flowcharts and algorithms.
4. Evaluate different computer languages and their suitability for specific tasks.
5. Create basic network configurations using knowledge of networking basics like topologies and client-server concepts.

Articulation Matrix
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CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	1	3	-	-		-	-	2	-	-	-	-
CO2	-	-	3	-	-	1	-	-	2	-	-	-
CO3	-	-	2	3	-	-	1	-	-	-	-	-
CO4	1	2	-	1	3	-	-	-	-	-	-	-
CO5	3	-	1	-	2	3	-	-	-	-	-	-

High-3 Medium-2 Low-1

Unit I   Introduction to Computers, Computer Software & Number System   12 Hours
Introduction to Computers: Introduction, Characteristics of Computers, a Block diagram of a computer, Generation of Computers, Types of computers, Mini Computers, Micro Computers, Mainframe Computers, Super Computers, etc., Applications of Computers. **Computer Software:** Introduction, Software: Definition, Relationship between Software and Hardware, Software Categories, System Software, Application Software**. Number System:** Decimal, Binary, Octal, Hexadecimal, Conversions of number systems.

Unit II Basic computer organization, I/O Device, CPU, Memory   12 hours
Basic computer organization: Block diagram of computer, **Input devices**: classification of input devices, **Output devices**: classification of output devices, Printer, types of printers, **Central Processing Unit (CPU)**, Introduction, Elements of CPU: Control Unit (CU), Arithmetic Logical Unit (ALU), Registers, Instruction format Instruction set, Processor Speed, **Memory**:

Introduction, memory measuring units, main memory, types of primary memory chips, Secondary storage: Introduction, types of secondary storage devices.

Unit III SDLC & Programming Logic Buildings   **12 Hours**
SDLC: Software development life cycle, Algorithm: Definition, Characteristics, Advantages and disadvantages, Flowchart: Definition, Define symbols of flowchart, Advantages and disadvantages. **Programming Logic Buildings:** Introduction, Logic Buildings using flowchart and algorithms.

Unit IV Computer Languages & Programming Languages   **12 hours**
Computer Languages: Machine language, Assembly language, High-level language, Program Language Translators: Assembler, Compiler, Interpreter. **Programming Languages**: Introduction, Evolution of Programming Languages, Classification of Programming Languages, Generations of Programming Languages, Features of a Good Programming Language, What are the characteristics of a good program, Top-down design, Bottom-up design.

Unit V Operating System, DOS & Networking Basics   **12 Hours**
Operating System: Introduction, Operating System, Evolution of Operating System, Types of Operating System, Functions of an Operating System, **DOS:** History, Files and Directories, Internal and External Commands, Batch Files, etc. **Networking Basics:** Introduction, Types of Networks, Topology, Client-Server Concepts.

                                                                Total: 60 Hours

Reference Books:
1. Computer Fundamental Organization, B. Ram
2. Computer Fundamentals, Anita Goel, Pearson, 2010.
3. Fundamental of Computers – By V. Rajaraman B.P.B. Publications
4. Fundamental of Computers – By P.K. Sinha
5. Computer Today- By Suresh Basandra
6. Computer Networks- By Andrew S. Tanenbaum

List of e-Learning Resources:

1. https://www.coursera.org/courses?query=computer%20fundamentals
2. https://www.udemy.com/course/computer-fundamentals-k/
3. https://onlinecourses.swayam2.ac.in/cec19_cs06/preview

Prepared By	Academic Coordinator	HOD	Senior Faculty nominated by DOAA

Semester-I

L-3 T-1 P-0 C-4

25SACS240T: Programming in C

Course Objectives

- To know about the fundamentals of algorithms and flowcharts.
- To learn about different input/output techniques in C programs.
- To know the concepts of functions arguments and return values.
- To learn about dynamic memory allocation functions like malloc(), calloc(), and free() for memory management.
- To know about membership operators, pointers to structures, and arrays within structures.

Course Outcomes

1. Understand algorithms and flowcharts for problem-solving.
2. Apply formatted and unformatted I/O operations in C programs.
3. Analyze the scope, visibility, and lifetime rules for variables in C.
4. Evaluate dynamic memory allocation functions like malloc(), calloc(), and free().
5. Create and implement complex data structures using structures and unions in C programs.

