



SIES (Nerul) College of Arts, Science and Commerce (Autonomous)
Syllabus for Approval
B.Sc. (Information Technology)

Sr. No.	Heading	Particulars
1	Title of the course	B. Sc.(Information Technology)
2	Eligibility for admission	Shall have passed XII standard examination of the Maharashtra Board of Higher Secondary Education or its equivalent with Mathematics and/ or Statistics as one of the subjects
3	Minimum percentage for admission	45%
4	Passing Marks	40%
5	Semesters	I
6	Level	UG
7	Pattern	3-4 years & 6-8 semesters Choice Based Grading System
8	Status	New
9	To be implemented from	From Academic year 2023-24 in a progressive manner

Date: 25th July, 2023.

Signature:

Dr. Koel Roychoudhury

AC Chairperson

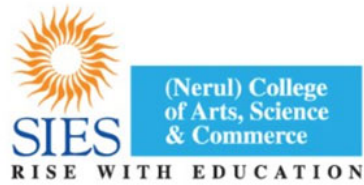
Dr. Anu Thomas

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**SIES (Nerul) College of Arts, Science and Commerce (Autonomous)
(Affiliated to University of Mumbai)
RE-ACCREDITED GRADE “A” BY NAAC (3rd CYCLE)
BOARD OF STUDIES
SYLLABUS FOR
B.Sc (Information Technology)

(WITH EFFECT FROM THE ACADEMIC YEAR 2023-2024)**

OBJECTIVES OF THE PROGRAMME:

- To strengthen the fundamentals and basics of Information Technology and to boost technical development skills.
- To develop the ability to apply the knowledge acquired through analysis of algorithms, mathematical and statistical techniques
- To develop skills to work efficiently in designing the solution to various software and hardware problems by implementing various tools.
- To inculcate professional ethics, managerial skills to encourage entrepreneurship and promote teamwork to manage diverse projects.
- To enhance employability skills and provide scope for higher education and research in the field of information technology.

Programme Outcome:

PO1:To strengthen the fundamentals and basics of information technology and to boost the skill enhancement abilities

PO2:To identify mathematical,Graphical,digital circuitry and embedded system concepts of core concepts of Information Technology.

PO3: To enhance the technical,testing and research oriented approach required to implement the current trending practices in the field of Computer science and Technology.

PO4:The program lays a strong foundation for students to acquire technical knowledge in the areas of security, databases, operating systems, business intelligence, and web technologies.

B.Sc. Information Technology Programme

(To be implemented from Academic Year- 2023-24)

Semester I			
Course Code	Course Type	Course Title	Credit
U23IT1MJ01	Major	Imperative Programming using C	3
U23IT1MJP01	Major	Imperative Programming using C Practical	1
U23IT1MI01	Minor	Computational Logic and Discrete Structures	3
U23IT1MIP01	Minor	Computational Logic and Discrete Structures Practical	1
U23IT1E01	OE1	Content Writing	2
U23IT1E02	OE2	Media Literacy	2
U23IT1VSC01	VSC	Introduction to Operating Systems	2
U23IT1SEC01	SEC	Computer Organization and Architecture	2
U23IT1AEC01	AEC	Effective Communication Skills-1	2
U23IT1VEC01	VEC	Understanding Indian Society and Constitutional Values	2
U23IT1IKS01	IKS	India's Contribution to Mathematics since Ages	2
Total			22

Semester I Major(Credit 3+1) Imperative Programming using C

COURSE CODE : U23IT1MJ01

COURSE CREDIT: 03

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

The course will enable learners to:

1. To develop the logical ability of the student.
2. To implement different programming constructs and decomposition of problems into Functions.
3. To execute and debug the code.

Course Outcomes:

Upon completion of the course, learners will be able to:

1. Describe the fundamentals of C programming Language.
2. Apply appropriate Control structures to solve problems.
3. Write User defined functions, apply the concept of recursion to solve problems, and implement functions for performing operations on Files.

UNIT	Topic	HRS
I	<p>Introduction: Art of Programming through Algorithms and flowchart.</p> <p>Overview of C: History and importance of C, Computer Languages, The basic structure of C program, executing a C program. Character Set, C Tokens, Keywords and Identifiers, Constants, Variables, Data Types, Declaration of Variables, Assigning Values to Variables, Defining Symbolic Constants</p> <p>Managing Input and Output Operations: Reading a Character, Writing a Character, Formatted Input, and Formatted Output.</p> <p>Operators and Expressions: Introduction, Arithmetic Operators, Relational Operators, Logical Operators, Assignment Operators, Increment and Decrement Operators, Bitwise Operators, Special Operators, Arithmetic Expressions, Evaluation of Expressions, Precedence of Arithmetic Operators, Type Conversions in Expressions, Operator Precedence, and Associativity.</p>	15

II	<p>Decision Making and Branching: Introduction, Decision Making with different IF Statements, The Switch statement, The ternary operator</p> <p>Decision Making and Looping: Introduction, The while Statement, The do statement, The for statement, Jumps in loops (break, continue, and go to).</p> <p>Arrays: Basic concepts, One-dimensional Arrays, Bubble sort, Linear search, Two-dimensional Arrays, programs on Pattern Display</p> <p>Character Arrays and Strings: Concepts, String Input/Output function, String-handling Functions (with and without using built-in string functions)</p>	15
III	<p>User-defined Functions: basics, user-defined functions, actual and formal arguments, parameter passing techniques, scoping, inter-function communication (call by value, call by reference), Recursion, storage classes.</p> <p>Pointers: Introduction, pointers with the array, pointers with functions, dynamic memory allocation.</p> <p>Structures: Introduction, Defining a structure, declaring structure variables, accessing structure members, structure initialization, and the array of structures. Introduction to Union.</p> <p>File Management in C: Introduction, Defining and Opening a File, Closing a file, Input/output and Error Handling on Files. .</p>	15

References:

1. Let Us C, Yashavant Kanetkar, Edition 8th, BPB publication, 2007.
2. Absolute beginner's guide to C, Greg M. Perry, Edition 2, Publisher: Sams Pub., 1994.
3. Programming Language, Brian Kernighan and Dennis Ritchie, Edition 2nd, PHI publication, 1988.
4. "Programming in ANSI C", Balaguruswamy, McGraw Hill Education, 8th Edition, 2019.

Imperative Programming using C Practical

COURSE CODE : U23IT1MJP01

COURSE CREDIT: 01

1 credit - 15 lectures

1 lecture is 120 minutes

Sr. No.	List of Practicals
1	a. Write an algorithm and flowchart to check whether a number is positive or negative.
	b. Write an algorithm and flowchart to perform the addition of the first 10 natural numbers.
2	a. Write a program to declare variables of types int, float, and double. Assign some values to these variables and display these values.
	b. Write a program to perform arithmetic operations.
	c. Write a program to calculate the cube of a number.
3	a. Write a program to calculate simple interest.
	b. Write a program to find the area and perimeter of a circle.
	c. Write a program to find the volume of a cube, sphere, and cylinder.
4	a. Write a program to implement increment and decrement operators.
	b. Write a program to implement conditional operators.
	c. Write a program to swap two numbers without using a third variable.
5	a. Write a program to check whether the entered character is a vowel or consonant, using the switch case.
	b. Write a program to check whether the number is even or odd.
	c. Write a program to check whether the number is positive, negative, or zero.
	d. Write a program to find the largest of three numbers.
6	a. Write a program to print the pattern of asterisks as shown below :
	1
	1 2
	1 2 3
	1 2 3 4
	b. Write a program to print the pattern of asterisks as shown below :
	* * * * *
	* * * *
	* * *
	* *
*	
7	a. Write a program to check whether the entered number is prime or not, using a function.
	b. Write a program to create functions to accept and display the data from the user.

	c. Write a program to display the Fibonacci series using function.
8	a. Write a program to display reverse numbers using a function.
	b. Write a program to find the factorial of a number using a recursive function.
	c. Write a program to find the sum of natural numbers using a recursive function.
9	a. Write a program to demonstrate the use of pointers.
	b. Write a program to perform addition and subtraction of two pointer variables.
	c. Write a program to pass a pointer as an argument.
10	a. Write a program to sort the numbers.
	b. Write a program to perform matrix addition.
11	a. Write a Program to create a structure Student to accept and display details.
	b. Write a Program to create a structure Employee and calculate the total salary of employees.
12	Write a Program to implement Union.
13	Write a Program using string handling functions.
14	Write a Program to implement file handling.
15	Write a Program using command line arguments.

Minor (Credit 3+1) Computational Logic and Discrete Structures

COURSE CODE: U23IT1MI01

COURSE CREDIT: 03

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

1. This course will provide an overview of Discrete Mathematics.
2. This course will enhance prospective learners' reason and ability to articulate mathematical problems.
3. This program will develop an attitude to solve problems based on graphs and trees, which are widely used in software.

Course Outcome:

Learners will be able to:

1. Define sets and relations.
2. Apply recursive functions and recurrence relations.
3. Apply basic and advanced principles of counting.
4. Use graphs and trees.

UNIT	Topic	HRS
I	Set Theory: Introduction, Sets and Elements, Subsets, Vein Diagram, Set Operations, Algebra of Sets, Finite Set, Power Sets, Partitions, Mathematical Induction. Relations Introduction, Product Sets, Relations, Pictorial Representation of Relations, Composition of Relations, Types of Relations, Equivalence Relations, Partial Order Relations, Hasse Diagrams. Probability Introduction, Sample Space and Events, Conditional Probability, Independent Events, Random Variables, Probability Distribution, Binomial Distribution.	15

<p>II</p>	<p>Functions and Algorithms Introduction, Functions, One-to-One, Onto, Invertible Function, Mathematical Functions, Exponential and Logarithmic Functions, Recursively Defined Functions, Algorithms, Characteristics of Algorithms.</p> <p>Techniques of Counting, Recursion Introduction, Basic Counting Principles, Permutations, Combinations, Pigeonhole principle, Inclusion-Exclusion Principle, Recurrence Relation, Linear Recurrence Relation with Constant Coefficients, Solution of Linear Homogeneous Recursion with Constant Coefficient.</p>	<p>15</p>
<p>III</p>	<p>Graphs Introduction, Graph Terminologies and Special types of Graphs, Isomorphism of Graphs, Elementary Results, Representing Graphs, Linked Representation of Graphs, Connectivity in Graphs – Path, Trail, Walk, Euler and Hamilton Path, Complete, Regular and Bipartite Graph, Graph Coloring and Chromatic Number</p> <p>Trees Definition, Tree Terminologies and Elementary Results, Complete Binary Tree, Traversing Binary Tree, Algorithms for Searching and inserting in Binary Search Tree, Algorithm for Deleting in a Binary Search Tree, Depth-First Search and Breadth-First Search Algorithms.</p>	<p>15</p>

References:

1. Discrete Mathematics and Its Applications Fifth Edition, by *Kenneth H. Rosen*, Tata McGraw-Hill, 2003.
2. Discrete Mathematics Revised Third Edition, by *Seymour Lipschutz and Marc Lars Lipson*, Schaum's Outlines, 2013.
3. Foundation of Discrete Mathematics Second Edition, by *K D Joshi*, New Age International Publishers, 2014.
4. Discrete Structures by *Liu*, McGraw-Hill.

