

University of Mumbai



**Title of the program**

- A-** U.G. Certificate in Information Technology
- B-** U.G. Diploma in Information Technology
- C-** B.Sc. (Information Technology)
- D-** B.Sc. (Honours) in Information Technology
- E-** B.Sc. (Honours with Research) in Information Technology

**Syllabus for Semester –**

**Sem I & II**

**Ref: GR dated 20<sup>th</sup> April, 2023 for Credit Structure of UG**

**(With effect from the academic year 2024-25 Progressively)**

# University of Mumbai



## Syllabus for Approval

(As per NEP 2020)

Sr. No.	Heading	Particulars	
1	<b>Title of program</b> <b>O. <u>SU-503A</u></b>	A	Title of the program U.G. Certificate in Information Technology
	<b>O. <u>SU-503B</u></b>	B	U.G. Diploma in Information Technology
	<b>O. <u>SU-503C</u></b>	C	B.Sc. (Information Technology)
	<b>O. <u>SU-503D</u></b>	D	B.Sc. (Honours) in Information Technology
	<b>O. <u>SU-503E</u></b>	E	B.Sc. (Honours with Research) in Information Technology
2	<b>Eligibility</b> <b>O. <u>SU-504A</u></b>	A	10+2 (A learner must have completed HSC or equivalent with 45% of aggregate for open category and 40% of aggregate in case of reserved candidates in one attempt with Mathematics and/or Statistics as one of the subjects <b>(OR)</b> Passed Equivalent Academic Level 4.0 with CGPA equivalent to 45% for open category and 40% in case of reserved candidates with Mathematics and/or Statistics as one of the subjects
	<b>O. <u>SU-504B</u></b>	B	Under Graduate Certificate in Information Technology Academic Level 4.5
	<b>O. <u>SU-504C</u></b>	C	Under Graduate Diploma in Information Technology Academic Level 5.0
	<b>O. <u>SU-504D</u></b>	D	Bachelors of Science in Information Technology with minimum CGPA of 7.5 Academic Level 5.5
	<b>O. <u>SU-504E</u></b>	E	Bachelors of Science in Information Technology with minimum CGPA of 7.5 Academic Level 5.5

3	<b>Duration of program</b> R. <u>SU-506</u>	A	One Year
		B	Two Years
		C	Three years
		D	Four years
		E	Four years
4	<b>Intake Capacity</b> R. <u>SU-507</u>		
5	<b>Scheme of Examination</b> R. <u>SU-508</u>	NEP 40% Internal 60% External, Semester End Examination Individual Passing in Internal and External Examination	
6	<b>Standards of Passing</b> R. <u>SU-509</u>	40% in each component	
7	<b>Sem. I &amp; II Credit Structure</b> R: <u>SU-510A</u> R: <u>SU-510B</u> <b>Sem. III &amp; IV Credit Structure</b> R: <u>SU-510C</u> R: <u>SU-510D</u> <b>Sem. V &amp; VI Credit Structure</b> R: <u>SU-510E</u> R: <u>SU-510F</u>	Attached herewith	
8	<b>Semesters</b>	A	Sem I & II
		B	Sem I, II, III & IV
		C	Sem I, II, III, IV, V & VI
		D	Sem I, II, III, IV, V, VI, VII & VIII
		E	Sem I, II, III, IV, V, VI, VII & VIII
9	<b>Program Academic Level</b>	A	4.5
		B	5.0
		C	5.5
		D	6.0
		E	6.0
10	<b>Pattern</b>	Semester	
11	<b>Status</b>	New	
12	<b>To be implemented from Academic Year Progressively</b>	From Academic Year: 2023-24	

**Sign of Chairperson**  
Dr. Mrs. R.  
Srivaramangai  
Ad-hoc BoS (IT)

**Sign of the**  
**Offg. Associate Dean**  
Dr. Madhav R. Rajwade  
Faculty of Science &  
Technology

**Sign of Offg. Dean,**  
**Prof. Shivram S. Garje**  
Faculty of Science &  
Technology

## Preamble

### 1) Introduction

Information technology (IT) continues to be a dynamic and rapidly evolving field with high demand for skilled professionals. The demand for IT workers is driven by various factors, and the landscape may have evolved over a period of time. NEP envisages the multidisciplinary approach thus making IT much more applicable in all fields of life. This facilitates multi-institutional mobility of the students within India as well as abroad thus making the students attain different proficiency levels right from certificate to B.Sc Honours with Research. This new syllabus under NEP will thus enables the students for higher education, research and career in the field of IT

### 2) Aims and Objectives

The aims and objectives of a Bachelor of Science (B.Sc) program in Information Technology (IT) generally revolve around providing students with a comprehensive understanding of the principles, technologies, and applications within the field of information technology. The entire program collectively aim to produce graduates who are well-rounded IT professionals, capable of contributing to the design, development, and management of information technology systems in various industries. The specific details of the curriculum may vary among institutions offering B.Sc in Information Technology programs.