Articulation Matrix

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CO/PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	2	3		1								
CO2		2	1						3			
CO3				2					3			
CO4			3							2		
CO5				1	2	3						

High-3 Medium-2 Low-1

Unit I: Algorithms to Control Constructs   **12 Hours**

Algorithms & flowcharts; Rules/conventions of coding, documentation, naming variables; History of C; Structure of a C program, Data types; Constant & Variable; Operators & expressions; Control Constructs – if-else, for, while, do-while; Case statement.

Unit II Arrays, I/O, and Operators   **12 Hours**

Arrays; Formatted & unformatted I/O; Type modifiers & Storage classes; Ternary operator; Type conversion & type casting; Priority & associativity of operators.

Unit III Parameters, Return Values, and Recursion   **12 Hours**

Functions; Arguments; Return value; Parameter passing – call by value, call by reference; Return statement; Scope, visibility, and lifetime rules for various types of variables, static variable; Calling a function; Recursion – basics, comparison with iteration, tail recursion, when to avoid recursion examples.

Unit IV Pointers, Dynamic Memory & Special Constructs   **12 Hours**

Special constructs – Break, continue, exit (), goto& labels; Pointers - &and * operators, pointer expression, pointer arithmetic, dynamic memory management functions like malloc (), calloc(), free(), String;

Unit V Structures & Unions   **12 Hours**

Structure – basic, declaration, membership operator, pointer to structure, referential operator, self-referential structures, structure within structure, array in structure, array of structures; Union – basic, declaration; Type of definition.

                                                              Total Hours: 60

Reference Books:

1. Kerninghan& Richie: The C Programming language, PHI
2. Cooper Mullish: The Spirit of C, Jaico Publishing House, Delhi
3. Kanetkar Y: Let us C
4. Kanetkar Y: Pointers in C.

List of e-Learning Resources:
1. https://www.coursera.org/courses?query=c%20programming
2. https://www.udemy.com/topic/c-programming/
3. https://nptel.ac.in/courses/106104128
4. https://www.codecademy.com/catalog/language/c

Prepared By	**Academic Coordinator**	**HOD**	**Senior Faculty nominated by DOAA**

BCA(System Administration Cyber Security)
Semester-I

L-3 T-1 P-0 C-4

25SACS030T: Networking Essentials

Course Objectives
- To know about basics of networking and its underlying principles.
- To learn about computer networking concepts.
- To know how they work, operate, communicate with ports and Protocols.
- To know about Standards and models associated with networking.
- To learn about technology and their troubleshooting mechanisms.

Course Outcomes
1. Understand the uses of computer networks and network software.
2. Apply knowledge of OSI and TCP/IP models to compare their functionalities.
3. Analyze the function of common application layer services.
4. Evaluate basic network security configurations.
5. Create and execute correct commands in Cisco IOS modes.

Articulation Matrix
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CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	2	3	1	-	1	-	-	-	-	2	-	-
CO2	1	-	3	-	-	-	2	-	-	1	-	-
CO3	2	-	-	3	-	1	-	-	-	2	-	-
CO4	1	-	2	-	3	-	-	-	-	1	-	-
CO5	1	-	-	-	-	3	-	-	2	1	-	-

High-3 Medium-2 Low-1

Unit-I: Network Concepts, Infrastructure, and Connectivity   12 Hours
Uses of computer networks, network software, reference models Network Standardization. the concept of a network, Describe network data, the network transmission speed and capacity, the roles of clients and servers in a network, the roles of network infrastructure devices, the basic requirements for getting online, Describe the different types of networks used by cell phones and mobile devices, Describe the requirements for host connectivity, Explain the importance of network documentation, Create a simulated network using Packet Tracer, Describe the purpose and function of Packet Tracer, Install Packet Tracer on a local device, Investigate the Packet Tracer user interface, Configure a Packet Tracer network, Build a simple home network, Describe common types of network cables. Describe Ethernet twisted-pair cables, Describe coaxial and fiber-optic cabling, Explain how a twisted-pair cable sends and receives signals, Verify connectivity in a simple routed network.

