Rayat Shikshan Sanstha's

SADGURU GADGE MAHARAJ COLLEGE, KARAD.

(An Autonomous)

Accredited By NAAC with 'A⁺ (3.63 CGPA)' Grade

ISO-9001-2015 Certified

Affiliated to Shivaji University, Kolhapur

Bachelor of Computer Science (Entire)

DEPARTMENT OF COMPUTER SCIENCE

**Under the Faculty of Science and Technology
Choice Based Credit System (CBCS)**

Regulations in accordance with **National Education Policy**
to be implemented from Academic Year 2023-24

Syllabus For

B.Sc. Computer Science (Entire) Part – I

SEMESTER I & II

(Syllabus to be implemented from June 2023)

Sadguru Gadge Maharaj College, Karad (Autonomous)
NEP-2020: Credit Framework for Faculty of B.Sc. Computer Science (Entire)
Single Major and Minor

Sem	DSC (Major)		DSE (Minor-I)	OE/GE	AEC (Language)	Value Added Courses	SEC	IKS	Summer Internship	Research Project / Dissertation	Total Credits
I	Computer-I (2) Introduction to computers -I Computer-II (2) Programming in C-I Practical-I (2)		Electronics-I (2) ANALOG ELECTRONICS Electronics-II (2) DIGITAL ELECTRONICS – I Practical-I (2)	Maths-I (2) Foundational Mathematics Maths-II (2) Discrete Mathematics Practical-I (2)	**English (2)** English for Communication -I	-	SEC-I Statistical Methods by Using Excel	IKS (2) History of Computers in India		-	22
	W-L/W=4+4=8		W-L/W=4+4=8	W-L/W=4+4=8	W-L/W=2		W-L/W=2	W-L/W=2			W-L/W=30
II	Computer-III (2) Introduction to computers -II Computer-IV (2) Programming in C-II Practical-II (2)		Electronics-III (2) INSTRUMENTATION Electronics IV (2) DIGITAL ELECTRONICS – II Practical-II (2)	Maths-III (2) Computational Geometry Maths-IV (2) Operations Research Practical-II (2)	**English (2)** English for Communication -II		SEC-I (2) Statistical Methods by Using Excel			-	22
	W-L/W=4+4=8		W-L/W=4+4=8	W-L/W=4+4=8	W-L/W=2		W-L/W=2				W-L/W=32
Credits	8+4=12		8+4=12	4+6=10	04		02			-	44
	Level 5 -Students exiting the programme after securing 49 credits will be awarded UG Certificate in the relevant Discipline /Subject (Computer)										
III	Computer-V (2) Computer-VI (2) Practical-II (4)		Electronics-V (2) Practical-III (2)		English (2)	VAC- I (2) Democracy AEC- I (2) Environmental Science	SEC-III (2) SEC-IV(2)				22

	W-L/W=4+8=12		W-L/W=4+4=8					W-L/W=4			W-L/W=33
IV	Computer-VII (2) Computer-VIII (2) Practical-II (4)		Electronics-VI (2) Practical-IV (2)		English (2)	AEC-II (2) Environmental Science	SEC-V (2) SEC-VI (2)	CC (2)			22
	W-L/W=4+8=12		W-L/W=4+4=8		W-L/W=2	W-L/W=2					W-L/W=33
Credits	8+8=16		6 + 6 = 12		04	06	10	02+02		-	44
Level 6- Students exiting the programme after securing 99 credits will be awarded UG Diploma in the relevant Discipline /Subject (Computer)											
V	Computer-IX (2) Computer-X (2) Computer-XI (2) Computer-XII (2) Practical-III (8)	Elective I (2)	Electronics-IX (2+0=2)	-		-	-	-		FP (2)	-	22
	W-L/W=8+16=24		W-L/W=2			-					W-L/W=26
VI	Computer-XIII (2) Computer-XIV (2) Computer-XV (2) Computer-XVI (2) Practical-III (8)	Elective II (2)	Electronics-X (2+0=2)	-		-	-	-		OJT (2)	-	22
	W-L/W=8+16=24		W-L/W=2			-					W-L/W=26
Credits	16+16=32	4	4+0=4							4		44
Level 7 Option 3 : Students who want to undertake 3-year UG programme will be awarded UG Degree in the relevant Discipline /Subject (Computer)upon securing 137 credits) or continue studies for Bachelor with Computer with (Honours/Research) Degree i.e to Level 8											
Total	60/60	4	24/24	10/9	8/8	6/6	12/9	2+2/4	4/4		-	132/ 132

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Rayat Shikshan Sanstha's
SADGURU GADGE MAHARAJ COLLEGE, KARAD
(AN AUTONOMOUS)
COURSE STRUCTURE UNDER CHOICE BASED CREDIT SYSTEM (CBCS)
B. Sc. Computer Science (Entire) Part-I (2023-2024)
NEW NEP 2023 Evaluation Pattern for Theory and Practical
Semester-I

Subject Code	Subject Type	Name of Subject	Credits	TH/PR	CCE		SEE		Total Theory/Practical Marks
					Max	Min	Max	Min	
N-MJT-BCSE23-101	Major	Introduction to Computer-I	02	TH	10	04	40	16	**50**
N-MJT-BCSE23-102	Major	Programming in C-I	02	TH	10	04	40	16	**50**
N-MNT-BCSE23-103	Minor	Analog Electronics	02	TH	10	04	40	16	**50**
N-MNT-BCSE23-104	Minor	Digital Electronics-I	02	TH	10	04	40	16	**50**
N-OET-BCSE23-105	Open/ General Elective	Foundational Mathematics	02	TH	10	04	40	16	**50**
N-OET-BCSE23-106	Open/ General Elective	Discrete Mathematics	02	TH	10	04	40	16	**50**
N-AEC-BCSE23-107	Ability Enhancement Course	English for Communication-I	02	TH	10	04	40	16	**50**
N-IKS-BCSE23-108	Indian Knowledge System	History of Computers in India	02	TH	--	--	50	20	**50**
N-MJP-BCSE23-109	Major Practical	Computer Science Practical-I	02	PR			50	20	**50**
N-MNP-BCSE23-110	Minor Practical	Electronics Practical-I	02	PR			50	20	**50**
N-OEP-BCSE23-111	Open/ General Elective Practical	Mathematics Practical-I	02	PR			50	20	**50**
Total			**22**						**550**
Total of SEM-I			**550**						