Computational Logic and Discrete Structures Practicals

COURSE CODE : U23IT1MIP01

COURSE CREDIT: 01

1 credit - 15 lectures

1 lecture is 120 minutes

Sr.No.	List of Practicals
1	Perform the implementation of a Recursively defined function.
2	Perform the implementation of a Cardinality.
3	Perform the implementation of a Polynomial evaluation.
4	Perform the implementation of a Sum rule principle
5	Perform the implementation of a Product rule principle
6	Perform the implementation of a Factorial
7	Perform the implementation of Binomial coefficients.
8	Perform the implementation of a Permutations.
9	Perform the implementation of a Combination.
10	Perform the implementation of an Adjacency matrix.
11	Perform the implementation of a Path matrix.
12	Perform the implementation of an Inclusion Exclusion principle.
13	Perform the implementation of a Power Sets.
14	Perform the implementation of a Mathematical Induction.
15	Perform the implementation to find the Minimum Spanning Tree.

Note: The above practicals will be implemented using Scilab.

Other Elective – 1 (Credit 2)

Content Writing

COURSE CODE: U23IT1E01

COURSE CREDIT: 02

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

1. To equip students with resources for successful communication.
2. Recognizing clear writing as a communication skill
3. To introduce students to basic writing, editing and publishing techniques

Course Outcome:

1. Basic understanding of writing for various platforms.
2. Tools for researching, writing and editing effectively
3. Think creatively and express it through writing

UNIT	Topic	HRS
I	The concept of content writing and its applicability, Importance of content Print and web content writers' roles and responsibilities. Types of Content writing and its scope ,Editing redundant words/ phases and replacing wrong words/punctuation/grammatical errors.Understanding the basics of social media, Understanding social media content writing.	15
II	Getting the brief, ideating, researching, organizing. Editing and proofreading Non-fiction (essays, reports), advertising, and newspaper writing styles Writing blogs, Corporate Communications: Focus on language, vocabulary, writing style, target audience, formal and casual language while writing for business-to-business (B2B), business-to-consumer (B2C), press releases, and newsletters.How to do a plagiarism check, and Paraphrasing.	15

References:

1. Technical writing process, Kieran Morgan
2. Bailey, Tom. On Writing Short Stories. USA: OUP, 2010. Print. Morley, David. The Cambridge
3. Companion to Creative Writing. Pune: Cambridge University Press India Ltd., 2012.Print.
4. Clark, Peter Roy. Writing Tools. USA: Hachette Book Group, 2008.Print.
5. Davidson, Chad. Writing Poetry: Creative and Critical Approaches. USA: Palgrave Macmillan, 2009. Print.
6. Earnshaw, Steven (Ed). The Handbook of Creative Writing. Edinburgh: EUP, 2007
7. Field, Syd. The Screen Writer's Problem Solver. New York: Random House Publishing, 1998. Print.
8. Kundera, Milan. The Art of the Novel. London: Harper Perennial Modern Classics, 2003.
9. Spiro, Jane. Creative Writing Poetry. USA: Oxford University Press, 2004. Print.

Other Elective – 2 (Credit 2)

Media Literacy

COURSE CODE: U23IT1E02

COURSE CREDIT: 02

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

1. To equip students with resources for successful knowledge of mass media.
2. To introduce students to forms, roles and importance of mass media.

Course Outcomes

1. The learner will get a clear understanding of all media platforms.
2. The learner will understand various aspects of media and its uses.
3. The learner will be able to identify types of media, its importance and uses.

UNIT	Topic	HRS
I	Introduction and overview, Meaning and importance of Mass Media ,Impact of Mass Media on Society A. I. Social Impact (With social reformers who have successfully used mass communication) II. Political Impact (With political leaders who have successfully used mass communication) III Economic Impact (With how economic changes were brought about by mass communication) IV. Developmental Impact (With how the government has successfully used mass communication), B. Impact of mass media on -1 Education, 2. Children, 3. Women, 4. Culture, 5. Youth, 6. Development.	15
II	Major forms of mass media: Role and function 1. Traditional & Folk Media 2. Print: Books, Newspapers, Magazines 3. Broadcast: Television, Radio 4. Films 5. Internet	15

References:

1. Mass Communication in India: Keval J Kumar
2. Mass Communication Journalism in India: D S Mehta
3. The Story of Mass Communication: Gurmeet Singh
4. Communication Technology & Development: I P Tiwari
5. The Process of Communication: David K Berlo
6. Cinema & Television: Jacques Hermabon& amp; Kumar Shahan.
7. Mass Media Today: Subir Ghosh
8. Mass Culture, Language & arts in India: Mahadev L Apte
9. Communication Facts & Ideas in Business: L. Brown (Prentice Hall).
10. India's Communication Revolution: ArvindSinghal and Everett Rogers.
11. The Myth of Mass Culture: Alan Swing wood
12. Lectures on Mass Communication: S Ganesh.

Vocational Skill Course (Credit 2)

Introduction to Operating Systems

COURSE CODE: U23IT1VSC01

COURSE CREDIT: 02

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

The objective of this course is to

1. To understand the basics and functions of operating systems.
2. To understand processes and threads
3. To study scheduling algorithms and process synchronization.

Course Outcomes:

On successful completion of the course learner will be able to:

1. To gain knowledge on the fundamentals of Operating systems.
2. Analyze various scheduling algorithms and process synchronization.

UNIT	Topic	HRS
I	<ul style="list-style-type: none"> ● Introduction ● Operating System-Introduction, Types of Operating System, Operating System services. ● Processes: Definition, Process Relationship, Different states of a Process, Process State transitions, Process Control Block (PCB), Context switching ● Thread: Definition, Various states, Benefits of threads, Types of threads, Concept of Multithreads. 	15
II	<p>Process management</p> <p>Process Scheduling: Foundation and Scheduling objectives, Types of Schedulers, Scheduling criteria: CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time; Scheduling algorithms: Pre-emptive and Non-pre-emptive, FCFS, SJF, RR; Multiprocessor scheduling: Real-Time scheduling: RM and EDF.</p> <p>Inter-process Communication: Critical Section, Race Conditions, Mutual Exclusion, Hardware Solution, Strict Alternation, Peterson's Solution, The Producer/Consumer Problem, Semaphores, Event Counters, Monitors, Message Passing, Classical IPC Problems: Reader's & Writer Problem, Dining Philosopher Problem</p>	15

References:

1. Operating Systems: A Modern Perspective, 2nd Edition by Gary J. Nutt, AddisonWesley 2002
2. Operating Systems – Internals and Design Principles, 9th Edition by William Stallings Pearson 2009
3. Modern Operating System, 4th Edition by Andrew S. Tanenbaum and Herbert BOS. Pearson 2015

Skill Enhancement Course (Credit 2)

Computer Organization and Architecture

COURSE CODE:U23IT1SEC01

COURSE CREDIT: 02

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

The objective of this course is to

1. Impart concepts of basic structure and operation of a digital computer.
2. Familiarize students with basic CPU organization, I/O devices and memory management.
3. Introduce students to problem solving using binary arithmetic.
4. Learn about the importance of programming languages.

Course Outcomes:

On successful completion of the course learner will be able to:

1. Identify various components of a computer and their interconnection.
2. Comprehend the design of the CPU:processor and memory, and its interaction with I/O.
3. Solve problems using Binary Arithmetic.
4. Write simple program code using algorithms and programming languages.

UNIT	Topic	HRS
I	<p>Computer Basic: Algorithms, a simple model of computer, characteristics of computers, Problem solving using computers.</p> <p>Data Representation: Representation of characters in computers, Representation of Integers, Representation of Fractions,Hexadecimal Representation of Numbers,Decimal to Binary Conversion, Error-detecting Codes</p> <p>Input/Output Units: Description of Computer Input units,Other Input Methods, Computer Output Units</p> <p>Processor: Structure of Instructions, Description of a processor, a Machine Language program, an algorithm to simulate the Hypothetical Computer.</p>	15
II	<p>Computer Memory: Memory Cell, Memory Organization, Read Only Memory, Serial Access Memory, Physical Devices used to construct memories, Magnetic Hard Disk, Floppy Disk Drives, Compact Disk Read Only Memory(CDROM), Magnetic Tape Drives.</p> <p>Binary Arithmetic: Binary Addition, Binary subtraction, Signed Numbers, Two's complement representation of numbers, Addition/Subtraction of numbers in 2's complement notation, Binary multiplication, Binary division, Floating Point Representation of Numbers.</p> <p>Computer Architecture: Interconnection of Units, processor to memory communication, I/O to Processor Communication, Interrupt Structures, Multiprogramming, Virtual Memory.</p> <p>Interfacing: Memory Interfacing IO Interfacing , Direct Memory Access</p>	15

References:

1. Fundamentals of Computers by V. Rajaraman, 6th Edition.
2. Computer Organization and Architecture by William Stallings, 9th Edition
3. Computer System Architecture by M. Morris Mano, 3rd Edition
4. Computer Architecture and Organization by John P Hayes, 3rd Edition

Ability Enhancement Course (Credit 2) Effective Communication Skills-1

COURSE CODE:U23IT1AEC01

COURSE CREDIT: 02

1 credit - 15 lectures

1 lecture is 60 minutes.

Course Objectives:

1. To develop an awareness among learners about the complexity of communication process.
2. To develop effective letter writing skills among students with reference to prescribed layouts and formats.
3. To demonstrate the effective use of communication skills applicable for employability in the present situation.

Course Outcomes:

1. Learner will be aware about the general nature of the Communication process.
2. Learner will be able to write business letters in prescribed layouts and formats.
3. Learner will be able to use different types of oral and written skills to face employability conditions.

UNIT	Topic	HRS
I	Module-1. Theory of Communication Introduction and Process of Communication, Channels of Communication: Formal /Informal, Vertical, Downward, Upward, Horizontal, Grapevine, Methods of Communication: Verbal/Nonverbal, Barriers in Communication: Physical, Linguistic, Psychological, Sociocultural, Mechanical, Modern Modes of Communication	10
II	Module-2. Business Correspondence -1 Theory of Business Letter Writing,7 Cs of Writing, Format of Letter Writing, Full Block Format, Modified Block Format, Parts of Letter: Major Parts/Minor Parts, Personnel Correspondence: Job Application Letter, Resume, Job Acceptance Letter, Resignation Letter, Recommendation Letter. Professional E mail Writing: Format, Principles of E-mail writing	10
III	Module-3. Language and Writing Skills Paragraph Writing: Developing an idea, Use of appropriate linking devices, Interpretation of Data, Composition on given situation. Listening Comprehension, Public Speaking Skills, ICT Enabled Communication, Appropriate use of Non-Verbal Communication, Multilingual Competency.	10

References:

1. A Handbook of Commercial Correspondence by Ashley, A, Oxford University Press, 1992.
2. Basic Business Communication: Skills for Empowering the Internet Generation by Raymond Lesikar and Marie Flatley, 9th Edition, Tata McGraw Hill, New Delhi, 2002.
3. Business Communication by D Chaturvedi and Mukesh Chaturvedi, Third Edition, Pearson Publications Ltd, 2013.
4. Business Communication by Meenakshi Raman and Prakash Singh, Oxford University Press, 2007.
5. Business Communication Strategies by Monippally, Matthukutty, M, Tata McGraw Hill New Delhi, 2001.
6. Effective Business Communication by Herta Murphy, Herbert Hildebrandt, Jane Thomas, McGraw Hill Education, 2009.
7. Effective Communication by Balan K.R. and Rayadu C.S., Beacon Publication, New Delhi, 1996.
8. Effective Technical Communication by M.Ashraf, Rizvi, McGraw Hill Publications, 2006.