### 3) Learning Outcomes

The B. Sc. (Information Technology) Programme shall prepare and enable the graduates to:

- ✓ Demonstrate proficiency in programming languages, Data structures, Design and implement software solutions with their technical competence
- ✓ Analyze user requirements and design effective IT systems or applications.
- ✓ Apply system analysis and design methodologies to address complex business challenges.
- ✓ Acquire the skills of Database Management, Networking and Security, Web Technologies
- ✓ Plan, execute, monitor, and control IT projects.
- ✓ Analyze and solve complex IT problems using critical thinking skills.
- ✓ Apply concepts of artificial intelligence, machine learning, cloud computing, and IoT
- ✓ Effectively communicate technical information both orally and in writing.

### 4) Any other point (if any)

## PROGRAMME SPECIFIC OUTCOMES (PSO)

On completing the B. Sc.(Information Technology) at the University of Mumbai, the graduates shall be able to

- Technical Proficiency:
  - Demonstrate a comprehensive understanding of fundamental concepts, principles, and technologies in information technology.
  - Apply programming and software development skills to design and implement IT solutions.
- System Thinking and Analysis:
  - Apply system analysis and design methodologies to analyze and address

- complex problems.
- Design and develop IT systems that meet user requirements and organizational needs.
- Database Management:
  - Design, implement, and manage relational databases to store and retrieve information effectively.
  - Demonstrate proficiency in using database management systems and querying languages.
- Networking and Security:
  - Understand and implement computer networks, protocols, and security measures.
  - Evaluate and implement security solutions to protect information systems.
- Web Technologies:
  - Develop web applications using a variety of technologies and programming languages.
  - Design and create user interfaces that adhere to web design principles.
- Project Management:
  - Apply project management principles to plan, execute, and deliver IT projects.
  - Demonstrate the ability to work effectively within project teams.
- Emerging Technologies:
  - Stay informed about and adapt to emerging technologies in the IT field.
  - Apply concepts of artificial intelligence, machine learning, cloud computing, and IoT to solve real-world problems.
- Critical Thinking and Problem-Solving:
  - Analyze and solve complex IT problems using critical thinking skills.
  - Apply problem-solving strategies to troubleshoot and resolve technical issues.
- Communication Skills:
  - Effectively communicate technical information to diverse audiences, both orally and in writing.
  - Collaborate with team members and stakeholders to achieve common goals.
- Ethics and Professionalism:
  - Demonstrate ethical behavior and professionalism in all aspects of the IT profession.
  - Adhere to ethical standards and legal considerations related to information technology.

**5) Credit Structure of the Program (Sem I, II, III, IV, V and VI)  
Under Graduate Certificate in Information Technology**

**(Credit Structure Sem I & II)**

R: _____ A										
Level	Sem ester	Major		Minor	OE	VSC, SEC (VSEC)	AEC, VEC, IKS	OJT, FP, CEP, CC, RP	Cum. Cr. / Sem.	Degree/ Cum. Cr.
		Mandatory	Electives							
	I	6		-	2+2	VSC:2, SEC:2	AEC:2, VEC:2, IKS:2	CC:2	22	UG Certificate 44
		<ul style="list-style-type: none"> <li>• Programming with C - 02</li> <li>• Database Management Systems - 02</li> <li>• Practical I - 02</li> </ul>				<b>VSC :</b> Combinational and Sequential Design-02  <b>SEC – 02</b> Office Tools for Data Management <b>OR</b> Fundamentals of Telecommunication Systems				
R: _____ B										
	II	6		2	2+2	VSC:2, SEC:2	AEC:2,VEC:2	CC:2	22	
		<ul style="list-style-type: none"> <li>• OOPs with C++ - 02</li> <li>• Web Designing - 02</li> <li>• Practical II - 02</li> </ul>				<ul style="list-style-type: none"> <li>• VSC : Assembly Language Programming – 02</li> <li>• SEC: 02                             <ul style="list-style-type: none"> <li>• Web Programming</li> <li><b>OR</b></li> <li>• PL/SQL</li> </ul> </li> </ul>				
	Cum Cr.	12	-	2	8	8	10	4	44	
Exit option: Award of UG Certificate in Major with 40-44 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor										

## Under Graduate Diploma in Information Technology

### Credit Structure (Sem. III & IV)

R: _____ C										
Level	Semester	Major		Minor	OE	VSC, SEC (VSEC)	AEC, VEC, IKS	OJT, FP, CEP, CC, RP	Cum. Cr. / Sem	Degree/ Cum. Cr.
		Mandatory	Electives							
	III	8		4	2	VSC:2	AEC:2,	FP :2 CC:2	22	<b>UG Diploma 88</b>
		<ul style="list-style-type: none"> <li>• Python Programming -02</li> <li>• Python Programming Practical-02</li> <li>• Data Structures-02</li> <li>• Data Structures Practical-02</li> </ul>				VSC : Operating Systems-02				
R: _____ D										
	IV	6		4	2	SEC:2	AEC: 2	CEP : 2 CC: 2	22	
		<ul style="list-style-type: none"> <li>• Core Java - 02</li> <li>• Core Java Practical-02</li> <li>• Software Engineering-02</li> <li>• Software Engineering Practical-02</li> </ul>				<ul style="list-style-type: none"> <li>• Computer Graphics and Animation -02</li> <li><b>OR</b></li> <li>• Mojo-02</li> <li><b>OR</b></li> <li>• Mobile Programming-02</li> </ul>				
	<b>Cum Cr.</b>	28		10	12	12	14	12	88	