Semester-II

Subject Code	Subject Type	Name of Subject	Credits	TH/PR	CCE Max	CCE Min	SEE Max	SEE Min	Total Theory/Practical Marks
N-MJT-BCSE23-201	Major	Introduction to Computer-II	02	TH	10	04	40	16	**50**
N-MJT-BCSE23-202	Major	Programming in C-II	02	TH	10	04	40	16	**50**
N-MNT-BCSE23-203	Minor	Instrumentation	02	TH	10	04	40	16	**50**
N-MNT-BCSE23-204	Minor	Digital Electronics-II	02	TH	10	04	40	16	**50**
N-OET-BCSE23-205	Open/ General Elective	Computational Geometry	02	TH	10	04	40	16	**50**
N-OET-BCSE23-206	Open/ General Elective	Operation Research	02	TH	10	04	40	16	**50**
N-AEC-BCSE23-207	Ability Enhancement Course	English for Communication-II	02	TH	10	04	40	16	**50**
N-SEC-I-BCSE23-208	Skill Enhancement Course	Statistical Methods by Using Excel	02	TH	--	--	50	20	**50**
N-MJP-BCSE23-209	Major Practical	Computer Science Practical-II	02	PR			50	20	**50**
N-MNP-BCSE23-210	Minor Practical	Electronics Practical-II	02	PR			50	20	**50**
N-OEP-BCSE23-211	Open/ General Elective Practical	Mathematics Practical-II	02	PR			50	20	**50**
Total			**22**						**550**
Total of SEM-II			**550**						
Grand Total of SEM-I and SEM-II			**550+550=1100**						

B. Sc. Computer Science (Entire) Part-I (Semester I)
NEP Syllabus with effect from June, 2023
Course Code: N-MJT-BCSE23-101: Computer Paper-I
Course Title: Introduction to Computer-I
Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02   **Teaching Scheme: Theory – 03 Lect. / Week**   **Total Marks: 40+10=50**

Course Outcomes:

After completion of this course students will be able to:
1. Learn fundamental concepts of computers.
2. Learn the principles of office automation.
3. Learn Input, Output Devices and Concept of Memory
4. Teach basic principles of Operating system.

Unit - 1: Introduction to Computer and Basic Organization   **(08)**
- Introduction, History. Characteristics & features of Computers.
- Components of Computers.
- Organization of Computer.
- Classification of Computers
- Computer Languages-Types of Programming Languages, Machine Languages, Assembly Languages, High Level Languages
- Assembler, Linker, Loader, Interpreter & Compiler.

Unit – 2: Input, Output Devices and Concept of Memory   **(07)**
- Input Devices :Touch screen, OMR, OCR, Light pen, Scanners
- Output Devices :Digitizers, Plotters, LCD, Plasma Display, Printers and its types
- Types of Memory (Primary And Secondary)-RAM, ROM, PROM, EPROM
- Secondary Storage Devices (FD, CD, HD, Pendrive, DVD, Tape Drive,USB)

Unit – 3: Operating System concepts   **(05)**
- Introduction of Operating System- Why Operating System, History of operating system, Functions of Operating System
- Types of Operating System
- Introduction to Computer Virus, how does it spread? Symptoms of it, Types of Virus, Antivirus, Prevention from Virus.

Unit – 4: MS Word MS PowerPoint   **(10)**
- MS Word -Word Processing, features of word processing, menus and commands, toolbars and buttons, word formatting toolbar , creating document, saving a document,printing a document, Paragraph setting, mail merge, graphs ,pictures, image, working with tables.
- MS Power point - Introduction to PowerPoint, Creating a Presentation, PowerPoint views, Slide show, Formatting slides, Slide transition & adding special effects, Inserting pictures, sound, chart.

References

1. Fundamentals of Computers By V. Rajaraman

2. Computers and Common Sense By R. Hunt and Shelly Y.

 3. Fundamentals of Computers By P. K. Sinha

4. Andrew S. Tanenbaum, "Modern Operating Systems", 2ndEdition, PHI private Limited, New Delhi,2008.

5. Fundamentals of Computers by Reema Thareja from Oxford University Press

B. Sc. Computer Science (Entire) Part-I (Semester I)
NEP Syllabus with effect from June, 2023
Course Code: N-MJT-BCSE23-102: Computer paper-II
Course Title: Programming in C-I
Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02   **Teaching Scheme: Theory – 03 Lect. / Week**   **Total Marks: 40+10=50**

Course Outcomes:

After completion of this course students will be able to:
1. Learn Programming Concepts of C Language.
2. Learn the introduction of C Language.
3. Learn Input-Output statements.
4. Teach basic Control structures of C Language.

Unit 1: Programming Concepts   (07)

Program and programming, Programming languages, Algorithm: Definition, Examples, Characteristics of an algorithm, Notation of Algorithm, Pseudo code conventions, Flowcharts-Definition, Symbol, features.

Unit 2: Introduction to C   (05)

History of 'C', Structure of 'C' program, Program execution phases, Character set and keywords,Constant and its type, Variable and its Data types in 'C', Operators Arithmetic, logical, relational, bitwise, increment, decrement ,conditional, operator precedence Programming examples

Unit 3: Input-Output Statements   (08)

Character input-output - getch(), getche(),getchar(),putchar(), String input-output - gets(), puts() , Formatted input-output - printf(), scanf()

Unit 4: Control Structures   (10)

Conditional Control Statements –if –if-else –nested if-else –else-if ladder Multiple Branching Control Statement –switch-case Loop Control Statements –while –do-while –for –Nested LoopsJump Control statements –break –continue –goto –exit.

Reference Books

1. The C Programming Language - By Brian W Kernighan and Dennis Ritchie
2. C programming in an open source paradigm:– By R. K. Kamat, K . S. Oza, S.R. Patil
3. The GNU C Programming Tutorial -By Mark Burgess
4. Let us C- By Yashwant Kanetkar

N-MJP-BCSE23-109: Computer Science Practical-I

(Practical based on N-MJT-BCSE23-101 and N-MJT-BCSE23-102)

Practical List:

1) Demonstration of peripherals

2) Linking of various peripherals

3) Operation of all keys of keyboard

4) DOS – external and internal commands, batch files commands

5) Windows Operating System –Windows explorer, program manager, control panel, print Manager, Creating folders, files, icons, shortcuts

6) MS – WORD – Creating new documents, typing, deleting, selecting text, undo, Redo, Formatting text – auto format, formatting characters, drop caps, Paragraphs, line spacing, Margins, page setup, headers and footers Writer's tools – spelling checker, auto format, auto Correct, find and replace Mail merge – Data source, Main document, creating mail merge Document.

7) Create a power point presentation from template.

8) Prepare a power point presentation using Auto Wizard and see its various views.

9) Prepare a power point presentation with audio and video effect.

Guidelines Follow standard coding method

- Write Algorithm and draw flow chart neatly

- The output of the program should be neatly formatted

- Practice all the programs in the lab

- Sample Program list

10) MS PowerPoint – Creating Presentation using various features.

11) Create a power point presentation to explain various aspects of your college using Auto play.

12) Create a power point presentation to explain the sales performance of a company over a period five years. Include slides covering the profile of the company, year wise sales and graph with gridlines, legends and titles for axe. Use Clip Art and animation features.

13) Write a program to print the size of all the data types in C and its range.

14) Write a program to convert Fahrenheit to Celsius.

15) Write a program to check whether the given number is a Prime number or not.

16) Write a program to accept three numbers and find the largest and second largest

17) Write a program to print all prime numbers between any 2 given limits.

18) Write a program to print all the Armstrong numbers between any 2 given limits.

19) Write a program to check whether the string is a Palindrome.