Value Education Course (Credit 2)

Understanding Indian Society and Constitutional Values

COURSE CODE: U23IT1VEC01

COURSE CREDIT: 02

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

1. To introduce students to the overview of the Indian Society.
2. To help them understand the constitution of India.
3. To acquaint them with the socio-political problems of India.
4. To introduce students to a basic understanding of the Indian Political System.

Course Outcomes:

1. Students will understand Indian Social conditions.
2. Students will be acquainted with features of Indian Constitutions.
3. Learners will be aware of the measures to tackle societal problems
4. Learners will understand the intricacies of Indian political system

UNIT	Topic	HRS
I	<u>Salient features of Indian Society</u> Understand the multi-cultural diversity of Indian society through its demographic composition: Population distribution according to religion, caste, geographical location and gender and age. (3) <ul style="list-style-type: none"> ● Co-existence of traditionalism and Modernism in Indian Society (1) ● Values emerging from the diversity in Indian Society (1) 	5
II	<u>Challenges of Diversity to Unity</u> Disparity Arising out of- <ul style="list-style-type: none"> ● Regionalism and Linguism-Meaning, causes and Impact (2) ● Casteism and Communalism - Meaning, History, measures to solve these problems. (2) ● Social Inequalities: Meaning, Causes and Effects, (1) ● Gender Inequalities- Treatment and exclusiveness of Women and Other Genders in the society (2) ● Economic/ Wealth Inequalities-Class System and Economic Segregation of the Society (2) ● Measures to improve Equality and Social Justice in the society (1) 	10

III	<u>Constitutional Values</u> <ul style="list-style-type: none"> ● Philosophy of the Constitution as set out in the Preamble (2) ● Features of the Constitution (2) ● Fundamental Rights (2) ● Fundamental Duties (1) ● Directive Principles of State Policy (1) ● Federal structure (2) 	10
IV	<u>Significant Aspects of Political Processes</u> <ul style="list-style-type: none"> ● The party system in Indian politics; (2) ● Local self -government in urban and rural areas; the 73rd and 74th Amendments and their implications for inclusive politics (2) ● Role and significance of women in politics (1) 	5

References:

1. Social and Economic Problems in India, Naseem Azad, R Gupta Pub (2011)
2. Indian Society and Culture, Vinita Padey, Rawat Pub (2016)
3. Urbanization in India: Challenges, Opportunities & the way forward, I J Ahluwalia, Ravi Kanpur, P K Mohanty, SAGE Pub (2014)
4. Regional Inequalities in India Bhat L SSSRD- New Delhi
5. The Problems of Linguistic States in India, Krishna Kodesia Sterling Pub
6. Problems of Communalism in india, Ravindra Kumar Mittal Pub
7. Combating Communalism in India: Key to National Integration, Kawal Kishor Bhardwaj, Mittal Pub
8. Khare, R. S. (1998). Cultural diversity and social discontent: Anthropological studies on contemporary India.
9. Ganesh, K., & Thakkar, U. (Eds.). (2005). Culture and the making of identity in contemporary India. SAGE Publications India.
10. Das, B., & Khawas, V. (2009). Gender issues in development: concerns for the 21st century. (No Title).
11. Mandal, B. P. (2011). Cultural Sociology. Centrum Press.
12. Rapport, N. (2014). Social and cultural anthropology: The key concepts. Routle
13. Oxford Concise Dictionary of Politics, Iain Mclean / Alistair McMillan, Oxford University Press
14. Politics, 2nd Edition, Andrew Heywood, Ane Books.
15. Dictionary of Politics, D. Robertson, Penguin Books India.
16. An Introduction to Political Theory, Gauba, O. P., Macmillan
17. Political ideas and concepts : An introduction, Heywood Andrew, Macmillan, Houndmills
18. Political ideologies : An introduction, Heywood Andrew, Macmillan, Houndmills
19. Oxford Companion to Politics of the World, Krieger Joel Joseph William A Kahler Miles Nzongola – Ntalaja Georges Stallings Barbara B. Weir Margaret, Oxford University Press New York.

20. Political Theory, Das Hari Hara and Chaudhari B. C., National Publishing House.
21. Introduction to the Indian Constitution, Basu D.D., Wadhwa Publications.
22. An Introduction to the Constitution of India, Pylee M V, Vikas Publishing House.
23. Introduction to the Constitution of India, Sharma, Brij Kishore, Prentice-Hall of India.
24. Our Constitution Kashyap Subhash, National Book Trust.
25. Indian Policy for Preliminary Examination, Lakshmikant, Tata McGraw Hill.
26. Indian Government and Politics, Narang A.S., Gitanjali Publishing House, New Delhi.
27. Introduction to Media and Politics, Sarah Oates, Sage publishers.
28. Principles of Modern Political Science, J.C. Johari, Sterling publishers

Indian Knowledge System (Credit 2)

India's Contribution to Mathematics since Ages

COURSE CODE: U23IT1IKS01

COURSE CREDIT: 02

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

1. To make students aware about the contribution of India to Mathematics.
2. To make students aware about the several methods of ancient mathematics that will enhance their speed and accuracy in various competitive and placement exams.

Course Outcome:

1. Learners will be able to know about the contribution of Indian mathematicians and they will be able to apply several tricks and techniques of Vedic mathematics.

UNIT	Topic	HRS
I	The Non-zero Indian Contribution to Mathematics The Indian Number System, The Baudhayana-Pythagoras Theorem, The Mathematics of Language, The Sine Function in Trigonometry, Negative Number, Solution to Quadratic Equations, The Virahanka-Fibonacci Sequence, Binomial Distribution, First Exact Formula for Pie, Geometric Construction with Compass and unmarked Straightedge. Indian Mathematician and their Contribution Aryabhata, Brahamagupta, Mahavira, Bhaskara, Ramanujan, Madhava.	15
II	Sutras Ekadhikena Purvena, Urdhva – tiryagbhyam, Nikhilam navatascaramam Dasatah, Paravartya Yojayet, Sunyam Samya Samuccaye, Anurupye Sunyamanyat, Sankalana Vyavakalanbhyam, Ekanyunena Purvena, Yavadunam Tamadun Kartya Varganca Yojayet. Vedic Computation Beejank, Vinculum Numbers, Simultaneous Linear Equations, Magic Squares, Dates and Calendars	15

References:

1. Vedic Mathematics Made Easy by *Dhaval Bhatiya*, Jaico Publishing House.rtfgh
2. Vedic Mathematics by *Bharathi Krishna Tripathi*, Motilal Banarsidass Publisher.
3. Cultures and History of Mathematics, by C. S. Seshadri, Hindustan Book Agency.
4. Contributions to the History of Indian Mathematics by *Gerard G. Emch, R. Sridharan and M. D. Srinivas.*

**Revised Scheme of Examination
Faculty of Science
(Undergraduate Programme)**

SCHEME OF EXAMINATION (for 100 marks 3 credits)

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e.40 marks
- Semester end examination 60% i.e.60 marks

(A)Internal Assessment 40 marks

Description	Marks
An internal test of 20 marks	20
One Project And Viva Voce/Presentation/Case Studies/Assignments	15
Attendance and Class Participation	5
Total	40

B) Semester End examination 60 marks

PAPER PATTERN

Duration: 2 hours	
Total Marks:60	
Q.1 15 marks OR 15 marks (7 and 8 marks)-Unit 1	15
Q.2 15 marks OR 15 marks (7 and 8 marks)-Unit 2	15
Q.3 15 marks OR 15 marks (7 and 8 marks)-Unit 3	15
Q.4 15 marks-attempt any 3 out of 5(short notes combination of all units)	15
Total	60

Passing criteria: Minimum 40% in Internal (16 out of 40) and 40% (24 out of 60) in semester-end examination.

SCHEME OF EXAMINATION (for 50 marks ,2 credits (Theory))

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e.20 marks
- Semester end examination 60% i.e.30 marks

(A)Internal Assessment 20 marks

Description	Marks
An internal test	10
Assignment	05
Attendance and Class Participation	05
Total	20

B) Semester End examination 30 marks

PAPER PATTERN

Duration: 1 hour	
Total Marks:30	
Q.1 15 marks OR 15 marks (7 and 8 marks)-Unit 1	15
Q.2 15 marks OR 15 marks (7 and 8 marks)-Unit 2	15
Total	30

Passing criteria: Minimum 40% in Internal (08 out of 20) and 40% (12 out of 30) in semester-end examination.

SCHEME OF PRACTICAL EXAMINATION (for 50 marks , 1 credit)

The scheme of examination shall be divided into two parts:

- Internal assessment 40%, i.e. 20 marks
- Semester end examination 60%, i.e. 30 marks

(A) Internal Assessment (20 marks)

Description	Marks
Practical Internal Assessment	10
Viva	05
Journal	05
Total	20

B) Semester end examination(30 marks)

PAPER PATTERN

Duration: 1.5 hours	
Total Marks:30	
Q.1 Practical Q1	15
Q.2 Practical Q2	15
Total	30

Passing Standards

The learners to pass a course shall have to obtain a minimum of 40% marks in each head of passing, consisting of Internal Assessment and Semester End Examination. The learners shall obtain a minimum of 40% marks (i.e. 16 out of 40 or 8 Out of 20) in the Internal Assessment and 40% marks in the Semester End Examination (i.e. 24 Out of 60 or 12 Out of 30) separately, to pass the course and a minimum of Grade D, wherever applicable, to pass a particular semester. A learner will be said to have passed the course if the learner passes the Internal Assessment and Semester End Examination together.

AC: 22/12/2023

Item No. 1.1.7



**SIES (Nerul) College of Arts, Science and Commerce (Autonomous)
Syllabus for Approval**

B.Sc.(Information Technology)

Sr. No.	Heading	Particulars
1	Title of the course	B. Sc.(Information Technology)
2	Eligibility for admission	Shall have passed XII standard examination of the Maharashtra Board of Higher Secondary Education or it's equivalent with Mathematics and/or Statistics as one of the subjects
3	Minimum Percentage for admission	45%
4	Passing Marks	40%
5	Semesters	II
6	Level	UG
7	Pattern	3-4 years & 6-8 semesters Choice Based Grading System
8	Status	New
9	To be implemented from	From Academic year 2023-24 in a progressive manner

Date: 22/12/2023

Signature:

Dr. Koel Roy Choudhury

AC Chairperson



Dr. Anu Thomas

Head of the Department

Sri Chandrasekarendra Saraswati Vidyapuram, Plot I-C, Sector V,
Nerul, Navi Mumbai – 400706, INDIA

Tel No: 61196409, 61196410, 61196402, 61196413, 61196414, 61196415, 27708371

Fax No: 022-27713356, Email: ascnsies@sies.edu.in/siesascn@yahoo.in, Website: www.siesascn.edu.in

SIES (Nerul) College of Arts, Science and Commerce (Autonomous)
(Affiliated to University of Mumbai)
RE-ACCREDITED GRADE “A” BY NAAC (3rd CYCLE)
BOARD OF STUDIES
SYLLABUS FOR
B.Sc (Information Technology)

(WITH EFFECT FROM THE ACADEMIC YEAR 2023-2024)

OBJECTIVES OF THE PROGRAMME:

- To strengthen the fundamentals and basics of Information Technology and to boost technical development skills.
- To develop the ability to apply the knowledge acquired through analysis of algorithms, mathematical and statistical techniques
- To develop skills to work efficiently in designing the solution to various software and hardware problems by implementing various tools.
- To inculcate professional ethics, managerial skills to encourage entrepreneurship and promote teamwork to manage diverse projects.
- To enhance employability skills and provide scope for higher education and research in the field of information technology.