Unit-II: Protocols, Standards, and Models   **10 Hours**
Describe network communication protocols, Describe network communication standards, Compare the OSI and TCP/IP models, Explain the OSI model Layer 1 and Layer 2 functions in an Ethernet network, Explain how communication occurs on Ethernet networks, Explain the process of encapsulation and Ethernet framing, Explain the function at each layer of the 3-layer network design model, Explain how to improve network communication at the access layer, Explain why it is important to contain broadcasts within a network, Create a fully connected LAN, Explain the need for routing, Explain how routers use tables, Build a fully connected network, Explain the features of an IP address, Explain the purpose of an IPv4 address, Calculate numbers between binary and decimal systems, Explain how IPv4 addresses and subnets are used together, Describe the different IPv4 address classes, Describe the public and private IPv4 address ranges, Compare uncast, multicast, and broadcast addresses, Configure a DHCP server, Compare static and dynamic IPv4 addressing, Configure a DHCP server to dynamically assign IPv4 addresses, Explain the principles of IPv4 and IPv6 address management, Describe network boundaries, Explain the purpose of Network Address Translation in small networks, Explain why IPv6 addressing will replace IPv4 addressing, Explain features of IPv6.

Unit-III: Client-Server Interaction and Transport Layer Protocols   **10 Hours**
Explain client and server interaction, Compare TCP and UDP transport layer functions, Explain how TCP and UDP use port numbers, Explain the function of common application layer services, Describe common network, applications, Describe DNS, Describe HTTP and HTML, Describe FTP, Describe Telnet and SSH, Describe email protocols, Configure an integrated wireless router and wireless client to connect securely to the internet, Describe the components required to build a home network, Describe wired and wireless network technologies, Describe Wi-Fi, Explain how wireless traffic is controlled, Configure wireless devices for secure communications, Configure Wi-Fi settings on mobile devices to connect to the internet, Describe ISP connectivity options, Explain the purpose and characteristics of network virtualization, Configure mobile devices for wireless connectivity, Explain how to use security best practices to mitigate attacks, Describe different types of security threats, Describe social engineering attacks, Describe various types of malicious software, Describe denial of service and brute force attacks, Explain how antimalware software mitigates data loss and service disruptions, Explain how security tools and software updates mitigate network security threats

Unit-IV: Threats, Mitigation, and Configuration   **14 Hours**
Describe different types of security threats, Describe social engineering attacks, Describe various types of malicious software, Describe denial of service and brute force attacks, Explain how antimalware software mitigates data loss and service disruptions, Explain how security tools and software updates mitigate network security threats, Configure basic network security, Describe basic ways to address wireless security vulnerabilities, Configure user authentication, Configure firewall settings, Compare in-band and out-of-band management access, Describe Cisco LAN switches, Describe the Cisco LAN switch boot process, Describe Cisco small business routers, Describe the Cisco router boot process.

Unit-V: Troubleshooting with Cisco IOS: Techniques and Commands   **14 Hours**
Describe some of the approaches used to troubleshoot networks, Describe the process of detecting physical layer problems, troubleshoot using network tilities, troubleshoot a wireless network problem, explain common Internet connectivity problems, explain how to use outside

sources and Internet resources for troubleshooting. Use the Cisco IOS-Use correct commands to navigate the Cisco IOS modes, explain how to navigate Cisco IOS to configure network devices, Use show commands to monitor device operations.

Total : 60 Hours

Reference Books:
1. CCNA Cisco Certified Network Associate: Study Guide (With CD) 7th Edition (Paperback), Wiley India, 2011
2. CCENT/CCNA ICND1 640-822 Official Cert Guide 3 Edition (Paperback), Pearson,2013

List of e-Learning Resources:
1. **https://www.netacad.com/courses/networking/networking-essentials**
2. **https://www.udemy.com/course/networking-essentials/?couponCode=ST20MT50724**
3. **https://www.classcentral.com/course/networking-academy-networking-essentials-97414**

Prepared By	Academic Coordinator	HOD	Senior Faculty nominated by DOAA

BCA (System Administration and Cyber Security)

Semester-I

L-0 T-0 P-4 C-2

25SACS240P: Programming in C

Course Objectives

- To develop practical skills in C programming through hands-on experience.
- To implement algorithms and flowcharts into functional C programs.
- To practice input/output operations and data handling in C.
- To apply the use of functions, recursion, and dynamic memory allocation.
- To utilize structures and unions for complex data handling.

Course Outcomes

1. Demonstrate the ability to write and execute C programs for various problem-solving scenarios.
2. Implement formatted and unformatted I/O operations in C.
3. Apply functions, recursion, and parameter passing techniques in C.
4. Utilize pointers, dynamic memory allocation, and special constructs in C programs.
5. Develop and manipulate complex data structures using structures and unions.