B. Sc. Computer Science (Entire) Part-I (Semester I)
NEP Syllabus with effect from June, 2023
Course Code: N-MNT-BCSE23-103: Electronic Paper-I
Course Title: Analog Electronics

Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02   **Teaching Scheme: Theory – 03 Lect. / Week**   **Total Marks: 40+10=50**

Course Outcomes:

After completion of this course students will be able to:

1. Demonstrate and explain electrical components and determine the value of resistance of resistor, Inductance of inductor and capacitance of capacitor using color code method.
2. Acquire the knowledge about the characteristics and working principles of PN junction diode, Zener diode, photo diode, LED and different diode applications.
3. Analyze output in different operating modes of Bipolar Junction Transistor and Demonstrate the Operating principle and output characteristics of Bipolar Junction Transistor
4. Design biasing circuits for BJT and study different coupling methods used in multistage amplifiers.

UNIT 1: Basic Circuit Elements (10)

Definition of active and passive elements.
Resistors: Classification, color code, specifications of resistors. Construction of Carbon composition, carbon film and wire wound resistors. Potentiometer.
Capacitors: Definition, Capacitance, capacitive reactance (X_C), Classification of capacitors, Construction of electrolyte capacitor.
Inductors: - Definition, symbol, Inductance, Inductive reactance (X_L), Types of Inductors: - Aircore, Iron core and ferrite core inductors.
Transformers:- Principle and construction of transformer, Types of Transformer: - Step-up, step-down transformer.
Switches: Explanation using Symbols.
Relay: - Principle, construction and working of electromagnetic relay.

UNIT 2: Semiconductor Diodes (04)

Formation of P-N junction, Depletion layer, Working and I-V characteristics of PN junction diode. Diode applications, Zener diode (Construction and working). Photodiode and LED, Current limiting resister for LED, Applications- Optocoupler, 7-segment display.

UNIT 3: Bipolar Junction Transistor (BJT) (08)

Structure and working of bipolar junction transistor: CB, CC, CE configurations, CE mode characteristics, Relation between α and β, DC load line and Q point, potential divider Biasing, Concept of transistor as an amplifier and transistor as a switch.

UNIT 4: Amplifiers: (08)

Need of transistor Biasing, Transistor biasing and Stabilization circuits- Fixed Bias and Voltage Divider Bias. Class A, B, AB and C Amplifiers (Comparative Study on the basis of Q point), Single stage CE amplifier: Current gain, Voltage gain, Power gain, **Cascaded Amplifiers**:

Two stage RC, LC, TC and DC Coupled Amplifiers and their Frequency Responses.

Reference Books :

1. Principles of Electronics : A.P. MALVINO, Tata Mc-Graw Hill Publication, 7 Edition.

2. A text Book of Applied Electronics R.S. Shed, S chand Publication

3. Electronic Devices and circuits by S. Rama Reddy, Narosa publication Dheil

4. Principles of Electronics : V.K. Mehets, S.Chand & Company Ltd.

5. Basic Electronics and Linear Circuits : N.N. Bhargava, D.C.Kulshreshtha, S.C. Gupta TMH

6. Electronic Devices and ciruits : Boyistead, Tata Mc-Graw Hill

7. Operational Amlifiers By Ramakant G

B. Sc. Computer Science (Entire) Part-I (Semester I)
NEP Syllabus with effect from June, 2023
Course Code: N-MNT-BCSE23-104: Electronic Paper-II
Course Title: Digital Electronics-I
Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02   **Teaching Scheme: Theory – 03 Lect. / Week**   **Total Marks: 40+10=50**

Course Outcomes:

After completion of this course students will be able to:

1. Understanding the basics of Digital Electronics and different number systems and conversion between them.
2. Design and construction of the basic and universal logic gates and Studying the Boolean algebra and Simplification of Boolean expression using different methods.
3. Understand, analyze and design various combinational circuits.
4. Understand, analyze and design various sequential circuits.

Unit 1: Number System, Binary Codes and Binary Arithmetic   (08)

Different types of number systems (Decimal, Binary, Octal, Hexadecimal Number system), Inter conversion from one number system to another. Binary Codes (BCD code, ASCII code). Concept of Parity (Odd, Even), 1's complement and 2's complementof binary numbers, Binary arithmetic: addition, subtraction (using 1's complement and 2's complement), Signed and unsigned numbers.

Unit 2: Logic Gates and Boolean Algebra   (08)

Logic gates: AND, OR, NOT, NOR, NAND, EX-OR (Definition, Symbol, Expression andTruth Table), Universal gates (NAND and NOR).

Boolean algebra: Rules and laws of Boolean algebra, De-Morgan's Theorems, Simplifications of logic Expressions using Boolean algebra.

Unit 3: Combinational Circuits   (06)

Concept of Combinational Circuits, Half adder, Full adder, half subtractor, Full Subtractor, 4-bit adder/subtractor, Multiplexer, De-multiplexer, Encoder (Decimal toBCD), Decoder : BCD to 7 segment decoder.

Unit 4: Sequential Circuits   (08)

Concept of sequential circuits, *Flip-flops*: RS, Clocked RS, D, JK, Master Slave JK, T-Flip-flop, *Counters*- Asynchronous (3 – bit ripple) Synchronous (3 – bit) Ring Counter, Johnson counter (Truth tables and timing diagrams).

Reference Books

1. Digital principals and applications; Malvino Leach, Tata McGraw Hill,4th Edition
2. Fundamentals of Digital Electronics: A. Anand Kumar PHI Publication 2001

3. Digital principals: T.L. Floyd 3rd edition
4. Digital Electronics: C.F. Strangio
5. Modern digital Electronics: R.P. Jain, Tata McGraw Hill Publication
6. Digital logic and computer design – Morris Mano
7. First course in Digital System Design: John P. Uyemura Brooke/ColeThompson Learning (2001)

N-MNP-BCSE23-110: Electronics Practical-I
(Practical based on N-MNT-BCSE23-103 N-MNT-BCSE23-104)

Group A:
1. Study of Electronic Components
2. Study of P-N junction diode characteristics
3. Study of full wave rectifier with & without filter (calculation of ripple).
4. Study of Transistor characteristics (CE) configuration.
5. Study of Transistors as switch

Group B:
1. Study of Basic gates.
2. Universal building block using NAND and NOR gates.
3. Verification of De-Morgan's Theorems.
4. Study of Half & full adder.
5. Study of Half & full Substractor.
6. Study of Flip Flops:
7. Study of Multiplexer and De-Multiplexer.

At least 4 experiments from each group should be complete.

B. Sc. Computer Science (Entire) Part-I (Semester I)
NEP Syllabus with effect from June, 2023
Course Code: N-OET-BCSE23-105: Mathematics Paper-I
Course Title: Foundational Mathematics
Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02   Teaching Scheme: Theory – 03 Lect. / Week   Total Marks: 40+10=50
Course Outcomes:
After completion of this course students will be able to:
1. Construct simple mathematical proofs and possess the ability to verify them.
2. Learn about matrices and solution of system of linear equations.
3. Have substantial experience to comprehend formal logic arguments.
4. Prove results involving divisibility and greatest common divisors.