Programme Outcome:

- **PO1:** To strengthen the fundamentals and basics of information technology and to boost the skill enhancement abilities
- **PO2:** To identify mathematical, Graphical, digital circuitry and embedded system concepts of core concepts of Information Technology.
- **PO3:** To enhance the technical, testing and research oriented approach required to implement the current trending practices in the field of Computer science and Technology.
- **PO4:** The program lays a strong foundation for students to acquire technical knowledge in the areas of security, databases, operating systems, business intelligence, and web technologies.



B.Sc. Information Technology Programme
(To be implemented from Academic Year- 2023-24)

SCHEME OF MODULES

Semester II			
Serial No.	Course Code	Credits	Course Name
I	Major Department Specific Course		
1	U23IT2MJ01	03	Functional Programming
2	U23IT2MJP01	01	Functional Programming Practical
3	U23IT2MJ02	02	Microprocessor System: Architecture and 8085 Programming
II	Minor Department Specific Course		
1	U23IT2MI01	01	Calculus
2	U23IT2MIP01	01	Calculus Practical
III	Open Electives (OE)/ Generic Electives(Any Two)		
1	U23ICE2E01	02	Fundamental Aspects of Education
2	U23BI2E01	02	Basics of Banking
3	U23MS2E01	02	Personality Skill Development
4	U23MMC2E01	02	Film Appreciation
IV	VOCATIONAL COURSE (VC) & SKILL ENHANCEMENT COURSE (SEC)		
1	U23IT2VSC01	01	Database Management System
2	U23IT2VSCP01	01	Database Management System Practical



3	U23IT2SEC01	01	Web Application Development
4	U23IT2SECP01	01	Web Application Development Practical
V	ABILITY ENHANCEMENT COURSE(AEC)/VALUE EDUCATION COURSE (VEC)		
1	U23IT2AEC01	02	Effective Communication Skills-II
2	U23IT2VEC01	02	Green IT
VI	CO-CURRICULAR ACTIVITIES(Any ONE)		
1	U23NSS2CC01	02	National Service Scheme (NSS) Studies Paper-I
2	U23CA2CC01	02	Co –Curricular Course in Cultural Activities
3	U23PE2CC01	02	Co –Curricular Course in Sports
4	U23DLLE2CC01	02	Department of Lifelong Learning and Extension
TOTAL CREDITS		22	



Major Department Specific Course (Credit 3+1)

Functional Programming

Course Code : U23IT2MJ01

Course Credit: 03

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

The course will enable learners to Understand functional programming concepts

1. The course is designed to provide Basic knowledge of Python.
2. Express proficiency in the handling of strings and functions.
3. Be able to program using more advanced features of Python.

Course Outcomes:

Upon completion of the course, learners will be able to:

1. Implement the variables, expressions, looping, and conditions used in Python programming.
2. Apply the knowledge of functions and strings.
3. Create functions, strings, lists, tuples, and directories.

Module	Topics	Lectures
1	Introduction to Python: The Python Programming Language, History, features, Installing Python, Running Python program, Debugging : Syntax Errors, Runtime Errors, Semantic Errors, Experimental Debugging, Formal and Natural Languages, The Difference Between Brackets, Braces, and Parentheses, Variables and Expressions : Values and Types, Variables, Variable Names and Keywords, Type conversion, Operators and Operands, Expressions, Interactive Mode and Script Mode, Order of Operations. Conditional Statements: if, if-else, nested if –else Looping: for, while, nested loops Control statements: Terminating loops, skipping specific conditions	15
2	Functions: Function Calls, Type Conversion Functions, Math Functions, Composition, Adding New Functions, Definitions and Uses, Flow of Execution, Parameters and Arguments, Variables and Parameters Are Local, Stack Diagrams, Fruitful Functions and Void Functions, Why Functions?	



	<p>Importing with from, Return Values, Incremental Development, Composition, Boolean Functions, More Recursion, Leap of Faith, Checking Types</p> <p>Strings: A String Is a Sequence, Traversal with a for Loop, String Slices, Strings Are Immutable, Searching, Looping and Counting, String Methods, The in Operator, String Comparison, String Operations.</p> <p>Exceptions: Built-in Exceptions, Handling Exceptions, Exception with Arguments, User-defined Exceptions.</p>	15
3	<p>Lists: Values and Accessing Elements, Lists are mutable, traversing a List, Deleting elements from List, Built-in List Operators, Concatenation, Repetition, In Operator, Built-in List functions and methods</p> <p>Tuples and Dictionaries: Tuples, Accessing values in Tuples, Tuple Assignment, Tuples as return values, Variable-length argument tuples, Basic tuples operations, Concatenation, Repetition, in Operator, Iteration, and Built-in Tuple Functions</p> <p>Creating a Dictionary, Accessing Values in a dictionary, Updating Dictionary, Deleting Elements from Dictionary, Properties of Dictionary keys, Operations in Dictionary, Built-In Dictionary Functions, Built-in Dictionary Methods</p> <p>Files: Text Files, The File Object Attributes, Directories</p> <p>Regular Expressions : Concept of regular expression, various types of regular expressions, using the match function.</p>	15

References:

1. Think Python ,Allen Downey,O'Reilly Publication,1st Edition,2012.
2. An Introduction to Computer Science using Python 3,Jason Montojo,Jennifer Campbell,Paul Gries,SPD Publication,1st Edition ,2014.
3. Introduction to Problem solving with Python,E.Balagurusamy,Tata Mcgraw Hill Publication,1st Edition ,2015.
4. Object-Oriented Programming in Python,Michael h.Goldwasser,David Letscher,Pearson Prentice Hall,1st Edition,2008.
5. Exploring Python,Budd,Tata Mcgraw Hill Publication,1st Edition ,2016.



Functional Programming Practical

Course Code : U23IT2MJP01

Course Credit: 01

1 credit - 15 lectures

1 lecture is 120 minutes

Course Objectives:

The main objective of this laboratory is to put into practice computational thinking. The students will be expected to write, compile, run and debug Python programs to demonstrate the usage of:

- variables, conditionals and control structures .
- functions (both recursive and iterative) ,strings, exception handling
- basic data types as well as compound data structures such as strings, lists, sets, tuples, and dictionaries.

Course Outcomes:

Learners will be able to understand real world problem and can implement different functional programming concepts to solve it.

1.	Write the program for the following:
a	Create a program that asks the user to enter their name and their age. Print out a message addressed to them that tells them the year that they will turn 100 years old.
b	Enter the number from the user and depending on whether the number is even or odd, print out an appropriate message to the user.
c	Write a program to generate the fibonacci series.
2	Write the program for the following:
a	Write a program to find the greatest number among the three.
b	Write a program to display class based on the percentage.
3	Write the program for the following:
a	Write a program to display following pattern
	1



	1 2
	1 2 3
	1 2 3 4
b	Write a program to display following pattern
	* * *
	* *
	*
4	Write the program for the following:
a	Write a program to implement break and continue statement.
b	Write a program to perform sum of ten even numbers.
5	Write the program for the following:
a	Write a function that reverses the user defined value.
b	Write a function to check if the input value is Armstrong and also write the function for Palindrome.
c	Write a recursive function to print the factorial for a given number.
6	Write the program for the following:
a	Write a function that takes a character (i.e. a string of length 1) and returns True if it is a vowel, False otherwise.
b	Define a function that computes the length of a given list or string.
7	Write the program for the following:
a	Program with function to find GCD of two integers.



b	Program with to convert decimal number to Binary equivalent
c	Program with a function to find how many numbers are divisible by 2, 3,4,5,6 and 7 between 1 to 1000
8	Define a procedure histogram() that takes a list of integers and prints a histogram to the screen. For example, histogram([4, 9, 7]) should print the following: <pre>**** ***** *****</pre>
9	Write the program for the following:
a	A program is a sentence that contains all the letters of the English alphabet at least once, for example: The quick brown fox jumps over the lazy dog. Your task here is to write a function to check a sentence to see if it is a pangram or not.
b	Take a list, say for example this one: a = [1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89] and write a program that prints out all the elements of the list that are less than 5.
10	Write the program for the following:
a	Write a program to create and access the value of Python tuple.
b	Write a python code to construct tuple from string and list
11	Write the program for the following:
a	Write a python program that takes two lists and returns True if they have at least one common member.
b	Write a Python program to print a specified list after removing the 0th, 2nd, 4th, and 5th elements.
c	Write a Python program to clone or copy a list.



12	Write the program for the following:
a	Write a Python script to sort (ascending and descending) a dictionary by value.
b	Write a Python script to concatenate following dictionaries to create a new one. Sample Dictionary : dic1={1:10, 2:20} dic2={3:30, 4:40} dic3={5:50,6:60}
	Expected Result : {1: 10, 2: 20, 3: 30, 4: 40, 5: 50, 6: 60}
c	Write a Python program to sum all the items in a dictionary.
13	Write the program for the following:
a	Write a Python program to read an entire text file.
b	Write a Python program to append text to a file and display the text.
c	Write a Python program to read the last n lines of a file.
14	Write the program for the following:
a	Write a python program to implement exception handling.
b	Write a python program to create user define exception.
15	Write the program for the following:
a	Write a python code to match the pattern: any five letter string starting with a and ending with s.
b	Write a Python code to find all Adverbs and their positions in the string.



Major Department Specific Course (Credit 2)

Microprocessor System: Architecture and 8085 Programming

Course Code : U23IT2MJ02

Course Credit :02

1 Credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

1. To understand the basic concept of microcomputer systems
2. To develop background knowledge in 8085 Microprocessor
3. To write Assembly language Programs of 8085

Course Outcomes:

Learners will be able to :

1. Understand the basic concepts of microcomputer systems.
2. Understand the architecture and hardware aspects of 8085 and Write assembly language programs in 8085.

UNIT	Topics	HRS.
I	<p>Microprocessor, Microcomputers, and Assembly Language: Microprocessor, Microprocessor Instruction Set and Computer Languages, From Large Computers to Single-Chip Microcontrollers, Applications.</p> <p>Microprocessor Architecture and Microcomputer System: Microprocessor Architecture and its operations, Memory, I/O Devices, Microcomputer System, Logic Devices and Interfacing, Microprocessor-Based System Application.</p> <p>Microprocessor Architecture and Memory Interface: Introduction, 8085 Microprocessor unit, 8085-Based Microcomputer, Memory Interfacing, Interfacing the 8085 Memory Segment.</p> <p>Introduction to 8085 Assembly Language Programming: The 8085 Programming Model, Instruction Classification, Instruction, Data, and Storage, Writing assembling and Execution of a Simple Program Overview of the 8085 Instruction Set, Writing and Assembling Program</p>	15
II	<p>Introduction to 8085 Instructions: Data Transfer Operations, Arithmetic Operations, Logic Operation, Branch Operation, Writing Assembly Languages Programs</p> <p>Programming Techniques With Additional Instructions: Programming Techniques: Looping, Counting and Indexing, Additional Data Transfer and 16-Bit Arithmetic Instructions, Arithmetic Instruction Related to Memory, Logic Operations: Rotate, Logical Operations: Compare.</p> <p>Counters and Time Delays: Counters and Time Delays, Illustrative Program: Hexadecimal Counter, Illustrative Program: zero-to-nine (Modulo Ten) Counter,</p>	15



Generating Pulse Waveforms.