**Exit option; Award of UG Diploma in Major and Minor with 80-88 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor**

## B.Sc. (Information Technology)

### Credit Structure (Sem. V & VI)

R: _____ E										
Level	Semester	Major		Minor	OE	VSC, SEC (VSEC)	AEC, VEC, IKS	OJT, FP, CEP, CC, RP	Cum. Cr. / Sem.	Degree/ Cum. Cr.
		Mandatory	Electives							
	<b>V</b>	<b>10</b>	<b>4</b>	<b>4</b>		<b>VSC: 2</b>		<b>FP/CEP:2</b>	<b>22</b>	<b>UG Degree 132</b>
		<ul style="list-style-type: none"> <li>• Advanced Web Programming-02</li> <li>• Advanced Web Programming Practical-02</li> <li>• Business Intelligence-02</li> <li>• Business Intelligence Practical-02</li> <li>• Software Project Management-02</li> </ul>	<ul style="list-style-type: none"> <li>• Linux Administration -02</li> <li>• Linux Administration Practical-02</li> <li>OR</li> <li>• EARN-02</li> <li>• EARN Practical-02</li> <li>OR</li> <li>• Enterprise Java-02</li> <li>• Enterprise Java Practical-02</li> </ul>			<ul style="list-style-type: none"> <li>• Advanced Mobile Programming-02</li> </ul>		FP: Project Dissertation-02	22	
R: _____ F										
	<b>VI</b>	<b>10</b>	<b>4</b>	<b>4</b>				<b>OJT:4</b>	<b>22</b>	
		<ul style="list-style-type: none"> <li>• Security in Computing -02</li> <li>• Security in Computing Practical-02</li> <li>• AI and ML-02</li> <li>• AI and ML Practical-02</li> <li>• Software Quality Assurance-02</li> </ul>	<ul style="list-style-type: none"> <li>• Enterprise Networking-02</li> <li>• Enterprise Networking Practical-02</li> <li>OR</li> <li>• Principles of GIS-02</li> <li>• Principles of GIS Practical-02</li> </ul>					<ul style="list-style-type: none"> <li>• OJT: Project Implementation-04</li> </ul>		
	<b>Cum Cr.</b>	<b>48</b>	<b>8</b>	<b>18</b>	<b>12</b>	<b>14</b>	<b>14</b>	<b>18</b>	<b>132</b>	

**Exit option: Award of UG Degree in Major with 132 credits OR Continue with Major and Minor**

[Abbreviation - OE – Open Electives, VSC – Vocation Skill Course, SEC – Skill Enhancement Course, (VSEC), AEC – Ability Enhancement Course, VEC – Value Education Course, IKS – Indian Knowledge System, OJT – on Job Training, FP – Field Project, CEP – Continuing Education Program, CC – Co-Curricular, RP – Research Project ]

# **SEMESTER I**

**Syllabus**  
**B.Sc. (Information Technology)**  
**(Sem.- I)**

## Major Courses

### Name of the Course: Programming with C

Sr.No	Heading	Particulars
1	<b>Description the course : Including but Not limited to:</b>	This course allows the students to understand the fundamental concepts of programming which will allow them to program applications in C.
2	<b>Vertical :</b>	Major
3	<b>Type :</b>	Theory
4	<b>Credits :</b>	2 credits (1 credit = 15 Hours for Theory in a semester)
5	<b>Hours Allotted :</b>	30 Hours
6	<b>Marks Allotted:</b>	50 Marks
7	<b>Course Objectives(CO):</b> CO 1. To understand the concepts of computer programming. CO 2. To understand syntax and semantics of the C language CO 3. To understand loops and decision making in programming. CO 4. To understand the use of arrays, structures, union and pointers. CO 5. To understand functions for modular code and handle errors.	
8	<b>Course Outcomes (OC):</b> OC 1. Students can build flowcharts, pseudocode for C programs. OC 2. Students can use C language syntax and semantics in their programs. OC 3. Students can implement loops and decision making. OC 4. Students can use different types of data structures in their programs. OC 5. Students can write well-structured, readable, and maintainable C code and debug programs if there are any errors.	
9	<b>Modules:-</b> <b>Module 1:</b>	<b>15 Hrs</b>
	<b>1. Introduction:</b> Algorithms, History of C, Structure of C Program. Program Characteristics, Compiler, Linker and preprocessor, pseudo code statements and flowchart symbols, Desirable program characteristics. Program structure. Compilation and Execution of a Program, C Character Set, identifiers and keywords, data types and sizes, constants and its types, variables, Character and character strings, typedef, typecasting <b>2. Type of operators:</b> Arithmetic operators, relational and logical operators, Increment and Decrement operators, assignment operators, the conditional operator, Assignment operators and expression, Precedence and order of Evaluation Block Structure, Initialization, C Preprocessor <b>Module 2:</b>	