Unit 1: Set and Relations   [05]
- Basic definition and types of set
- Functions and types of function
- Relations and types of relation
- Equivalence class, Partition of a set

Unit 2: Matrices and linear equations   [11]
- Matrix and types of matrix
- Matrix Transformations
- Linear system
- Solution of linear system: Gaussian Elimination method and Gauss-Jordan method.

Unit 3: Logic   [10]
- Statement and types of statements
- Logical connectives and truth value and Construction of truth table.
- Statement pattern: Tautology, contingency and Contradiction.
- Logical equivalence
- laws of logic with examples.

Unit 4: Number theory   [4]
- Introduction
- Divisibility : Division algorithm (Statement only)
- Greatest Common Divisor (g.c.d.) and Least Common Multiple (l.c.m)
- Euclidean algorithm (Statement only) with examples.
- Fermat's theorem (Statement only), examples.

Reference Books:
1. Algebra – Nirali publication.
2. Linear Algebra – Schaum Series.
3. Elements for Discrete mathematics – Nirali publications .
4. Discrete mathematics – Vision publications and Olympia Nicodemi .
5. Algebra by Naik and Patil , Phadake Prakashan.
6. Elementary Linear Algebra with applications , Howard Anton ,Chris Rorres

B. Sc. Computer Science (Entire) Part-I (Semester I)
NEP Syllabus with effect from June, 2023
Course Code: N-OET-BCSE23-106: Mathematics Paper-II

Course Title: Discrete Mathematics

Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02   Teaching Scheme: Theory – 03 Lect. / Week   Total Marks: 40+10=50

Course Outcomes:

After completion of this course, the students will be able to:
1. Apply basic counting techniques of combinatorial problems.
2. Apply principles and concept of graph theory in practical situations.
3. Solve recurrence relation.
4. Understanding special functions is useful in computers.

Unit 1: Counting Principle   [10]
- Counting : Addition & Multiplication principle, Permutation And Combination
- Cardinality of finite set
- Cardinality of union of sets (Addition principle)
- Principle of inclusion & exclusion, examples
- Combinatorial Arguments.

Unit 2: Graph theory   [6]
- Definition and elementary results
- Types of graphs
- Matrix representation of graphs : Adjacency matrix and incidence matrix
- Subgraphs, induced graphs union and intersection of graphs
- Complement of a graph, Self complementary graphs

Unit 3: Recurrence relations   [9]
- 3.1 Introduction
- 3.2 Linear Recurrence relation with constant coefficient
- 3.3 Homogeneous solutions
- 3.4 Particular & Total solutions

Unit 4: Generation functions   [05]

- 4.1 Ordinary and exponential generation functions.
- 4.2 Basic properties of generation functions.
- 4.3 Enumerators.
- 4.4 Applications to solving recurrence relation.

Recommended Books:-
- Discrete mathematics -D.M. Pandhare and M.D.Bhagat by Nirali Prakashan.

Reference Books:-
- Discrete mathematics by S.R. Patil and others, Nirali Publications.
- Elements of Discrete mathematics by C.M.Liiu .
- Discrete mathematics – Vision publications and Olympia Nicodemi

N-OEP-BCSE23-111: Mathematics Practical- I

(Practical based on N-OET-BCSE23-105and N-OET-BCSE23-106)

Practical No.	Title of Practical
1	Gaussian Elimination method and Gauss-Jordan method
2	Logical Equivalence
3	Valid and invalid arguments.
4	Euclidean algorithm
5	Fermat's theorem
6	Principle of inclusion and exclusion
7	Recurrence Relations
8	Matrix representation of graphs
9	Operations on graphs: union, intersection and ring sum of two graphs
10	Kruskal's algorithm

B. Sc. Computer Science (Entire) Part-I (Semester I)
NEP Syllabus with effect from June, 2023
Course Code: N-AEC-BCSE23-107: Ability Enhancement Compulsory Course (AECC-A)- English Paper
Course Title: English for Communication-I
Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02   **Teaching Scheme: Theory – 03 Lect. / Week**   **Total Marks: 40+10=50**

Course Objectives:
1. To acquaint the students with communication skills.
2. To inculcate human values among the students through poems and prose.
3. To improve the language and business competence of the students.

Module I
      A) Communication and its Types
      B) The Auspicious Vision
      C) Technology with a Human Face – E.F. Schumacher

Module II
      A) Developing Vocabulary
      B) Expansion of Ideas
      C) As a Flower I Come - by Sundaram

Division of Teaching hours (Total 30 Periods)
      1. Communication Skills: 2 X 9 = 18 periods
      2. Reading Comprehension: 2X6 = 12 periods

Reference Books:-
      1) Business Communication- Mr.Prakash Herekar
        (Mehta Publishing House Pune),2007
      2) English for Communication (Compulsory English) –(CBCS),   Shivaji University, Kolhapur ,2018
      3) English For Communication (Compulsory English) –CBCS), Shivaji University, Kolhapur,2019

Pattern of Question Paper for English for
SEMESTER I

Total Marks: 40

	Sub. Q.	Type of Question	Based onUnit	Marks
Q.1	A	Four multiple choice questions with four alternatives to be set.	**Prose and poetry units.**	04
	B	Answer in one word /phrase/or sentence each. (Skimming and scanning questions to be set)	**Prose and poetry units.**	04
Q.2	A	Answer the following questions in threeto four sentences each (4 out of 6)	**Prose and poetry units.**	08
	B	Write short note on the following inabout seven to eight sentences each. (1out of 2)	**Prose and poetry units**	04
Q.3.	A	Question to be set on Communication and its types **(Attempt Any One out of Two)**	**Prose and poetry units**	05
	B	Question to be set on Communication and its Types. **(Attempt Any One out of Two)**	**Module I -A** Communication and its Types	05
Q.4	A	Do as directed: Five different exercises to be set for 1 marks each.	**Module II- A** Developing Vocabulary	05
		Do as directed: Five different exercises to be set for 1marks each.	**Module II- A** Developing Vocabulary	05

B. Sc. Computer Science (Entire) Part-I (Semester I)
NEP Syllabus with effect from June, 2023
Course Code: N-IKS-BCSE23-108: Indian Knowledge System (IKS)

Course Title: History of Computers in India

Total Contact Hours: 15 hrs. (15 lectures)
Credits: 02   Teaching Scheme: Theory – 03 Lect. / Week   Total Marks: 50

Course Objectives: Student will be able to:
1) understand design for a steam-powered, mechanical computer
2) learn why digital computing replaced analog methods in the 1940s and 1950s
3) Study the Evolution of Indian programming languages
4) Identify the story behind the Modern Computing

Units	History of Computers in India	No. of hrs. per unit/ credits
Unit I	**Pre-Independence Era of Computers**	4
	Introduction: Computing in the Pre-industrial World, Establishment of the Tata Institute of Fundamental Research, Analog Computing in the 19th and early 20th, Introduction of electronic computers in India, Information Technology before 1945	
Unit II	**Early Computing Initiatives**	4
	Development of the first indigenous electronic computer:HEC-2M, Role of F.C. Kohli in setting up the first computer manufacturing company in India, Computers and Culture in the 1960s, Early Computer Languages and Software	
Unit III	**Era of Mainframes and Minicomputers**	3
	Introduction of mainframe and minicomputer technologies in India, Role of the Department of Electronics (DoE) in promoting computerization, Evolution of Indian programming languages (FORTRAN,COBOL).	
Unit IV	**Modern Computing**	4
	Emergence of Indian IT companies and software exports,Role of NRIs in the growth of the Indian IT industry, Internet and Digital Revolution, Mobile computing and Smartphone revolution in India, Artificial Intelligence(AI) and Machine Learning (ML) in Indian industries.	