Stacks, Sub-Routines and Interrupts: Stack, Subroutine, Restart, Conditional Call, Return Instructions, the 8085 Interrupt, 8085 vectored Interrupts.

References:

1. Microprocessors Architecture, Programming and Applications with the 8085 (5th Edition): Ramesh Gaonkar, Penram, 2012.
2. 8080A/8085 Assembly language programming : Lance A. Leventhel, Osborne, 1978.
3. Embedded Systems (3rd Edition): Rajkamal, Tata Mcgraw-Hill, 2009.
4. Introduction to embedded systems (1st Edition): Shibu K V, Tata Mcgraw-Hill, 2012.



**Minor (Credit 1+1)
Calculus**

Course Code: U23IT2MI01

Course Credit: 01

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

1. This course will provide an overview of basic concepts as function, limit and continuity.
2. This course will give an elaborate idea about sequences and its behavior.
3. This course will enhance the understanding of derivatives by applying it to understand the behavior of a function.

Course Outcome:

Learners will be able to:

Plot the polynomials.

1. Understand the behavior of function.
2. Analyze the behavior of a sequence.
3. Apply the application of derivatives to real life problems.

Module	Details	Lectures
I	Limit, Continuity and Sequence: Definition of limit, Right hand and left hand limit, Definition of Continuity, Definition of sequence, Important examples, Bounded sequence, Increasing and Decreasing sequence, Sandwich theorem (Only statement), Convergence of Sequence. Derivatives and its Applications: Derivative of a function, Derivative In Graphing And Applications: Analysis of Functions: Increase, Decrease, Concavity, Relative Extrema; Graphing Polynomials, Absolute Maxima and Minima, Applied Maxima and Minima Problems, Newton's Method.	15

References:

1. Calculus: Early transcendental (10th Edition): Howard Anton, Irl Bivens, Stephen Davis, John Wiley & sons, 2012.
2. Calculus and analytic geometry (9th edition): George B Thomas, Ross L Finney, Addison Wesley, 1995.
3. Calculus: Early Transcendentals (8th Edition): James Stewart, Brooks Cole, 2015. 3. Calculus (10th Edition): Ron Larson, Bruce H. Edwards, Cengage Learning, 2013.
4. Thomas' Calculus (13th Edition): George B. Thomas, Maurice D. Weir, Joel R. Hass, Pearson, 2014.



Calculus Practical

Course Code: U23IT2MIP01

Course Credit: 01

1 credit - 15 lectures

1 lecture is 120 minutes

Note: The following practicals are to be taken as tutorial as well as by using Geogebra.

Sr. No.	List of Practical
1	Practical based on the functions of one and multiple variables, its domain and range and operations on functions.
2	Practical based on problems of limit.
3	Practical based on left hand limit and right hand limit.
4	Practical based on continuity of a function at a point.
5	Practical based on the examples of the sequence.
6	Practical based on bounded sequence.
7	Practical based on increasing and decreasing sequence.
8	Practical based on convergent sequence.
9	Practical based on sandwich theorem.
10	Practical based on graphing of polynomials.
11	Practical based on increasing and decreasing function.
12	Practical based on concavity and inflection points.
13	Practical based on maxima and minima
14	Practical based on applied maxima and minima.
15	Practical based on Newton's method..



Open Elective – I
Fundamental Aspects of Education

Course Code: U23ICE2E01

1 credit - 15 lectures

Course Credit: 02

1 lecture is 60 minutes

Course Objectives:

1. To develop understanding into the epistemological basis of education
2. To develop an understanding of the various educational policies
3. To understand various philosophies of education and its relevance in the present times
4. To develop an understanding of the principles of growth and development
5. To develop an understanding of the meaning and nature of Commerce Education
6. To develop an understanding of the aims and objectives in the teaching of Commerce
7. To integrate values in the teaching of Commerce
8. To develop an insight about role and challenges of a Commerce teacher

Unit 1: Pedagogy, Andragogy, Heterogogy and policies

- a. Meaning of Education, Pedagogy, Andragogy, Heterogogy and its characteristics (3 hours)
- b. Policies: Pre Independence, Kothari Commission, RTE, SSA (2 hours)
- c. NEP (2020), NCF (2 hours)

Unit 2: Growth and development – Stages of development and achievement of developmental milestones.

- a. Meaning, principles of growth and development, difference between growth and development (2 hours)
- b. Heredity and Environment, Maturation and Learning (2 hours)
- c. Stages of development (Meaning, Characteristics, Role of Adult (3 hours)
- d. Aspects of Development (Meaning, Factors, Role of Adult) (3 hours)

Unit 3: Theoretical orientation to Education – Understanding of cognitive, behavioral, social theories, Value-based education. (8 hours)



- a. Jean Piaget's theory of cognitive development
- b. Kohlberg's theory of moral development
- c. Erikson's theory of psycho-social development

Unit 4: Understanding Commerce in Education.

- a. Meaning and Nature of Commerce in Education, Aims and Objectives of teaching commerce (2 hour)
- b. Values of Teaching Commerce – Global citizenship, practical, social, cultural and Vocational (1 hour)
- c. Role and challenges faced by a Commerce teacher (2 hour)

Examination:

Total marks: 50 marks

External examination: 30 marks

Internal examination: 20 marks (MCQ test – 5 marks; Assignment – 5 marks; Attendance- 5 marks; Visit to a school report/Presentation – 5 marks)



Open Elective - II

Basics of Banking

Course Code: U23BI2OE01

Course Credit :02

1 Credit-15 Lectures

1 Lecture is 60 Minutes

Course Objectives:

1. To describe the types of banks in India & their features.
2. To interpret various types of Bank accounts & the services attached to them including NRI accounts.
3. To assess the importance of digital banking in India.
4. To evaluate the role of RBI in India.

Course Outcomes:

On successful completion of this course, the learners will be able:

1. To identify, recall and describe various types of Banks in India.
2. To understand and differentiate services provided by banking sector in India.
3. To differentiate NRI products & other privileged services.
4. To analyse various online payment systems practiced in India
5. To evaluate the contribution of RBI towards the economic development of India.

Sr.No. Modules Number of lectures

1 Unit I – a) Introduction to Banking - Meaning, Definitions, Features, Types of Banks b) Role of RBI in Banking Sector – Introduction to RBI, Services & Facilities, Role of RBI in the economy of India & Nation Development 15

2 Unit II – a) Products & Services by Banks – Types of Bank accounts, services & Facilities for each accounts, NRI accounts, Fee based & Fund based services of Banks, Non Performing Assets b) Digital Banking – Services, Cards, e banking, Payment system, 15

References:

- Essentials of Business Finance - R.H. Srivastava,
- Management of Financial Institution - R. .N. Srivastava, Himalaya publication
- Modern Banking- R.S. Sayers
- Banking In India. S.G. Panandikar, Worli, Mumbai.
- Indian Financial System (Vol. I & II) B.D. Ghonasgi & Maloti Anagol
- Indian Financial System M.Y. Khan, Tata Mcgrow Hill.
- Financial Institutions in India - Vadilal Dagli, Mumbai.
- Financial Institutions in Indian Markets - L. M. Bhole, Tata Mcgrow Hill
- Structure of Financial Institutions - V,V. Bhatt, Varadeo



SCHEME OF EXAMINATION

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e. 20 marks
- Semester end examination 60% i.e. 30 marks

(A) Internal Assessment 20 marks

Description	Marks
Internal tests of 10 marks each	10
Q.1 Multiple choice Questions/True or False - 5 Marks	
Q.2. Attempt 1 questions out of 2 questions (5 marks each)- 5 Marks	
One Presentation/Project and Viva voce/Presentation/Case studies	05
Class Participation	05
Total	20

(B) Semester end examination 30 marks

PAPER PATTERN

Duration: 1 hours	
Total Marks: 30	
Q.1 10 marks OR 10 marks	10
Q.2 10 marks OR 10 marks	10
Q.3 10 marks OR 10 marks Two short notes of 5 marks each or Case study	10
Total	30
Note: Q.1, 2 - 10 marks question may be divided into sub questions if required. Q.3 May include theory (short notes) /Case Study in one of the options.	

Passing criteria: Minimum 40% in Internal (8 out of 20) and 40% (12 out of 30) in semester end examination



Open Elective – III

Personality Development – Achieving Personal and Professional Success

Course Code: U23MS2E01

Course Credit: 02

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

- The course aims to train students on the importance of self-awareness, personal growth, soft skills, and life skills.
- The course facilitates the participants to understand the skill of influencing, being an effective team member and understanding self-motivation.
- The course aims to foster talent and facilitate employability, empowering the participant to thrive in the fiercely competitive corporate world.

Sr. No	Syllabus	No. of lectures
01	Concept of Self Introduction to Personality Development: Personality traits and theories, MBTI, Self-Image and Self-Concept, Locus of Control, Managing Oneself. Concept, Emotional Intelligence , Importance of Emotional Intelligence and Role of Emotional Intelligence in developing effective personality , Positive Attitude, Self-esteem, Self- confidence	15
02	Understanding Self in Relation with others Concept of Influencing , Art of Influencing , Johari Window , FIRO – B , Interpersonal Relations, Communication in organizations, Personal Branding, Leadership Skills, Presentation Skills, Personal skills- Stress Management, Negotiation skills, Conflict Management, Time Management and Anger Management.	15

References:

- Organizational Behavior by Fred Luthans
- Organization Behavior by Neharika Vohra Stephen P. Robbins, Timothy A. Judge
- The 7 Habits of Highly Effective People by Stephen Covey
- The Art and Science of Personality Development Dan P. McAdams



SCHEME OF EXAMINATION

The scheme of examination shall be divided as follows:

- **Comprehensive Internal assessment 100% i.e. 50 marks**

Description	M a r k s
Case Study/ Case-let/ Situation Analysis – (Group Activity or Individual Activity)/ Group Discussion/ Role Play/ Story Telling/ Presentation/ Practical Assignment/ Written Home Assignment/ Industry Analysis – (Group Activity or Individual Activity)/ Literature Review/ Book Review/ In-depth Viva/ Student Driven Activities/ Newspaper reading/ Report Writing/Precis Writing. (Any one of these)	15
Project	20
Class Test/ Open Book Test/ Quiz	10
Class Participation	5
Total	50

Passing criteria: Minimum 40% (20 out of 50) in Comprehensive Internal Assessment.



Open Elective - IV Film Appreciation

Course Code: U23MMC2E01

1 credit - 15 lectures

Course Credit: 02

1 lecture is 60 minutes

Course Objectives:

- To introduce students to the basic concepts of cinema.
- To help students identify different genres and aspects of films.
- To help students understand technical aspects regarding making of films.