	<ol style="list-style-type: none"> <li>1. Control Flow: Statements and Blocks, If-Else, Else-If, Switch, Loops- While and For Loops Do-while, Break and Continue, Goto and Labels</li> <li>2. Basics of functions. User defined and Library functions</li> <li>3. Pointer and Addresses, Pointer and Function Arguments, Pointer and Arrays.</li> <li>4. User-defined data types- structure and union</li> </ol>	<b>15 Hrs</b>
<b>10</b>	<b>Books and References:</b> <ol style="list-style-type: none"> <li>1. C Programming Language, Brian W. Kernighan, Dennis M. Ritchie , 2017</li> <li>2. Let Us C, Yashvant Kanetkar, BPB Publications,2008.</li> <li>3. Mastering in C, K. R. Venugopal and Sudeep R. Prasad, Tata McGraw-Hill Publications.</li> <li>4. A Computer Science -Structure Programming Approaches using C, Behrouz Forouzan, Cengage Learning.</li> <li>5. . Schaum's outlines Programming with C, Byron S. Gottfried, Tata McGraw- Hill Publications.</li> <li>6. Basics of Computer Science, by Behrouz Forouzan, Cengage Learning.</li> <li>7. Programming Techniques through C, by M. G. Venkateshmurthy, Pearson Publication.</li> </ol>	
<b>12</b>	<b>Internal Continuous Assessment: 40%</b>	<b>Semester End Examination: 60%</b>
<b>13</b>	<b>Continuous Evaluation through:</b> Class test of 1 of 15 marks Class test of 2 of 15 marks Average of the two: 15 marks  Quizzes/ Presentations/ Assignments: 5 marks Total: 20 marks	<b>Format of Question Paper: External Examination (30 Marks)– 1 hr duration</b>
<b>14</b>	<b>Format of Question Paper: (Semester End Examination : 30 Marks. Duration:1 hour)</b> Q1: Attempt any two (out of four) from Module 1 (15 marks) Q2: Attempt any two (out of four) from Module 2 (15 marks)	

## Name of the Course: Database Management System

Sr.No	Heading	Particulars		
1	<b>Description the course : Including but Not limited to:</b>	The objective of the course is to present an introduction to fundamentals of database management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively -information from a DBMS.		
2	<b>Vertical :</b>	Major		
3	<b>Type :</b>	Theory		
4	<b>Credits:</b>	2 credits ( 1 credit = 15 Hours for Theory)		
5	<b>Hours Allotted :</b>	30 Hours		
6	<b>Marks Allotted:</b>	50 Marks		
7	<b>Course Objectives(CO):</b>	<p>CO 1. To make students aware fundamentals of database system.</p> <p>CO 2. To give idea how ERD components helpful in database design and implementation.</p> <p>CO 3. To experience the students working with database using MySQL.</p> <p>CO 4. To familiarize the student with normalization, database protection and different DDL, DML, DQL, DCL Statements</p> <p>CO 5. To make students aware about importance of protecting data from unauthorized users.</p>		
8	<b>Course Outcomes (OC):</b>	<p>OC 1. Define and describe the fundamental elements of relational database management system.</p> <p>OC 2. To relate the basic concepts of relational data model, entity-relationship model, relational database</p> <p>OC 3. Design ER-models to represent simple database application scenarios.</p> <p>OC 4. Understand the normalization and its role in the database design process</p> <p>OC 5. Transform the ER-model to relational tables, populate relational database and formulate SQL</p> <p>OC 6. Understand basic database storage structures and access techniques: file and page organizations, indexing methods and hashing.</p>		
9	<b>Modules:- Module 1:</b>	<table border="1"> <tr> <td> <p><b>1. Introduction to Databases and transactions</b> What is database system, purpose of database system, view of data, relational databases, database architecture, transaction management</p> <p><b>2. Data Models</b> The importance of data models, Basic building blocks, Business rules, The evolution of data models, Degrees of data abstraction</p> <p><b>3. Database Design, ER-Diagram</b> Database design and ER Model: overview, ER-Model, Constraints, ER-Diagrams, ERD Issues, Codd's rules, Relational Schemas</p> <p><b>4. Relational database model</b> Logical view of data, keys, integrity rules</p> </td> <td style="text-align: center; vertical-align: middle;"><b>15 Hrs</b></td> </tr> </table>	<p><b>1. Introduction to Databases and transactions</b> What is database system, purpose of database system, view of data, relational databases, database architecture, transaction management</p> <p><b>2. Data Models</b> The importance of data models, Basic building blocks, Business rules, The evolution of data models, Degrees of data abstraction</p> <p><b>3. Database Design, ER-Diagram</b> Database design and ER Model: overview, ER-Model, Constraints, ER-Diagrams, ERD Issues, Codd's rules, Relational Schemas</p> <p><b>4. Relational database model</b> Logical view of data, keys, integrity rules</p>	<b>15 Hrs</b>
<p><b>1. Introduction to Databases and transactions</b> What is database system, purpose of database system, view of data, relational databases, database architecture, transaction management</p> <p><b>2. Data Models</b> The importance of data models, Basic building blocks, Business rules, The evolution of data models, Degrees of data abstraction</p> <p><b>3. Database Design, ER-Diagram</b> Database design and ER Model: overview, ER-Model, Constraints, ER-Diagrams, ERD Issues, Codd's rules, Relational Schemas</p> <p><b>4. Relational database model</b> Logical view of data, keys, integrity rules</p>	<b>15 Hrs</b>			