Course Outcomes: - Student should be able to …

    1) design for a steam-powered, mechanical computer
    2) evaluate digital computing replaced Analog methods in the 1940s and 1950s
    3) gain the knowledge about Evolution of Indian programming languages
    4) evaluate the story behind the Modern Computing

Required books:

- Martin Campbell-Kelly and William Aspray, Computer: A History of the Information Machine (Basic Books, 2004). Please purchase the second edition (2004), not the first edition (1996)
- Fred Turner, From Counterculture to Cyberculture (University of Chicago Press, 2006)
- Martin Campbell-Kelly, From Airline Reservations to Sonic the Hedgehog: A History of the Software Industry (MIT Press, 2003) Janet Abbate, Inventing the Internet (MITPress, 1999)

B. Sc. Computer Science (Entire) Part-I (Semester II)
NEP Syllabus with effect from June, 2023
Course Code: N-SEC-I-BCSE23-208: Skill Enhancement Course

Course Title: Statistical Methods by Using Excel

Credits: 02   **Total Marks: 50**

Course Outcomes:

After completion of this course students will be able to:

1. Understand basic knowledge of MS-Excel
2. Formatting techniques and presentation style.
3. Manipulate data using data names and ranges, filters and sort, and validation lists.
4. Learning the use and utility of functions and formulas on excel spreadsheet.

Unit	Contents
1	**Nature of data and Measures of Central Tendency** • Definition, importance, scope of Statistics. • Population and Sample: Concept of statistical population with illustrations, concept of sample with illustrations. Methods of sampling: Simple Random Sampling and Stratified Random Sampling (description only). • Data Condensation: Raw data, Attributes and variables, discrete and continuous variables, classification and construction of frequency distribution. • Graphical Representation: Histogram, Frequency polygon, Frequency curve, Ogive curves, uses of Histogram and Ogive curves. • **Concept of central tendency:** Arithmetic mean, Median, Mode, Quartiles, Combined Mean. • Illustrative Examples.
2	**Measures of Dispersion and Moments** • Concept of dispersion and measures of dispersion, absolute and relative measures of dispersion. • Range, Coefficient of range, Quartile Deviation , Coefficient of Quartile Deviation, • Standard deviation , Coefficient of Standard deviation and Variance, coefficient of variation, combined S.D. and variance for two groups. CV for Two groups. • Raw and central moments: Definition for ungrouped and grouped data (only first four moments), relation between central and raw moments (statements only). • **Measures of skewness:** Types of skewness • **Measures of kurtosis:** Types of kurtosis. • Illustrative Examples.
3	**Probability** • Definitions: sample space , events, types of events, power set. Union and Intersection of Events. • Definition of probability of an events, probability of types of events simple examples of probability of an events based on permutations and combinations. • Definition of conditional probability of an event. • Concept of independence of two events. • Pairwise and complete independence of three events. • Illustrative Examples.

4	**Discrete probability distributions**
	• Definitions: discrete random variable, probability mass function (p.m.f.),
	• Discrete uniform distribution: p.m.f., mean and variance. And its applications.
	• Binomial distribution: p.m.f., mean and variance, additive property of Binomial variates, recurrence relation for probabilities and its applications.
	• Poisson distribution: p.m.f., mean and variance, recurrence relation for probabilities and its applications.
	• Illustrative Examples.

B. Sc. Computer Science (Entire) Part-I (Semester II)
NEP Syllabus with effect from June, 2023
Course Code: N-MJT-BCSE23-201: Computer Paper-III
Course Title: Introduction to Computer-II
Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02   **Teaching Scheme: Theory – 03 Lect. / Week**   **Total Marks: 40+10=50**

Course Outcomes:

After completion of this course students will be able to:

1. Define the basics in Ms Access.
2. Visualize the basic concept of HTML.
3. Recognize the elements of HTML.
4. Develop the concept of web publishing

Unit– 1: Introduction to Database (05)

- Introduction to DBMS
- RDBMS basic concepts- RDBMS Terminologies,
- DBMS Vs RDBMS with examples
- Keys –Primary key & Foreign key

Unit– 2: MS –Access (10)

- Working With Ms-Access - Tables, Queries, Forms, Reports, and Macros. Introduction to MsAccess, Designing Database, Crating Database using Wizard,
- Working with Table-Field types – Auto number, Date/Time, Number, Text, Yes/No, Hyperlink.
- Creating Tables using Design View and Using wizard, Editing Table, Editing Records.Query and Form Designing

Unit – 3: Introduction to HTML (05)

- HTML Documents
- Basic structure of an HTML document
- Creating an HTML document
- Marquee Tags
- Heading-Paragraphs
- Line Breaks

Unit –4: Images, Tables Frames, Image Maps, Forms in HTML (10)

- Introduction to elements of HTML
- Working with Text
- Working with Lists, Tables and Frames
- Working with Hyperlinks, Images and Multimedia
- Working with Forms and controls.

Reference Books:

1. The complete reference HTML & CSS by T.A. Powell (TMH Publication)
2. HTML, DHTML, JavaScript, Perl CGI by IVAN Bayroos (BPB Publication)
3. HTML 5 Step by Step, Faith Wempen, Prentice Hall of India Private Limited, New Delhi
4. Beginning HTML, XHTML, CSS, and JavaScript, John Duckett, Wiley India

5. Microsoft Office Access 2007: The Complete Reference (Complete Reference Series) 1stEdition, by Virginia Andersen (Author), McGraw Hill;
6. Access in easy steps Illustrated using Access 2019Mike McGrath

B. Sc. Computer Science (Entire) Part-I (Semester II)
NEP Syllabus with effect from June, 2023
Course Code: N-MJT-BCSE23-202: Computer Paper-IV
Course Title: Programming in C-II
Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02   **Teaching Scheme: Theory – 03 Lect. / Week**   **Total Marks: 40+10=50**

Course Outcomes:

After completion of this course students will be able to:
1. Develop logic for problem solving.
2. Teach basic principles of programming.
3. Develop skills for writing programs using 'C'.