Unit	Details	Lectures
I	Introduction to Film as an Art Form, History of films, Evolution of Cinema - Silent Era to Talkies, Golden Age of Hollywood, Commercial films, History and evolution of the Indian film industry, Silent era, golden era of Bollywood.	10
II	Basic Elements of Film - Shot, Scene, Sequence, and Frame Composition. Understanding Film Genres - Comedy, Drama, Action, and Documentary. Cinematography - Camera Angles, Movement, and Lighting. Sound Design and Music in Film. Editing Techniques and Their Impact on Storytelling.	10
III	Themes and Symbolism in Film. Stages in filmmaking: pre production, production and post production. , Impact of Technological Advances on Film. Cultural influence of films. Introduction to regional cinema; Marathi, Bengali, Tamil, Malyali, Telugu, Kannada.	10

References:

- Bordwell, D., & Thompson, K. (2016). Film Art: An Introduction. McGraw Hill
- Giannetti, L. . Understanding Movies. Pearson; 13th edition (26 June 2013)
- Nowell-Smith, G. (Ed.). The Oxford History of World Cinema. Oxford University Press.
- Sharff, S. (1982). The Elements of Cinema.
- Ganti, T. (2004). Bollywood: A Guidebook to Popular Hindi Cinema. Psychology Press, 2004
- Rajadhyaksha, A., & Willemen, P. (2022). A Short History of Indian Cinema. Routledge.



Scheme of Examination (for 50 marks 2 credits Theory)

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e.20 marks
- Semester end examination 60% i.e.30 marks

(A) Internal Assessment 20 marks

Description	Marks
Internal test of 10 marks Q.1. Attempt 2 questions out of 4 questions (5 marks each)- 10 Marks	10
One Project and Viva voce/Presentation/Case studies/Assignments	10
Total	20

B) Semester end examination 30 marks

PAPER PATTERN

Duration : 1 hour	
Total Marks: 30	
Q.1 Attempt Q1 a) or b)- 10 marks	10
Attempt Q2 a) or b)- 10 marks	10
Attempt Q3 a) or b)- 10 marks	10
Total	30
Note: 1. Q.1, 2, 3 - 10 marks questions may be divided into sub questions if required.	

Passing criteria: Minimum 40% in Internal (08 out of 20) and 40% (12 out of 30) in semester end examination.



Vocational Course (VSC)

Database Management Systems

Course Code: U23IT2VSC01

Course Credit: 01

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

- To understand the concepts of Database systems
- To understand data models
- To understand relational schema

Learner Outcomes:

- Define and describe the fundamental of database architecture
- Learners will be able to understand relational database model
- Learners will be able to do complex queries

Sr. No	Syllabus	No. of lectures
Unit I	Introduction to Databases and Transactions What is database system, purpose of database system, view of data, relational databases, database architecture, transaction management Data Models The importance of data models, Basic building blocks, Business rules, The evolution of data models, Degrees of data abstraction. Database Design, ER Diagram Database design and ER Model: overview, ER Model, Constraints, ER Diagrams, weak entity sets, Codd's rules, Relational Schemas, Relational database model Logical view of data, keys, integrity rules.	15

References

1. Bayross, I. (2010) SQL, PL/SQL the Programming Language of Oracle. 4th edition. BPB Publications.
2. Elmasri, R., & Navathe, S.(2017). Fundamentals of Database Systems. 7th edition. Pearson Education.
3. Silberschatz, A., Korth, H. F., & Sudarshan, S. (2011), Database System Concepts. 6th edition. Tata McGraw-Hill Education.



Course Name: Database Management Systems Practical

Course Code: U23IT2VSCP01

Course Credit: 01

1 credit - 15 lectures

1 lecture is 120 minutes

Sr. No.	List of Practicals
1	Defining data a. Using CREATE statement b. Using DROP statement c. Using TRUNCATE statement d. Using RENAME statement
2	Manipulating data a. Using INSERT statement b. Using UPDATE statement c. Using DELETE statement d. Using SELECT statement
3	Retrieve Data using the SQL SELECT Statement a. Select All Columns b. Select Specific Columns c. Use Arithmetic Operators d. Learn the DESCRIBE command to display the table structure
4	a. Write queries that contain a WHERE clause to limit the output retrieved b. Sort output in descending and ascending order
5	Creating and managing the tables
6	Creating table with constraints: a. NOTNULL, b. UNIQUE c. PRIMARY KEY d. FOREIGN KEY
7	a. Using DISTINCT, IN, AS, SORT, LIKE, ISNULL, OR b. Using Group By, Having clause, Order By clause



8	Aggregate and Mathematical functions: a. AVG,MIN,MAX,SUM,COUNT b. ABS,SQRT,ROUND,MOD
9	Using the SET Operators a,Use ALL operator to return all rows from multiple tables c.Describe the INTERSECT operator and Use the INTERSECT operator d. Explain the UNION operator to return all rows from multiple tables and eliminate any duplicate rows b.Use the UNION A the MINUS operator and Use the MINUS operator
10	Join operation a.Inner Join b.Outer join c.Left and right Join
11	Use Subqueries to Solve Queries a.Describe the types of problem that subqueries can solve b.List the types of sub-queries
12	Other Schema Objects a.Create a simple and complex view b.Retrieve data from views
13	Create, maintain, and use sequences
14	Create and maintain indexes
15	Write a query using the following a.BETWEEN, d. IN and EXISTS



Skill Enhancement Course (SEC –Credit (1+1))
Web Application Development

Course Code: U23IT2SEC01

Course Credit: 01

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

- Understanding HTML5 and CSS Fundamentals
- Implementing Structural Elements and Styling Techniques
- Introduction to JavaScript for Interactivity

Learner Outcomes:

- Proficiency in HTML5 and CSS Basics
- Mastery in CSS Styling
- Basics of JavaScript Implementation

Sr. No	Syllabus	No. of lectures
Unit I	<p>Overview of HTML5 -Exploring new features of HTML5, Structuring an HTML Document, Creating an saving HTML document, Viewing an HTML document, Basic syntax, Basic text markup.</p> <p>CSS -Implementing Styles using CSS – Stylesheets, Formatting Text and Links using CSS, CSS Selectors, Changing Background, Adding Border.</p> <p>List- Introduction to list and types of list.</p> <p>Tables- Introduction to table, rowspan, colspan and attributes of table.</p> <p>Frames: Introduction To frames, using frames & frameset tags, named frames.</p> <p>Forms- Form controls</p> <p>JavaScript:Introduction, JavaScript Variables and Constants, Data Types, Comments, Operators, Statements.</p>	15

References:

1. HTML, XHTML and CSS Bible, 5th Edition, Steven M. Schafer, Wiley-India Edition.
2. The Complete Reference HTML & CSS, 5th Edition, Thomas A. Powell, McGrawHill.
3. Beginning JavaScript, 4th Edition Paul Wilton, Jeremy McPeak, Wiley-India Edition.



Additional References:

1. Learning Web Design A Beginner's Guide to Html, CSS, JavaScript, And Web Graphics, 5th Edition, Jennifer Niederst Robbins, O'Reilly.
2. The Complete Reference JavaScript, 3rd Edition, Thomas A. Powell & Fritz Schneider, McGrawHill.

Practicals of Web Application Development**Course Code: U23IT2SECP01****Course Credit: 01****1 credit - 15 lectures****1 lecture is 60 minutes**

Sr.No.	Practicals
1	Create a web page using Character formatting tags such as B, I, U and so on.
2	Create a web page using font color, font face, font size, background color.
3	Create a web page using Paragraph tags such as P tag and BR tag.
4	Create a web page demonstrating different stylesheet types.
5	Create a web page demonstrating grouping selectors.
6	Create a web page using List types.
7	Create a web page using Table tags with rowspan, colspan, border, border size, border color and Image in a particular cell.
8	Create a web page using Form tag. (Hint: make use of text field, password field, e-mail, lists, radio buttons, checkboxes, submit button)
9	Create a web page using Frameset tag.
10	Using JavaScript, create a web page to display the largest integer among two integers. Take input from user.
11	Using JavaScript, create a web page to display the even and odd numbers between range. Take input from user.
12	Using JavaScript, create a web page to create a simple multiplication table asking the user input. Take input from user.
13	Using JavaScript, create a web page to Find the Factorial of a Number. Take input from user.
14	Using JavaScript, create a web page for a simple calculator.
15	Create a simple static website of five pages for BSc IT Department using HTML, CSS and JavaScript.



ABILITY ENHANCEMENT COURSE (AEC) Effective Communication Skills-2 (AEC)

COURSE CODE: U23IT2AEC01

COURSE CREDIT: 02

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objectives:

1. To develop effective interpersonal skills among learners for corporate employability.
2. To develop effective business letter writing skills among students applicable in corporate world.
3. To develop professional skills among learners for better personality development.

Course Outcomes:

1. Learner will be able to apply interpersonal skills for better employability.
2. Learner will be able to utilize effective business letter writing skills required in corporate world.
3. Learner will be able to use specified oral and written skills for the professional development.

Sr. No	Syllabus	No. of lectures
01	Module-1.Group Communication Interview Skills: Preparing for Interview, Types of Interviews, Group Discussion: Nature and Ingredients, Process and Preparation, Corporate Meetings: Theory, Group Dynamics, Process of Conducting Meeting, Notice, Agenda and Minutes of Meeting, Conference: Types, Organization, Advanced Methods of conducting conferences	10
02	Module-2.Business Correspondence -2 Trade Letters: Inquiry Letter, Complaint Letter, Adjustment Letter, Sales Letter, RTI and Consumer Grievance Letter ,Report Writing: Types of Report, Format of Report, Investigative Report, Feasibility Report	10
03	Module-3. Language and Writing Skills Presentation Skills: Principles of Effective Presentation, Effective use of OHP, Use of PPT, Summarization: Identification of main points and sub points, Presenting in cohesive manner, Paraphrasing and summarizing,	10



Reference Books:

1. A Handbook of Commercial Correspondence by Ashley, A, Oxford University Press, 1992.
 2. Basic Business Communication: Skills for Empowering the Internet Generation by Raymond Lesikar and Marie Flatley, 9th Edition, Tata McGraw Hill, New Delhi, 2002.
 3. Business Communication by D Chaturvedi and Mukesh Chaturvedi, Third Edition, Pearson Publications Ltd, 2013.
 4. Business Communication by Meenakshi Raman and Prakash Singh, Oxford University Press, 2007.
 5. Business Communication Strategies by Monippally, Matthukutty, M, Tata McGraw Hill New Delhi, 2001.
 6. Effective Business Communication by Herta Murphy, Herbert Hildebrandt, Jane Thomas, Mc Graw Hill Education, 2009.
 7. Effective Communication by Balan K.R. and Rayadu C.S., Beacon Publication, New Delhi, 1996.
 8. Effective Technical Communication by M.Ashraf, Rizvi, Mc Graw Hill Publications, 2006.
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SCHEME OF EXAMINATION

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e. 20 marks
- Semester end examination 60% i.e. 30 marks

(A) Internal Assessment 20 marks

Description	Marks
Internal tests of 10 marks each	10
Q.1 Multiple choice Questions - 05 Marks	
Q.2. Attempt 01 questions out of 3 questions (5 marks each)- 05 Marks	
Role Plays /Group Discussion/Mock Interviews/Presentation/Case studies/Assignments	5
Attendance and Class behavior	5
Total	20

B) Semester end examination 30 marks

Question no.1	A) Descriptive Question OR B) Short Notes -2 out of 3 (5 Marks each) Module no.1	10 Marks
Question no.2	A) Descriptive Question OR B) Short Notes-2 out of 3 (5 Marks each) Module no.2	10 Marks
Question no.3	A) Descriptive Question OR B) Short Notes-2 out of 3 (5 Marks each) Module no.3	10 Marks

Passing criteria: Minimum 40% in Internal (8 out of 20) and 40% (12 out of 30) in semester end examination.