	<b>Module 2:</b>	
	<b>1. Database Design theory and normalization:</b> Basics of functional dependencies and normalization for relational databases. Relational database design and further dependencies.	<b>. 15 Hrs</b>
	<b>2. SQL, Indexing:</b> Introduction to SQL, Complex queries, triggers, views, joining database tables and schema modification. Query Processing and optimization. File structure, hashing and indexing	
	<b>3. Transaction management and concurrency control and recovery:</b> Introduction to transaction processing concepts and theory. Concurrency control technique. Database recovery technique	
<b>10</b>	<b>Text Books</b>	
	1. "Fundamentals of Database System", Elmasri Ramez, Navathe Shamkant, Pearson Education, Seventh edition, 2017 2. Database Management Systems", Raghu Ramakrishnan and Johannes Gehrke, 3rd Edition, 2014 3. Database Systems: Design implementation and management by Carlos Coronel, Steven Morris, Peter Rob	
<b>11</b>	<b>Reference Books</b>	
	1. "Database System Concepts", Abraham Silberschatz, Henry F. Korth, S. Sudarshan, McGraw Hill, 2017 2. "MySQL: The Complete Reference", Vikram Vaswani , McGraw Hill, 2017 3. "Learn SQL with MySQL: Retrieve and Manipulate Data Using SQL Commands with Ease", Ashwin Pajankar, BPB Publications, 2020	
<b>12</b>	<b>Internal Continuous Assessment: 40%</b>	<b>Semester End Examination: 60%</b>
<b>13</b>	<b>Continuous Evaluation through:</b> Class test of 1 of 15 marks Class test of 2 of 15 marks Average of the two: 15 marks  Quizzes/ Presentations/ Assignments: 5 marks Total: 20 marks	<b>Format of Question Paper: External Examination (30 Marks)– 1 hr duration</b>
<b>14</b>	<b>Format of Question Paper: (Semester End Examination : 30 Marks. Duration:1 hour)</b> Q1: Attempt any two (out of four) from Module 1 (15 marks) Q2: Attempt any two (out of four) from Module 2 (15 marks)	

**Name of the Course: Major Practical 1**

Sr.No	Heading	Particulars
1	<b>Description the course : Including but Not limited to:</b>	<u>Programming with C -practical</u> This course is stepping stone to learn other languages. This course provides students hands on experiences of coding exercises and projects.  <u>Database Management System's</u> practical approach is useful to gain the knowledge for software backend development. It benefits to user by providing data definition, data access, reduced data redundancy, data integrity, data sharing, data organizing, data consistency, data accuracy, and security
2	<b>Vertical :</b>	Major
3	<b>Type :</b>	Practical
4	<b>Credits :</b>	2 credits (60 Hours of Practical work in a semester )
5	<b>Hours Allotted :</b>	30 Hours (C Programming Practical) + 30 Hours(DBMS - Practical)
6	<b>Marks Allotted:</b>	50 Marks
7	<b>Course Objectives(CO):</b>	<p>CO 1. To provide exposure in developing algorithm, flowchart and to write efficient code.</p> <p>CO 2. To understand loops and decision making in programming.</p> <p>CO 3. To understand the arrays, structures, union.</p> <p>CO 4. To understand the use of function and pointers.</p> <p>CO 5. To Identify entities and its relationship with relational model structure.</p> <p>CO 6. To understand relational database using SQL and constraints implementation using create table queries.</p> <p>CO 7. To Understand DML operations and backing of database</p> <p>CO 8. To understand how to retrieve data from database and learn how to retrieve single value after performing calculations on group of values</p> <p>CO 9. To understand built-in functions to perform operations on data</p> <p>CO 10. To understand how to fetch data from two or more tables, which is joined to appear as single set of data</p> <p>CO 11. To understand nested and larger query as advanced fetching of data to understand concept of virtual table.</p> <p>CO 12. To understand how to control user access in a database.</p>

**8**

**Course Outcomes (OC):**

- OC 1. Students can demonstrate the concepts of datatypes, variables and operators in C.
- OC 2. Students can implement the concept of control statements and looping in C program.
- OC 3. Students can demonstrate the use of arrays, strings and structures in C
- OC 4. Students can implement modular C program using functions and pointers.
- OC 5. Students can demonstrate the use of arrays, strings and structures in C.
- OC 6. Students able to perform various operations such as insert, update delete and retrieve data from database using SQL queries.
- OC 7. Students able to perform alteration in tables and can restore and take backup of the database.
- OC 8. Students able to perform operations using simple SQL Queries to fetch data and learns various aggregate functions to get single value.
- OC 9. Students able to perform SQL Queries using JOIN keyword for joining two or more tables.
- OC 10. Students able to perform nested queries using in, exists operators.
- OC 11. Students able to create new table by joining one or more tables and learn how to hide attribute from end user.
- OC 12. Students able to restrict the user from accessing data in database.
- OC 13. Students should be able to create, manipulate the database management system to evaluate the business information problem.

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**Module 1:- Programming with C**

**1. Practical 1:-**

- a. To calculate simple interest taking principal, rate of interest and number of years as input from user. Write algorithm & draw flowchart for the same.
- b. Write a program to find greatest of three numbers using conditional operator. Write algorithm & draw flowchart for the same.
- c. Write a program to check if the year entered is leap year or not. Write algorithm & draw flowchart for the same.