Unit 1: Function   **[07]**

What is function? Advantages of using functions, Function Prototype –Defining a function, Calling a function ,Return statement ,Types of functions ,Recursion, Local and global variablesProgramming Examples

Unit 2: Arrays and strings   **[06]**

Array –One dimensional arrays –Declaration of 1D arrays –Initialization of 1D arrays
Accessing element of 1D arrays –Reading and displaying elements Two dimensional arrays – Declaration of 2D arrays –Initialization of 2D arrays, Accessing element of 2D arrays –Reading and displaying elements Initializing strings,Reading string, string handling functions (strcpy(), strcmp(), strcat(), strlen(), strrev()), Programming Examples.

Unit 3: Pointer, dynamic memory allocation   **[08]**

Definition of Pointer, Declaration of Pointer Variables, Assigning Address to Pointer
Variables, De-referencing Pointer Variables, Pointer Arithmetic –Pointer comparisons –De- reference and increment pointer –Null pointer , Parameter Passing Techniques – call by value, call by address, malloc() –calloc() –realloc() . –free (), Programming Examples.

Unit 4: Structure   **[09]**

Why is structure used? What is structure? Advantages of structures, Defining a Structure , Declaration of Structure Variables , Initialization of Structure Variables , Accessing Structure Members ,Storage of Structures in Memory ,Size of Structures, Reading and Displaying Structure Variables , Assignment of Structure Variables , Pointers to structures, Array of structures , Arrays within structures , Nested structures , Self-referential structures, Programming Example.

Reference Books:

1. The C Programming Language - By Brian W Kernighan and Dennis Ritchie
2. C programming in an open source paradigm:– By R. K. Kamat, K . S. Oza, S.R. Patil
3. The GNU C Programming Tutorial -By Mark Burgess
4. Let us C- By Yashwant Kanetkar

N-MJP-BCSE23-209: Computer Science Practical- II
(Practical based on N-MJT-BCSE23-201 and N-MJT-BCSE23-202)

1. MS ACCESS - Creating data bases, writing Queries, design forms and reports.

2. Write HTML code to develop a web page for giving details of your name, age, address. It contains the different background and foreground color, with different attribute of Font tags like italic, bold, underline etc. and gives suitable heading style.

3. Write HTML code to create a Webpages that contains an Image at its left hand side of the page when user clicks on the image; it should open another web page that displays the details ofthat image.

4. Create a web Page Practicing Hyper linking of webpages, ALINK, VLINK etc.

5. Create a web page, showing an ordered list of name of your five friends and unordered listof any five your hobbies.

6. Create a HTML document containing a nested list showing the content page of any book.

7. Create a web page which should divide a page into two equal frames & 3 Frames

8. Design a form using all input types

9. Working with Background, Text and Font properties.

10. MS-ACCESS Create a table for storing marks of 10 students. The fields of the table are given below: Reg. No., Name, Mark1, and Mark2, Mark3, Test average (Best Two /2), assignment seminar and total marks (test average + alignment + seminar). The fields Mark1, Mark2, Mark3 should not allow the user to enter a mark greater than 25 and should display proper message in such case. Similar constraint for the field Assignment" is 5 marks and for thefield „seminar", it is 10 marks.

11. Create a table showing names of authors of at least 10 different books, title of books, the prices of these books, name of publishers and year of publication.

12. Create a form to enter the data directly into this form. The fields required are: Basic Pay,DA, HRA, Gross salary, PF, Income tax and Net salary.

13. Create a report that displays the customer name, address, phone number, Item code, product quantity of the customers whose orders have been pending for over a month

14. Write a program to check whether a given matrix is an Identity matrix or not.

15. Write a program to perform matrix multiplication.

16. Write a program to count the different vowels in a line of text.

17. Write a program to accept two numbers and perform various arithmetic operations (+, -, *, /) based on the symbol entered.

18. Write a program to find the roots of a quadratic equation

19. Write a recursive program to find the factorial of a number.

20. Create an employee structure and display the same.

21. Write a function to swap two numbers using pointers.

22. Write a program to access an array of integers using pointers.

B. Sc. Computer Science (Entire) Part-I (Semester II)
NEP Syllabus with effect from June, 2023
Course Code: N-MNT-BCSE23-203: Electronic Paper-III
Course Title: Instrumentation
Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02   **Teaching Scheme: Theory – 03 Lect. / Week**   **Total Marks: 40+10=50**

Course Outcomes:

After completion of this course students will be able to:

1. Describe the working principle, selection criteria and applications of various transducersused in instrumentation systems.
2. Gain knowledge about different type of signal conditioning circuits, data converters and Understand construction, working principle of different types of digital instruments.
3. Analyze the design of an analog to digital converter and digital to analog converter.
4. Apply Data Acquisition system and ADC & DAC in real time measuring system

Unit-1: Transducers (08)

Definition of transducer, Classification of transducers: Active and passive transducers. Specifications of transducers: (Accuracy, range, linearity, sensitivity, resolution, reproducibility). Temperature transducers: Resistance temperature detector (RTD), Thermistors, Thermocouple Pressure transducers: Piezoelectric transducer, capacitive transducer, displacement transducer (LVDT), Optical transducers: (LDR).

Unit-2: Signal Conditioning (08)

Introduction to signal conditioning, Block diagram of Op-Amp, ideal characteristics of Op-Amp, Applications of Op-Amp: Inverting amplifier, Non inverting amplifier, Voltage follower, Adder, Substractor, Comparator, Three Op-Amp instrumentation amplifier, Introduction to Op-Amp Attenuators, I to V converter, Sample and Hold circuit.

Unit-3: Data Converters (06)

Digital to Analog Converter (DAC): Weighted Resistor, R-2R ladder, Parameters: (Linearity, resolution, accuracy), Analog to Digital Converter (ADC): Types of ADC: Parallel/Flash, Successive approximation, Parameters of ADC (Linearity, resolution, conversion time, accuracy).

Unit-4: Data Acquisition System and Digital Instruments (08)

Introduction to Generalized Data Acquisition System (Single channel and multi-channel), Digital Instruments: Digital Multimeter, Digital Tachometer, Digital pH Meter, Digital Phase Meter.

Recommended Books:

1. Sensors &Transducers: Dr. A. D. Shaligram: CTC Publication.
2. Op-Amps and Linear Integrated Circuits: Ramakant Gayakwad PHI: 4th Ed.

3. Electronic Instrumentation: H. S. Kalsi: TMH: 2nd Edition.
4. Modern Electronic Instrumentation and Measurement Techniques: Albert D. Helfrick, William D. Cooper: PHI Publication.

B. Sc. Computer Science (Entire) Part-I (Semester II)
NEP Syllabus with effect from June, 2023
Course Code: N-MNT-BCSE23-204: Electronic Paper-IV
Course Title: Digital Electronics-II
Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02   Teaching Scheme: Theory – 03 Lect. / Week   Total Marks: 40+10=50

Course Outcomes:
After completion of this course students will be able to:
1. Explain and compare the working of multivibrators using special application IC 555. Understanding and designing of multivibrator circuit, various memories and differentiate them.
2. Describe the architecture and functional block diagram of 8085 microprocessor alongwith pins and their functions.
3. Understand and classify the instruction set of 8085 microprocessor and distinguish the use of different instructions and apply it in assembly language programming.