Articulation Matrix

(Program Articulation Matrix is formed by the strength of the correlation of COs with POs and PSOs. The strength of correlation is indicated as 3 for substantial (high), 2 for moderate (medium) correlation, and 1 for slight (low) correlation)

CO/PO/ PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	3	2	1									
CO2		3	2	1								
CO3			3	2	1							
CO4				3	2	1						
CO5					3	2	1					

High-3 Medium-2 Low-1

Unit I: Basic Programming Constructs   **12 Hours**

Write programs: for simple arithmetic operations, finding the greatest number among two and three numbers, checking even or odd numbers, and finding leap years, Implement programs to swap numbers using third variables and without third variables, Develop programs: to print tables, patterns, and check prime numbers.

Unit II: Arrays and Functions   **12 Hours**

Write programs: for the sum and average of array elements, area calculations using switch case statements, and swapping numbers using functions, Implement programs: to handle arrays, find the largest and smallest elements, and sum two matrices, Develop recursive programs: for factorial, power of a number, and Fibonacci series.

Unit III: Special Constructs and Pointers   **12 Hours**

Write programs: using special constructs like goto, continue, and break, Implement programs: to handle pointers and find the address of variables, Develop programs: for string manipulation using string functions and user-defined functions.

Unit IV: Structures and File Handling   **12 Hours**

Write programs: to store information using structures, handle structure within structure, and use pointers to structures, Implement programs: for file handling operations like reading, writing, and appending data in files, Develop programs: to check macros and include user-defined header files.

Unit V: Advanced Topics   **12 Hours**

Write programs: for dynamic memory allocation using `malloc()`, `calloc()`, and `free()`, Implement complex data structures using structures and unions, Develop programs: to handle special cases and exceptions in C programming.

                                              Total Hours: 60

List of Experiments

1. Write a program for simple arithmetic operations?
2. Write a program for finding greatest number among two numbers?
3. Write a program for the greatest number among the three numbers?
4. Write a program for finding an even or odd number?
5. Write a program for finding leap year?
6. Write a program to swap two numbers using a third variable?
7. Write a program to swap two numbers without third variable?
8. Write a program for printing of table which is given by the user?
9. Write a program for printing of table with valid condition?
10. Write a program to print in * in the pattern pyramid?
11. Write a program to print binary number (0, 1) in pyramid pattern?
12. Write a program to find the largest number among two numbers using ternary operator?
13. Write a program to check given number is prime or not?
14. Write a program to generate the Fibonacci series?
15. Write a program for finding sum & average of array element?
16. Write a program to calculate the area of giving the shapes:

    1. Circle 2. Triangle 3. Rectangle 4. Square

    using switch case statement?
17. Write a program to swap two numbers using a third variable to function?
18. Write a program to swap two numbers without using a third variable to function?

19. Write a program for triangle to the given pattern

```
        *
       * *
      * * *
     * * * *
    * * * * *
```

20. Write a program for pyramid to the given pattern

```
        *
       * *
      * * *
     * * * *
```

21. Write a program for finding reverse number which is given by the user?

22. Write a program for finding the sum of the given number?

23. Write a program to find even or odd number using functions?

24. Write a program to find largest and smallest element from an array?

25. Write a program for finding the sum of two matrices?

26. Write a program for finding the factorial number?

27. Write a program finding factorial using recursion?

28. Write a program finding power of a given number using recursion?

29. Write a program to print Fibonacci series using GOTO?

30. Write a program of special constructs using continue?

31. Write a program of special constructs using break?

32. Write a program to store information of student using structure?

33. Write a program to find the address of a variable using pointer variable?

34. Write a program finding power of a given number?

35. Write a program to connect two strings using string function?

36. Write a program to compare one string to another string using string function?

37. Write a program to calculate the length of string using string function?

38. Write a program to copy one string to another string using string function?

39. Write a program to copy one string to another string without string function?

40. Write a program to calculate the area of a circle using the macro function?

41. Write a program to include user defined header file in C Program.?

42. Write a program to check macros which is defined or not in the program?

43. Write a program to a read one character from the file using file function?

44. Write a program to a write one character to the file using file function?

45. Write a program to append one character to the file using file function?

46. Write a program to read numbers and characters from the file using file function?

47. Write a program to write numbers and characters to the file using file function?

48. Write a program to append numbers and characters to the file using file function?

Reference Books:

1. Kerninghan& Richie: The C Programming language, PHI
2. Cooper Mullish: The Spirit of C, Jaico Publishing House, Delhi
3. Kanetkar Y: Let us C
4. Kanetkar Y: Pointers in C.