**2. Practical 2:-**

- a. Write a program to calculate roots of a quadratic equation.
- b. Write a menu driven program using switch case to perform add / subtract / multiply / divide based on the users choice.
- c. Write a program to print the pattern of asterisks.

**3. Practical 3**

- a. Write a program using while loop to reverse the digits of a number.
- b. Write a program to calculate the factorial of a given number.
- c. Write a program to print the Fibonacci series.

**4. Practical 4**

- a. Write a program to print area of square using function.
- b. Write a program using recursive function.
- c. Write a program to square root, abs() value using function.
- d. Write a program using goto statement .

**5. Practical 5**

- a. Write a program to print rollno and names of 10 students using array.
- b. Write a program to sort the elements of array in ascending or descending order

**6. Practical 6**

- a. Write a program to extract the portion of a character string and print the extracted part.
- b. Write a program to find the given string is palindrome or not.
- c. Write a program to using strlen(), strcmp() function .

**7. Practical 7**

Write a program to swap two numbers using a function. Pass the values to be swapped to this function using call-by-value method and call-by-reference method.

**8. Practical 8**

- a. Write a program to read a matrix of size m\*n.
- b. Write a program to multiply two matrices using a function.

**9. Practical 9**

Write a program to print the structure using

Title  
Author  
Subject  
Book ID

Print the details of two students.

**10. Practical 10**

Create a mini project on “Bank management system”. The program should be menu driven.

30 Hrs

	<p><b>Module 2</b></p> <ol style="list-style-type: none"> <li>1. Conceptual Designing using ER Diagrams (Identifying entities, attributes, keys and relationships between entities, cardinalities, generalization, specialization etc.)</li> <li>2. Perform the following: <ul style="list-style-type: none"> <li>• Viewing all databases</li> <li>• Creating a Database</li> <li>• Viewing all Tables in a Database</li> <li>• Creating Tables (With and Without Constraints)</li> <li>• Inserting/Updating/Deleting Records in a Table</li> </ul> </li> <li>3. Perform the following: <ul style="list-style-type: none"> <li>• Altering a Table</li> <li>• Dropping/Truncating/Renaming Tables</li> <li>• Backing up / Restoring a Database</li> </ul> </li> <li>4. Perform the following: <ul style="list-style-type: none"> <li>• Simple Queries</li> <li>• Simple Queries with Aggregate functions</li> </ul> </li> <li>5. Queries involving <ul style="list-style-type: none"> <li>• Date Functions</li> <li>• String Functions</li> <li>• Math Functions</li> </ul> </li> <li>6. Join Queries <ul style="list-style-type: none"> <li>• Inner Join</li> <li>• Outer Join</li> </ul> </li> <li>7. Subqueries <ul style="list-style-type: none"> <li>• With IN clause</li> <li>• With EXISTS clause</li> </ul> </li> <li>8. Converting ER Model to Relational Model and apply Normalization on database. (Represent entities and relationships in Tabular form, Represent attributes as columns, identifying keys and normalization up to 3rd Normal Form).</li> <li>9. Views <ul style="list-style-type: none"> <li>• Creating Views (with and without check option)</li> <li>• Dropping views</li> <li>• Selecting from a view</li> </ul> </li> <li>10. DCL statements <ul style="list-style-type: none"> <li>• Granting and revoking permissions</li> <li>• Saving (Commit) and Undoing (rollback)</li> </ul> </li> </ol>	<p><b>30 Hrs</b></p>
<p><b>10</b></p>	<p><b>Text Books:</b></p> <ol style="list-style-type: none"> <li>1. "Fundamentals of Database System", Elmasri Ramez, Navathe Shamkant, Pearson Education, Seventh edition, 2017 .</li> <li>2. Database Management Systems", Raghu Ramakrishnan and Johannes Gehrke, 3rd Edition, 2014</li> </ol>	
<p><b>11</b></p>	<p><b>Reference Books:</b></p> <ol style="list-style-type: none"> <li>1. MASTERING C, K. R. Venugopal and Sudeep R. Prasad, Tata McGraw-Hill Publications.</li> <li>2. "A Computer Science -Structure Programming Approaches using C", Behrouz</li> </ol>	

	<p>Forouzan, Cengage Learning.</p> <p>3. Schaum's outlines "Programming with C", Byron S. Gottfried, Tata McGraw-Hill Publications.</p> <p>4. "Basics of Computer Science", Behrouz Forouzan , Cengage Learning.</p> <p>5. "Programming Techniques through C", M. G. Venkateshmurthy, Pearson Publication.</p> <p>6. "Programming in ANSI C", E. Balaguruswamy, Tata McGraw-Hill Education.</p> <p>7. "MySQL: The Complete Reference", Vikram Vaswani , McGraw Hill, 2017.</p> <p>8. "Learn SQL with MySQL: Retrieve and Manipulate Data Using SQL Commands with Ease", Ashwin Pajankar, BPB Publications, 2020.</p>	
<b>12</b>	<p><b>Internal Continuous Assessment: 40%</b></p>	<p><b>Semester End Examination: 60%</b></p>
<b>13</b>	<p><b>Continuous Evaluation through:</b>  Students are expected to attend each practical and submit the written practical of the previous session. Performing Practical and writeup submission will be continuous internal evaluation. 2.5 marks can be awarded for each practical performance and writeup submission totalling to 50 marks and can be converted to 20 marks.</p>	<p>30 marks practical exam of 2 hours duration</p>
<b>14</b>	<p><b>Format of Question Paper: Duration 2 hours. Certified copy of Journal is compulsory to appear for the practical examination</b>  Practical Slip:  Q1. From Module 1 13 marks  Q2. From Module 2 12marks  Q3. Journal and Viva 05 marks</p>	