UNIT 1: Memory Devices and Memory Organization   (08)

Types of Memory – RAM (SRAM and DRAM), ROM, PROM, EPROM, and EEPROM, Concept of Diode Matrix ROM, Memory organization-building the required memory size by using available memory chips, memory address map.

UNIT 2: Introduction to Microprocessor   (06)

Introduction to microprocessors (8, 16, 32 Bits). Pin Diagram and Architecture of 8085. Pin Diagram and Architecture of 8086.

UNIT 3: Instruction Set of 8085 Microprocessor   (08)

Introduction, Classification of instructions, instruction format, Addressing Modes, Data transfer instructions, Arithmetic instructions, Logical instructions, Branch and control instructions.

UNIT 4: Programming with 8085 Microprocessor   (08)

Format of Assembly Language Program (ALP), Assembly Language Program for Addition, Subtraction, Multiplication, Division, Data transfer, Block Transfer.

Reference Books:
1. Microprocessor Architecture Programming & applications with 8085 by R. S. Goankar, 4 thedition Prentice Hall.
2. Microprocessors and Interfacing by Douglas V Hall, 2 nd edition, Tata McGraw-Hill (2005)
3. Microprocessor 8085 by V.S. Kore, Mahalakshmi Publications

4. Fundamental of Microprocessor and Microcomputers –by B.Ram, 5th edition, Danpat Rai Publications.

N-MNP-BCSE23-210: Electronics Practical-II
(Practicals on N-MNT-BCSE23-203 and N-MNT-BCSE23-204)

Group A:
1. Study of CRO
2. Study of Op Amp as inverting and Non-inverting Amplifier**.**
3. Study of Op Amp as adder and substractor.
4. Study of Instrumentation Amplifier.
5. Study of LVDT.
6. Study of ON OFF controller using LM 35 temp. Sensor
7. Study of Porch light control using LDR
8. Study of 3 bit parallel/flash ADC
9. Study of R to 2R Ladder DAC
10. Study of Diode Matrix ROM

Group B:
1. Study of 3 bit asynchronous Counter
2. Study of Decimal to BCD Encoder.
3. Study of BCD to Seven segment Decoder
4. Arithmetic Operation using uP8085 – I.
5. Arithmetic Operation using uP8085 – II.
6. Block transfer using uP8085.
7. Block Exchange using uP8085.

At least 4 experiments from each group should be complete.

B. Sc. Computer Science (Entire) Part-I (Semester II)
NEP Syllabus with effect from June, 2023
Course Code: N-OET-BCSE23-205: Mathematics Paper-III
Course Title: Computational Geometry
Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02　　　　**Teaching Scheme: Theory – 03 Lect. / Week**　　　　**Total Marks: 40+10=50**

Course Outcomes:

After completion of this course, the students will be able to:

1. Study different types of two dimensional transformations.
2. Study about the transformations and homogenous coordinates.
3. Study different types of three dimensional transformations.
4. Learn different generation techniques of curves.

Unit 1: Introduction to Two dimensional transformations　　　　　　**[10]**
- Introduction.
- Representation of points.
- Transformations and matrices.
- Transformation of points.
- Transformation of straight lines.
- Midpoint transformation.
- Transformation of parallel lines.
- Transformation of intersecting lines.
- Transformation: rotations, reflections, scaling, shearing.
- Combined transformations.

Unit2: Two dimensional transformations and Homogeneous coordinates　　**[6]**
- Transformation and homogeneous coordinates Translation.
- Rotation about an arbitrary point.
- Reflection through an arbitrary line.
- Overall Scaling.
- Point at infinity.

Unit 3: Three dimensional transformations　　　　　　　　　　**[8]**
- Introduction.
- Three dimensional – Scaling, shearing, rotation, reflection, translation.
- Multiple transformations.
- Rotation about -an axis parallel to coordinate axes, an arbitrary axis in space.
- Reflection through – coordinate planes, planes parallel to coordinate planes, arbitraryplanes.

Unit 4: Plane Curves　　　　　　　　　　　　　　　　　**[6]**
- Introduction.
- Curve representation.
- Non-parametric curves.
- Parametric curves.
- Parametric representation of a circle and generation of circle.
- Parametric representation of an ellipse and generation of ellipse.

Recommended Books:-

- Linear Algebra and Computational Geometry , S.R.Patil and D.M.Pandhare -By Nirali
- Publication .

Reference Books:-

1. Mathematical elements for computer graphics , F.David and J.Alian Adams, McGraw ,
2. Hill International Edition .
3. Computer Graphics , Schaum Series .
4. Computer graphics handbook , Geometry and mathematics , M.E.Mortenson ,Industrial
5. Press Inc.

B. Sc. Computer Science (Entire) Part-I (Semester II)
NEP Syllabus with effect from June, 2023
Course Code: N-OET-BCSE23-206: Mathematics Paper-IV
Course Title: Operation Research
Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02   **Teaching Scheme: Theory – 03 Lect. / Week**   **Total Marks: 40+10=50**

Course Outcomes:
After completion of the course, the students will be able to:
1. Learn about characteristics, scope, limitations of operations research.
2. Formulate and apply suitable methods to solve linear programming Problems.
3. Use different methods for solving transportation and assignment problems.
4. Study different techniques for solving games

Unit 1: Introduction to Operations Research   **[4]**
- Basics of operations research
- Different definitions of operations research
- Characteristics, scope, limitations of operations research

Unit 2: Linear Programming Problem   **[8]**
- Basics definitions
- Solution of L.P.P by Simplex method and examples
- Definition of Dual Problem and examples

Unit 3: Transportation and Assignment problem   **[14]**
- Basics of Transportation problem
- Basic Definitions
- Initial Solution
- North – West corner method and examples
- Matrix minima method and examples
- Vogel's approximation method and examples
- MODI method and examples
- Maximization in transportation problem and Examples
- Unbalanced transportation problem and examples
- Introduction to Assignment problem
- Hungarian method and examples
- Maximization in Assignment problems and examples

Unit 4: Theory of Games   **[4]**
- Basics definitions
- Saddle point and examples
- Algebraic method for 2×2 size game and examples
- Arithmetic method for 2×2 size game and examples

Recommended Book:-
- Numerical Method and Operations Research , S.R Patil and D.M.Pandhare by Nirali Publication

Reference Books:-

- Operations Research , S.D Sharma .
- Operations Research , Gupta and Hira .
- Operations Research , J K sharma , Second edition .