Value Education Course (VEC)

Green IT

Course Code: U23IT2VEC01

Course Credit: 02

1 credit - 15 lectures

1 lecture is 60 minutes

Course Objective:

- Environmental Awareness to recognize and understand tech-related environmental issues and disposal methods.
- Sustainable Tech Implementation to apply recycling and responsible disposal strategies in tech environments.
- Responsible Disposal Skills to evaluate and apply methods for eco-friendly hardware and data disposal.
- Compliance and Standards to understand laws and standards promoting green technology and responsible disposal.

Learner Outcomes:

- Environmental Issue Recognition to identify and comprehend environmental impacts on technology.
- Sustainable Practices Application to implement eco-friendly disposal methods in tech settings.
- Responsible Disposal Proficiency to apply methods for eco-friendly hardware and data disposal.
- Compliance and Standards Understanding to comprehend laws and global standards promoting eco-friendly tech and disposal practices.



Sr. No	Syllabus	No. of lecture
Unit I	<p>Overview and Issues: Problems: Toxins, Power Consumption, Equipment Disposal, Company's Carbon Footprint: Measuring, Details, reasons to bother, Plan for the Future, Cost Savings: Hardware, Power.</p> <p>Recycling: Materials, Means of Disposal, Recycling, Refurbishing, Life Cycle from beginning to end, Life, Cost, Green Design, Recycling Companies, Finding the Best One, Checklist, Certifications</p> <p>Hard Drive Recycling: Consequences, cleaning a Hard Drive, Pros and cons of each method, CDs and DVDs.</p> <p>Green Devices and Hardware: Introduction, Life Cycle of a device or hardware, Reuse, Recycle and Dispose.</p>	15
Unit II	<p>Green Software: Introduction, Energy-saving software techniques, Evaluating and Measuring software Impact to platform power.</p> <p>Going Paperless: Paper Problems, The Environment, Costs: Paper and Office, Practicality, Storage, Destruction, Going Paperless, Organizational Realities, Changing Over, Paperless Billing, Handheld Computers vs. the Clipboard</p> <p>Electronic Data Interchange (EDI): Nuts and Bolts, Value Added Networks, Advantages, Obstacles.</p> <p>Laws, Standards and Protocols: Introduction, The regulatory environment and IT manufacturers, Non regulatory government initiatives, Industry associations and standards bodies, Green building standards, Green data centres, Social movements and Greenpeace.</p>	15

References:

1. Harnessing Green IT Principles and Practices , San Murugesan, G.R. Gangadharan Wiley Publication.
2. Green IT Toby Velte, Anthony Velte, Robert Elsenpeter McGraw Hill 2008.
3. Green Data Center: Steps for the Journey, Alvin Galea, Michael Schaefer, Mike Ebbers Shroff Publishers and Distributors, 2011.



National Service Scheme (NSS) Studies Paper-I**Course Code: U23NSS2CC01****Course Type: Co-curricular****Credits: 2****Course Objectives:**

The syllabus is aimed to achieve the following objectives:

1. To understand the Working, Framework and Contribution of NSS.
2. To Concept of Social Justice and its Importance
3. To understand themselves in relation to their community.
4. To identify the needs and problems of the community and involve them in problem-solving
5. To develop among themselves a sense of social and civic responsibility.
6. To utilize their knowledge in finding practical solutions to individual and community problems.

Learning Outcome:

The learners will be able to:

1. To understand Structural framework of NSS from National Level to College Level
2. Define Social Justice and how it helps the community
3. Enabling the students to contribute towards development of Community
4. Get involved in community betterment and active problem solving
5. Better Sense of social and civic responsibility. Have a better sense of Reduce, Recycle and Reuse
6. Collaborate and Work towards Solving Individua and Community Problems.

Unit No.	Topic	No. of Lectures required
Unit-I	Introduction to National Service Scheme (NSS) <ul style="list-style-type: none"> • Formation and development of NSS in India • Structural framework of NSS from National Level to College Level • Objectives of NSS • Symbol and Moto of NSS and its meaning • Basic Social Issues in India (Family System, Division of labour, Cast System in India, Gender Issues, Regional Imbalance) 	5
Unit-II	Introduction to Social justice <ul style="list-style-type: none"> • Social Justice – the Concept and its features, Contribution for Social Justice – Mahatma Jyotiba Phule, Dr. Babasaheb Ambedkar, Shahu Maharaj, Chhatrapati Shivaji Maharaj, Savitribai Phule. 	5
Unit-III	Suggested Projects: <ul style="list-style-type: none"> • Environment awareness – Waste management & 	20



	<ul style="list-style-type: none"> segregation, Reduce, Reuse & Recycle, Organic waste management by composting (maintenance of compost project) Volunteering at study centers managed by Stree Mukti Sanghatana 	
	Total Lectures	30

	Semester – I
Course Name: National Service Scheme (NSS)	Course Code:
Course Type	Co-curricular
Focuses on	Skill Development
Caters to	Local, National, Global
Total Lectures per week (1 Period is 60 minutes)	2 (TBD)
Credits	2

The scheme of Examination shall be divided as follows.

• Continuous Evaluation Pattern

Description	Marks
30 hours activity related work such as <ul style="list-style-type: none"> Attending lectures/ training sessions Field work Maintenance of work record 	30
Project Report	10
Viva-voce by faculty in charge and attendance	10
Total	50

References:

1. National Service Scheme Manual (Revised) Government of India, Ministry of Youth Affairs and Sports, New Delhi
2. National Service Scheme Manual University of Mumbai
3. National Service Scheme Manual for NSS District Coordinators National Service Scheme Cell, Dept. of Higher and Technical Education, Mantralaya



4. Rashtriya Seva Yojana Sankalpana Prof. Dr. Sankey Chakane, Dr. Pramod Diamond Publication, Pune
5. Annual Report of National Service Scheme (NSS) Dept. of Higher and Technical Education Mantralaya. Dept. of Higher and Technical Education Mantralaya.
6. Training Programme on National Programme scheme, TISS.
7. Orientation Courses for N.S.S. Programme officers, TISS.
8. Social Problems in India, Ram Ahuja.
9. National Service Scheme in India : A Case Study of Karnataka, M. B. Dishad, Trust Publications, 2001
10. <http://www.thebetterindia.com/140/national-service-scheme-nss/>
11. <http://en.wikipedia.org/wiki/national-service-scheme>
12. <http://nss.nic.in/adminstruct>
13. <http://nss.nic.in/propexpan>
14. <http://nss.nic.in>
15. <http://socialworkness.org/about.html>



Co –Curricular Course in Cultural Activities

Course Code: U23CA2CC01

Course Type: Co-curricular

Credits: 2

Course Objectives:

The syllabus is aimed to achieve the following objectives:

1. To train students in skills to plan, manage and implement various types of events and to enable them to effectively undertake any activity in the real world.
2. To develop a sense of discipline and commitment as an educated individual towards the society.
3. To develop social values respecting differences among individuals, respecting diverse value and cultures.

Learning Outcome:

The learners will be able to:

1. Learner will be able to solve problems utilizing various concepts, solutions etc.
2. Learner will be able to understand the power of expressions listening to others, public speaking.
3. Learner will be able to take initiatives and responsibilities, influencing others in working for a good purpose, taking accountability.

Unit No.	Topic	No. of Lectures required
Unit-I	Lectures: 1. Event Communication & Presentation Skills. 2. Special Events, Research & Planning 3. Advance Event Accounting & Costing 4. Event Marketing, Advertising & PR 5. Event Production & Logistics	5
Unit-II	Practical Sessions: 1. Event Communication & Presentation Skills. 2. Special Events, Research & Planning 3. Advance Event Accounting & Costing 4. Event Marketing, Advertising & PR 5. Event Production & Logistics	5
	Department level Cultural activities/Performances	15



	Report Writing / Operations and Marketing	05
	TOTAL (HOURS)	30

	Semester – I
Course Name: CC in Cultural Activities	Course Code: U23CA2CC01
Course Type	Co-curricular
Focuses on	Skill Development
Caters to	Local
Total Lectures per week (1 Period is 60 minutes)	1
Credits	2

The scheme of Examination shall be divided as follows.

• **Continuous Evaluation Pattern**

Description	Marks
Activity related work such as <ul style="list-style-type: none"> • Attending lectures • Practical sessions • Seminars, Conference 	10
Maintenance of work records and submission of activity report	10
Test/ Discussion/ Presentations /Viva-voce by faculty in charge	10
Total	50

References:

1. S.N. Maheshwari, Cost Accounting
2. B.M. Lal, Cost Accounting
3. Senge, Peter : The Learning Organization
4. Successful Event Management By Anton Shone & Bryn Parry
5. Event management, a professional approach By Ashutosh Chaturvedi



Co –Curricular Course in Sports

Course Code: U23PE2CC01

Course Type: Co-curricular

Credits: 2

Objectives of the course

- 1) To gain understanding of the learner's preferred game and sport.
- 2) To master various physical fitness routines for daily use in order to maintain a healthy lifestyle.
- 3) To determine one's degree of physical fitness by calculating a fitness index.
- 4) To comprehend diverse ways of physical training.
- 5) To encourage the student to participate in sports/games for general personality development.

COURSE OUTCOMES:

- 1) After completing the course, the learner will be able to: Understand the fundamental concepts of Physical Education, health, and total well-being.
- 2) Recognise the significance of physical activity in maintaining a healthy lifestyle.
- 3) Discover the benefits of physical activity on various bodily systems and the most basic method of maintaining and enhancing health.
- 4) Encourage students to participate in physical activities, sports, or games.
- 5) Make people aware of the relevance of sports and physical education in their daily lives for physical and mental well-being.

SR.NO.	COURSE CONTENT	HOURS
1	Physical Education Introduction of Physical Education History of Physical Education - Vedic period - Indus Valley civilization - Rome, Greece Foundation of Physical Education Principles of Physical Education	05
2	Health Physical fitness Components of HRPF Components of SRPF Factors affecting fitness and wellness	10
3	Indigenous games in India Kabaddi Kho kho Tug of war One leg hops step jump Seven stones (Any 2 games only)	15
	Total no. of hours	30



The scheme of Examination shall be divided as follows.

Continuous Evaluation Pattern (50 Marks):

1. 30 Hours of Practice (25 Marks) Sports training/practice/coaching sessions on a regular basis (choose any game/sport).

(If a learner participates in training/practice/coaching sessions/camps organised by other organisations or clubs of sports and games, the proof of attendance and participation presented by a learner may be considered for evaluation.)