## Vocational Skill Course (VSC)

Name of the course: **Combinational and Sequential Design**

Sr.No	Heading	Particulars
1	<b>Description the course : Including but Not limited to:</b>	<p>Combinational and Sequential Design is a course that focuses on digital electronics and the design of circuits that combine multiple digital components. The course covers the theoretical and practical aspects of both combinational and sequential circuit design, as well as their applications.</p> <p>Digital circuits are used in many electronic devices, including computers, smartphones, and communication systems. The design of these circuits is critical to the performance and functionality of these devices. Understanding the basics of combinational and sequential design is essential for anyone interested in pursuing a career in the field of digital electronics.</p> <p>The course will cover the various techniques and tools used in digital circuit design, including Boolean algebra and K-map simplification.</p> <p>The course is highly relevant in today's technological landscape, as all modern electronics devices are based on digital circuits. The skills learned in the course are highly useful in various fields, such as computer and electronics engineering, telecommunications, and robotics.</p> <p>The application of combinational and sequential design is quite broad, and the skills acquired from the course can be applied in various areas. Students will be able to design digital circuits, troubleshoot and repair digital circuits, and optimize circuit performance.</p> <p>The course is highly interesting and engaging, providing students with the opportunity to explore and analyze complex digital circuitry. It is also connected to other courses such as Digital Logic Design, Computer Organization, and Microcontrollers.</p> <p>The demand for professionals with digital circuit design skills is high in various industries such as electronics, semiconductors, telecommunications, and computing. There is an increasing demand for professionals with these skills,</p>

and job prospects are promising for those with a solid background in digital circuit design.

In summary, Combinational and Sequential Design is a course that offers students a comprehensive understanding of digital circuits' design principles and techniques. The knowledge and skills gained from this course are highly useful and applicable in various industries, with promising career prospects.

<b>2</b>	<b>Vertical :</b>	Vocational Skill Course(VSC)
<b>3</b>	<b>Type :</b>	Practical
<b>4</b>	<b>Credits :</b>	2 credits (60 hours in a semester)
<b>5</b>	<b>Hours Allotted :</b>	60 Hours
<b>6</b>	<b>Marks Allotted:</b>	50 Marks
<b>7</b>	<b>Course Objectives(CO):</b>	<p>CO 1.To provide students with a comprehensive understanding of combinational and sequential circuit design principles and techniques.</p> <p>CO 2.To enable students to apply Boolean algebra, K-map simplification, and other design techniques to create optimized digital circuits.</p> <p>CO 3.To equip students with the necessary tools and skills to implement arithmetic circuits, data path circuits, and memory circuits.</p> <p>CO 4.To enable students to analyze and troubleshoot digital circuits to ensure optimal performance.</p> <p>CO 5.To provide students with hands-on practical experience in designing and implementing digital circuits using simulation software and real-world hardware.</p>
<b>8</b>	<b>Course Outcomes (OC):</b>	<p>OC 1. Students can explain the differences between combinational and sequential circuits, and identify their different applications.</p> <p>OC 2. Students can define the concept of Boolean algebra and its importance in digital circuit design.</p> <p>OC 3. Students can explain and apply the principles of K-map simplification and other design techniques.</p> <p>OC 4. Students can design and construct combinational circuits using Boolean algebra and K-maps.</p> <p>OC 5. Students can design and implement arithmetic circuits such as adders, subtractors, and multipliers.</p> <p>OC 6. Students can design and implement data path circuits such as registers, multiplexers, and decoders.</p> <p>OC 7. Students can implement digital circuits using breadboards, logic probes, and oscilloscopes.</p> <p>OC 8. Students can troubleshoot and verify the correctness of digital circuits using real-world hardware and measure their performance using various metrics.</p>
<b>9</b>	<b>Modules:- Module 1:</b>	