N-OEP-BCSE23-211: Mathematics Practical- II

(Practicals on N-OET-BCSE23-205 and N-OET-BCSE23-205)

1	Plane Linear transformation 1
	Scaling, Shearing, Reflection and Rotation about origin in two dimension
2	Plane Linear transformation 2
	Rotation about arbitrary point, Reflection through arbitrary line Combined transformation matrix
3	Space linear transformation 1
	Scaling, Shearing, Reflection through Co-ordinate planes and Rotation about Axis, Translation, Multiple transformations in three Two dimension
4	Space linear transformation 2
	Rotation about a line parallel to Co-ordinate axis, Rotation through planes which are parallel to Co-ordinate planes, Reflection through arbitrary planes (algorithm only)
5	Plane Curves
	Generation of points on circle and ellipse (Algorithm and examples)
6	Linear programming Problem
	Simplex method and Big-M method(maximization and minimization problems)
7	Initial solution of transportation problem
	North-West Corner method, Matrix minima method Vogel's approximation Method
8	MODI Method
9	Assignment problem,Hungarian method and examples
10	Game Theory
	Two -person zero sum game with saddle point , Arithmetic Method and Algebraic method

B. Sc. Computer Science (Entire) Part-I (Semester I)
NEP Syllabus with effect from June, 2023
Course Code: N-AEC-BCSE23-207: Ability Enhancement Compulsory Course (AECC- A)-English Paper
Course Title: English for Communication-II

Total Contact Hours: 30 hrs. (30 lectures)

Credits: 02   Teaching Scheme: Theory – 03 Lect. / Week   Total Marks: 40+10=50

Course Objectives:
1. To acquaint the students with communication skills.
2. To inculcate human values among the students through poems and prose.
3. To improve the language and business competence of the students.

Module V   [15]
       A) Telephonic Communication
       B) Lost Forest - Johannes Jensen
       C) Stopping By Woods –Robert Frost

Module VI   [15]
       A) English for Specific Purposes
       B) Stopping by Woods - Robert Frost
       C) An Epitaph –W.H.Daives

Division of Teaching hours (Total 30 Periods)
       1. Communication Skills: 2 X 9 = 18 periods
       2. Reading Comprehension: 2X6 = 12 periods

Reference Books:-
       1) Business Communication- Mr.Prakash Herekar,(Mehta Publishing House Pune),2007
       2) English for Communication (Compulsory English) –(CBCS),Shivaji University, Kolhapur,2018
       3) English For Communication (Compulsory English) –CBCS), Shivaji University, Kolhapur, 2019

Pattern of Question Paper Only for English Paper
SEMESTER I I

Total Marks: 40

Q. No	Sub. Q.	Type of Question	Based on Unit	Marks
Q.1	A	Four multiple choice questions with four alternatives to be set.	**Prose and poetry units.**	04
	B	Answer in one word /phrase/or sentence each .(Skimming and scanning questions to be set)	**Prose and poetry units**	04
Q.2	A	Answer the following questions in three to four sentences each **(2 out of 3)**	**Prose and poetry units**	08
	B	Write short note on the following in about seven to eight sentences each **(1out of 2)**	**Prose and poetry units**	04
Q.3	A	Formal and Informal Telephonic Communication /Leacing & Reporting Messages **(Attempt any one out of two)**	**A-**Telephonic Communication	05
	B	Question to be set on Communication and its types **(Attempt Any 1 out of 2)**	**A-**Telephonic Communication	05
Q.4	A	Question to be set on Presentation Skills. **(Attempt Any 1 out of 2)**	Presentation Skills	05
	B	Question to be set on Presentation Skills. **(Attempt Any 1 out of 2)**	Presentation Skills	05

B. Sc. Computer Science (Entire) Part-I (Semester II)
NEP Syllabus with effect from June, 2023
Course Code: N-SEC-I-BCSE23-208: Skill Enhancement Course
Course Title: Statistical Methods by Using Excel

Credits: 02   **Total Marks: 50**

Course Outcomes:

After completion of this course students will be able to:

1. Understand basic knowledge of MS-Excel
2. Formatting techniques and presentation style.
3. Manipulate data using data names and ranges, filters and sort, and validation lists.
4. Learning the use and utility of functions and formulas on excel spreadsheet.

Unit	Contents
1	**Correlation and Regression (for ungrouped data)** • Concept of bivariate data, scatter diagram, concept of correlation, positive correlation, negative correlation, cause and effect relation. • Karl Pearson's coefficient of correlation, properties of correlation coefficient, interpretation of correlation coefficient. • Spearman's rank correlation coefficient (formula with and without ties). • Concept of regression, Regression coefficients and their significance, Properties of regression coefficients, Point of intersection • Illustrative Examples.
2	**Continuous Univariate Distributions** • Definitions: infinite sample space with illustrations, continuous random variable, probability density function (p.d.f.), cumulative distribution function (c.d.f.), properties of c.d.f., Expectation of random variable, expectation of function of a random variable, variance and examples. • Uniform distribution: p.d.f., c.d.f., mean, variance, Exponential distribution: p.d.f., c.d.f., mean, variance. , Normal distribution: p.d.f., standard normal distribution, properties of normal curve. • Chi-square distribution: Definition, p.d.f., mean, variance., Student's t-distribution: Definition, nature of probability curve, mean and variance. Snedecor's F-distribution: definition, mean and variance • Illustrative Examples.
3	**Testing of hypothesis** • Definitions: Sample, parameter, statistic, standard error. • Simple and composite hypothesis, Null and alternative hypothesis, type I and type II error, critical region, level of significance, one and two tailed tests, general procedure of testing of hypothesis. • Large sample tests : i) Test for population mean $H_0: \mu = \mu_0$, • Chi-square test: i) Test for goodness of fit ii) Test for independence of attributes • t-test: i) Test for population mean $H_0: \mu = \mu_0$, • F-test: i) Test for equality of two population variances $H_0: \sigma_1 = \sigma_2$.
4	**Simulation :** • Introduction to simulation. • Model sampling from uniform , Binomial distribution, Poisson distribution • Model sampling from Continuous uniform distribution, exponential distribution, Model sampling from normal distribution using Box-Muller transformation.

Practical list

1) Construction of frequency distributions and graphical methods.
2) Measures of central tendency .
3) Measures of dispersion.
4) Moments, skewness, kurtosis.
5) Computation of Correlation coefficient (Ungrouped data).
6) Fitting of Binomial and Poisson distributions.
7) Fitting of Uniform and Exponential distributions.
8) Fitting of Normal distribution.
9) Model sampling from Binomial and Poisson distributions.
10) Model sampling from Uniform and Exponential distributions.
11) Model sampling from Normal distribution using:
    i) Normal table and ii) Box-Muller transformation.
12) Large sample tests (Z - test) and small sample test for means (Tests based on t distribution.).
13) Tests based on Chi-square distribution.
14) Tests based on F distribution.

Note:

- Test of goodness of fit is necessary for every practical on fitting of distributions.
- All practicals are to be done on computers using MS-EXCEL Or R Software
- Calculations (observation table) should be done by using Statistical formulae.
- Computer printout is to be attached to the journal.
- Student must complete the entire practical to the satisfaction of the teacher concerned.
- Student must produce the Laboratory Journal along with the completion certificate signed by the Head of the department, at the time of practical examination.

Laboratory Requirements:

Laboratory should be well equipped with sufficient number of (20) computers along with necessary software, printers, UPS. Statistical tables should be provided to the students during practical as per requirement.

Practical Examination will be conducted as:

1) Paper Work: In this session a student is expected to write formulae and format of required table.
2) Laboratory Work: A student is expected to execute the problems on the computer by using MS-EXCEL Or R- Software.