2. Participation in the organisation of sporting events, workshops, seminars, and so on - 5 hours (15 marks)

3. Participation/performance in sports events at the State, National, International, University, and Intercollegiate levels. 5 hours approx. (10 marks)

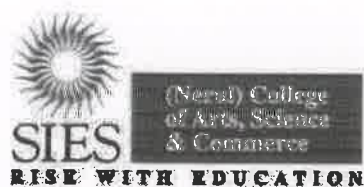




SIES (Nerul) College of Arts, Science and Commerce (Autonomous)

Sr. No.	Heading	Particulars
1	Title of the course	Department of Lifelong Learning and Extension
2	Course code	U23DLLE2CC01
3	Eligibility for admission	
4	Minimum percentage	
5	Semester	II
6	Level	UG
7	Pattern	Cocurricular Course
8	To be implemented from	From Academic year 2023-24





**SIES (Nerul) College of Arts, Science and Commerce (Autonomous)
(Affiliated with the University of Mumbai)
RE-ACCREDITED GRADE “A” BY NAAC (3rd CYCLE)**

**BOARD OF STUDIES
SYLLABUS FOR
DLLE**

(WITH EFFECT FROM THE ACADEMIC YEAR 2023-2024)

Department of Lifelong Learning and Extension (DLLE)

The Department of Lifelong Learning and Extension (DLLE) was established in 1978 to promote a meaningful relationship between universities and the community. It operates under the Board for Lifelong Learning and Extension, creating skilled human power through various degree-level and skill development programs. The DLLE creates synergy between teaching, research, and development institutions, regional and national bodies, and governmental agencies in lifelong learning, value education, and life skills for senior citizens.

The Department progressed as a University Teaching Department under UGC guidelines and the Maharashtra Public Universities Act, of 2016. Its academic activities include Extension Work, Masters Degree Programs, Online Courses, National Institute of Open Schooling, and e-Learning Centre activities. The Director leads the department to carry out the objectives of the Board of Lifelong Learning and Extension.

Extension Education is a two-way process that envisions the mutual sharing of resources between the community and the university for the development of both the common man and students. This dimension also aims to sensitize students to socio-cultural realities, leading to social welfare and relevance to daily life situations.

The DLLE supports communities-based extension work activities; aiming to improve the quality of life for less privileged sections of society. Regular extension activities are conducted in annual



programs for over 330 colleges, with 600 degree college Extension Work teachers and 32,000 Extension Work Students from Mumbai, Thane, Palghar, Raigad, Ratnagiri, and Sindhudurg districts involved in various projects.

Aim: Lifelong Learning and Extension aims to make education relevant to real-life situations by acting as a focal agency in the University system, providing academic and technical resource support for community-based activities, and serving as an intellectual intervention in community living problems.

Program Objective

PO1: To prepare students for social commitment and sensitize them to socio-cultural realities.

PO2: To develop leadership qualities and teamwork among students

PO3: To make the learning experience relevant to real-life situations

PO4: To make students aware of their responsibilities towards the environment and society

PO5: To enhance employability skills in students through skill development activities.

PO6: To reach the unreached needs, and maintain networks with government, and non-governmental agencies

Course Outcome

CO 1: It will enable students to connect and understand the social realities and work for social welfare

CO 2: It would help students to enhance leadership skills and apply them in their careers.

CO 3: Students will be more aware of the practicality of real life and can face challenges in a better way

CO 4: Students will be equipped with basic knowledge about environmental education and sustainability.

CO 5: The students will be able to apply the knowledge for employment in the future.

CO 6: Students will be able to connect to the unreached section of society and help them



Course Objective

- CO 1: To promote unexplored career opportunities and a knowledge-based society to the unreached.
- CO 2: To enhance students' skills in terms of employment.
- CO 3: To enhance skills for students to face life challenges, develop business at a small scale, and earn a source of income.
- CO 4: To promote a humanitarian approach amongst the learners and provide their service in the society
- CO 5: A learner would become aware of the importance of responsibilities towards community engagement and get actively involved in the upliftment of society with selfless contribution
- CO 6: The purpose of this course is to have students create a community project as a means of synthesizing, integrating, and applying the foundational and concentrated curriculum working in small groups and coordinating one with other agencies.
- CO 7: To introduce the multidisciplinary approach to environmental education and its importance to the young generation and enable students to create resource materials to promote an environmentally conservative approach in society.
- CO 8: To educate students about environmental awareness and sensitivity and encourage collaboration with the community to repair human-made damage and preserve the environment for future generations.
- CO 9: The participants will be actively involved in creating awareness about the Fundamental Rights and Duties of every citizen.
- CO10: The participants will create visual aids to propagate and promote civic sense in all parts of society and express what they have learned through street plays and rallies.
- CO11: To spread awareness and educate consumers about their rights before and after purchase.
- CO12: To understand the level of knowledge regarding the Consumer Protection Act in society.



Syllabus

Total credits:02

Total hours:30

Each volunteer of DLLE has to select any one project out of the following and conduct different activities.

Name of the project	Syllabus and Project-based activity	Hours
Vocational Career-Oriented Projects		
1. Career Project CP.	<ul style="list-style-type: none">● Different career paths● Developing communication skills● Building a CV● Enhancing skills for interview● Developing profiles on online job portals● Students are expected to select a career path and interview in their respective fields and organize charts showing different aspects related to careers.● Students are expected to prepare a booklet/pamphlet on careers and prepare a report.	30 Hours
2. Anna Poorna Yojana [APY]	<ul style="list-style-type: none">● Anna Poorna Yojana (APY) – meaning and importance, problems and prospects in setting up of business.● Computation of Cost and preparation of Cost sheet.● Preparation of Basic Income/ profit and loss statement.● Business model -● B to B and B to C● Project activities - Food preparation and selling through stalls, street play, Selling items at the community level, celebrating festivals with NGO, Awareness of food waste management.	30 Hours
Community Oriented Projects		
1. Population Education Club (PEC)	<ul style="list-style-type: none">● Understanding community-related issues around the region and developing a sensitive approach towards society● Engage in community partnership practices and provide leadership in promoting changes to improve community well-being, Community engagement, and leadership● Students are expected to engage in different activities	30 Hours



	<p>based on the project in the form of Street play, Seminar, Poster competition, Essay writing, Creative Writing competition, Elocution Discussion, act plays Composing songs, Powada, Rally, Exhibition, Video, Short film presentation, Waste collection drive, Environment awareness campaign</p>	
2. Environment Education EC	<ul style="list-style-type: none"> ● Understanding the basic environmental issues in society and the importance of Environmental Education. ● Environmental Awareness program with solutions by with concept of Sustainable Development Goals ● Project activities: Students are expected to conduct community-level awareness programs by distributing pamphlets, conducting street plays, and participating in various drives like Tree plantation, cleanliness drive, waste recycling drive energy, water conservation 	30 Hours
3. Citizenship Education Project(CEP).	<ul style="list-style-type: none"> ● Constitution of India: Preamble, Article 51A - Fundamental Rights and Duties of every citizen. ● Educational Institutions as agents for community development. ● Preparation of Guidelines for Civic sense in public places and displaying them through posters, placards, and charts. ● Project Activities: Street play, Civic Sense Rally, Essay writing, Case Study, Oath taking, Poster Making, Slogan writing. 	30 Hours
4. Consumer Guidance (CG)	<ul style="list-style-type: none"> ● Significance of consumer guidance. ● Different consumer rights. ● Details on Consumer Protection Act. ● Role of Government in Consumer Protection. ● Consumer protection councils and redressal mechanisms. ● Students need to work in groups of five to eight to organize the program by inviting resource persons and arranging field visits. 	30 Hours



ALLOCATION OF HOURS FOR PARTICIPATION IN EXTENSION WORK

SR NO	EXTENSION ACTIVITIES	TOTAL HOURS
1	Training	10
2	College/ Community level activities	20
TOTAL		30

Evaluation of 50 marks:
Continuous evaluation pattern.

Evaluation Criteria	Marks
Participation in social activity	10
Field visit/ community visit and report	10
Essay/ assignment /poster and report	10
Test/discussion/presentation and viva	10
Attendance in seminar /workshop & Training session	10
Total	50



**Revised Scheme of Examination
Faculty of Science
(Undergraduate Programme)**

SCHEME OF EXAMINATION (for 100 marks 3 credits)

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e.40 marks
- Semester end examination 60% i.e.60 marks

(A) Internal Assessment 40 marks

Description	Marks
An internal test of 20 marks	20
Q.1 a. Multiple choice Questions - 05 Marks	
b. True/False - 05 Marks	
Q.2. Attempt 2 questions out of 3 questions (5 marks each) - 10 Marks	
Presentation/Case Studies/Assignments	15
Attendance and Class Participation	5
Total	40

B) Semester End examination 60 marks

PAPER PATTERN

Duration: 2 hours	
Total Marks:60	
Q.1 15 marks OR 15 marks (7 and 8 marks)-Unit 1	15
Q.2 15 marks OR 15 marks (7 and 8 marks)-Unit 2	15
Q.3 15 marks OR 15 marks (7 and 8 marks)-Unit 3	15
Q.4 15 marks-attempt any 3 out of 6 (from Unit 1, Unit 2, Unit 3)	15
Total	60

Passing criteria: Minimum 40% in Internal (16 out of 40) and 40% (24 out of 60) in semester-end examination.



SCHEME OF EXAMINATION (for 50 marks ,2 credits)

The scheme of examination shall be divided into two parts:

- Internal assessment 40% i.e.20 marks
- Semester end examination 60% i.e.30 marks

(A)Internal Assessment 20 marks(Theory)

Description	Marks
An internal test of 10 marks Q.1 Multiple choice Questions/True or False - 05 Marks Q.2. Attempt 1 questions out of 2 questions (5 marks each) - 05 Marks	10
Presentation/Case Studies/Assignments	05
Attendance and Class Participation	05
Total	20

OR

(A)Internal Assessment 20 marks(Practical)

Description	Marks
Practical Question	10
Journal	05
Viva	05
Total	20

B) Semester End examination 30 marks

PAPER PATTERN

Duration: 1 hour	
Total Marks:30	
Q.1 15 marks OR 15 marks (7 and 8 marks)-Unit 1	15
Q.2 15 marks OR 15 marks (7 and 8 marks)-Unit 2	15
Total	30

Passing criteria: Minimum 40% in Internal (08 out of 20) and 40% (12 out of 30) in semester-end examination.



SCHEME OF PRACTICAL EXAMINATION (for 50 marks , 1 credit)

The scheme of examination shall be divided into two parts:

- Internal assessment 40%, i.e. 20 marks
- Semester end examination 60%, i.e. 30 marks

(A) Internal Assessment (20 marks)

Description	Marks
Practical Internal Assessment	10
Viva	05
Journal	05
Total	20

B) Semester end examination (30 marks)

PAPER PATTERN

Duration: 1.5 hours	
Total Marks:30	
Q.1 Practical Q1	15
Q.2 Practical Q2	15
Total	30

Passing Standards

The learners to pass a course shall have to obtain a minimum of 40% marks in each head of passing, consisting of Internal Assessment and Semester End Examination. The learners shall obtain a minimum of 40% marks (i.e. 16 out of 40 or 8 Out of 20) in the Internal Assessment and 40% marks in the Semester End Examination (i.e. 24 Out of 60 or 12 Out of 30) separately, to pass the course and a minimum of Grade D, wherever applicable, to pass a particular semester. A learner will be said to have passed the course if the learner passes the Internal Assessment and Semester End Examination together.