List of e-Learning Resources:
1. https://www.coursera.org/courses?query=c%20programming
2. https://www.udemy.com/topic/c-programming/
3. https://nptel.ac.in/courses/106104128
4. https://www.codecademy.com/catalog/language/c

Prepared By	**Academic Coordinator**	**HOD**	**Senior Faculty nominated by DOAA**

Semester-I

L-0 T-0 P-4 C-2

25SACS030P: Networking Essentials

Course Objectives

- To provide hands-on experience with networking devices and protocols.
- To enable students to configure and troubleshoot network issues.
- To understand network security configurations and their implementations.
- To familiarize students with Cisco IOS commands and configurations.
- To develop skills in creating and managing network infrastructures.

Course Outcomes

1. Deploy and configure networking devices.
2. Troubleshoot and resolve common network issues.
3. Implement security measures on networking devices.
4. Configure and manage network protocols.
5. Utilize Cisco IOS commands for network configurations.

Articulation Matrix

(Program Articulation Matrix is formed by the strength of the correlation of COs with POs and PSOs. The strength of correlation isindicated as 3 for substantial (high), 2 for moderate (medium) correlation, and 1 for slight (low) correlation)

CO/PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
CO1	3	2	1	-	-	-	-	-	-	2	-	-
CO2	2	-	3	1	-	-	-	-	-	1	-	-
CO3	1	-	2	3	-	1	-	-	-	2	-	-
CO4	-	1	-	2	3	-	-	-	-	1	-	-
CO5	-	-	1	-	2	3	-	-	-	1	-	-

High-3 Medium-2 Low-1

Unit-I: Basic Network Configuration and Connectivity **13 Hours**
Deploy Devices, Deploy and Cable Devices, Configure End Devices, Create a Simple Network, Observe Data Flow in a LAN, Connect to a Web Server

Unit-II: DHCP and NAT Configuration **9 Hours**
Configure DHCP on a Wireless Router, Examine NAT on a Wireless Router

Unit-III: Client Interaction and Application Layer Services **11 Hours**
The Client Interaction, Observe Web Request, Use FTP Services, Use Telnet and SSH

Unit-IV: Wireless Security and Management **11 Hours**
Configure Basic Wireless Security, Compare In-Band and Out-of-Band Management Access

Unit-V: Cisco IOS Configuration and Troubleshooting   16 Hours
Navigate the IOS, Use Cisco IOS Show Commands, Implement Basic Connectivity, Configure Initial Router Settings, Configure SSH, Build a Switch and Router Network, Use the ipconfig Command, Use the ping Command, Troubleshoot a Wireless Connection

Total : 60 Hours

List of Experiments (Packet Tracer)
1. Deploy Devices
2. Deploy and Cable Devices
3. Configure End Devices
4. Create a Simple Network
5. Observe Data Flow in a LAN
6. Connect to a Web Server
7. Configure DHCP on a Wireless Router
8. Examine NAT on a Wireless Router
9. The Client Interaction
10. Observe Web Request
11. Use FTP Services
12. Use Telnet and SSH
13. Configure Basic Wireless Security
14. Compare In-Band and Out-of-Band Management Access
15. Navigate the IOS
16. Use Cisco IOS Show Commands
17. Implement Basic Connectivity
18. Configure Initial Router Settings
19. Configure SSH
20. Build a Switch and Router Network
21. Use the ipconfig Command
22. Use the ping Command
23. Troubleshoot a Wireless Connection
24. Skills Integration Challenge

Reference Books:
1. CCNA Cisco Certified Network Associate: Study Guide (With CD) 7th Edition (Paperback), Wiley India, 2011
2. CCENT/CCNA ICND1 640-822 Official Cert Guide 3 Edition (Paperback), Pearson,2013

List of e-Learning Resources:
1. https://www.netacad.com/courses/networking/networking-essentials
2. https://www.udemy.com/course/networking-essentials/?couponCode=ST20MT50724
3. https://www.classcentral.com/course/networking-academy-networking-essentials-97414

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