	<p><b>1. Study of Logic gates and their ICs and universal gates:</b></p> <p>a. Study of AND, OR, NOT, XOR, XNOR, NAND and NOR gates</p> <p>b. Study of IC 7400, 7402, 7404, 7408, 7432, 7486, 74266</p> <p>c. Implement AND, OR, NOT, XOR, XNOR using NAND gates.</p> <p>d. Implement AND, OR, NOT, XOR, XNOR using NOR gates.</p> <p><b>2. Implement the given Boolean expressions using minimum number of gates.</b></p> <p>a. Verifying De Morgan's laws.</p> <p>b. Implement other given expressions using minimum number of gates.</p> <p>c. Implement other given expressions using minimum number of ICs.</p> <p><b>3. Implement combinational circuits.</b></p> <p>a. Design and implement combinational circuit based on the problem given and minimizing using K-maps. (Various Equations, SOP, POS forms can be given)</p> <p><b>4. Implement code converters.</b></p> <p>a. Design and implement Binary - to - Gray code converter.</p> <p>b. Design and implement Gray - to - Binary code converter.</p> <p>c. Design and implement Binary - to - BCD code converter.</p> <p>d. Design and implement Binary - to - XS-3 code converter.</p> <p><b>5. Implement Adder and Subtractor Arithmetic circuits.</b></p> <p>a. Design and implement Half adder and Full adder.</p> <p>b. Design and implement BCD adder.</p> <p>c. Design and implement XS - 3 adder.</p> <p>d. Design and implement binary subtractor.</p> <p>e. Design and implement BCD subtractor.</p> <p>b. Design and implement XS - 3 subtractor.</p>	<p><b>30 Hrs</b></p>
<p><b>Module 2:</b></p>		
	<p><b>6. Implement Arithmetic circuits.</b></p> <p>a. Design and implement a 2-bit by 2-bit multiplier.</p> <p>b. Design and implement a 2-bit comparator.</p> <p><b>7. Implement Encode and Decoder and Multiplexer and Demultiplexers.</b></p> <p>a. Design and implement 8:3 encoder.</p> <p>b. Design and implement 3:8 decoder.</p> <p>c. Design and implement 4:1 multiplexer. Study of IC 74153, 74157</p> <p>d. Design and implement 1:4 demultiplexer. Study of IC 74139</p> <p>e. Implement the given expression using IC 74151 8:1 multiplexer.</p> <p>f. Implement the given expression using IC 74138 3:8 decoder.</p> <p><b>8. Study of flip-flops and counters.</b></p> <p>a. Study of flip-flops and counters.</p> <p>b. Study of IC 7473.</p> <p>c. Study of IC 7474.</p> <p>d. Study of IC 7476.</p> <p>e. Conversion of Flip-flops.</p>	<p><b>30 Hrs</b></p>

	<p>f. Design of 3-bit synchronous counter using 7473 and required gates.</p> <p>g. Design of 3-bit ripple counter using IC 7473.</p> <p><b>9. Study of counter ICs and designing Mod-N counters.</b></p> <p>a. Study of IC 7490, 7492, 7493 and designing mod-n counters using these.</p> <p>b. Designing mod-n counters using IC 7473 and 7400 (NAND gates)</p> <p><b>10. Design of shift registers and shift register counters.</b></p> <p>a. Design serial - in serial - out, serial - in parallel - out, parallel - in serial - out, parallel - in parallel - out and bidirectional shift registers using IC 7474.</p> <p>b. Study of ID 7495.</p> <p>c. Implementation of digits using seven segment displays.</p>	
<b>10</b>	<b>Text Books</b>	
	1. Digital Electronics and Logic Design, N. G. Palan, Technova	
<b>11</b>	<b>Reference Books</b>	
	1. Digital Principles and Applications, Malvino and Leach, Tata McGrawHill	
	2. Modern Digital Electronics, R. P. Jain, Tata McGrawHill	
	3. Digital Design, M. Morris R. Mano, Michael D. Ciletti, Pearson Education, 2012	
<b>12</b>	<b>Internal Continuous Assessment: 40%</b>	<b>Semester End Examination: 60%</b>
<b>13</b>	<p><b>Continuous Evaluation through:</b></p> <p>Students are expected to attend each practical and submit the written practical of the previous session. Performing Practical and writeup submission will be continuous internal evaluation. 2.5 marks can be awarded for each practical performance and writeup submission totalling to 50 marks and can be converted to 20 marks.</p>	30 marks practical exam of 2 hours duration
<b>14</b>	<p><b>Format of Question Paper: Duration 2 hours. Certified copy of Journal is compulsory to appear for the practical examination</b></p> <p>Practical Slip:</p> <p>Q1. From Module 1 13 marks</p> <p>Q2. From Module 2 12marks</p> <p>Q3. Journal and Viva 05 marks</p>	

## Skill Enhancement Course (SEC)

Name of the Course: Office Tools for Data Management

Sr.No.	Heading	Particulars
1	Description the course:	<ul style="list-style-type: none"><li>• <b>Introduction:</b> The MS Access course offers a comprehensive understanding of Microsoft's relational database management system, making it a valuable skill in today's data-driven environment. This course is designed to empower individuals with the tools needed to efficiently organize, manage, and analyse data.</li><li>• <b>Relevance and Usefulness:</b> It provides practical insights into leveraging a relational database system for enhanced efficiency and organization. The MS Access course is useful for individuals seeking to enhance their data management skills.</li><li>• <b>Applications:</b> With applications in various sectors, from business to research and project management, MS Access is versatile. It facilitates the creation of databases for tasks ranging from contact management to complex systems for inventory and financial analysis.</li><li>• <b>Interest and Connection with Other Courses:</b> Its practical applications and user-friendly interface make it attractive to individuals looking to boost their data management skills. The MS Access course establishes a practical link with other data-related courses, offering foundational knowledge in database management. It complements courses in data analysis, business intelligence, and information systems.</li><li>• <b>Demand in the Industry:</b> As businesses increasingly rely on data for decision-making, there is a growing demand for professionals skilled in database management. Proficiency in MS Access is particularly sought after in roles involving data organization, analysis, and reporting.</li><li>• <b>Job Prospects:</b> Professionals completing the MS Access course are well-positioned for roles requiring efficient data management and analysis. Job prospects include positions in database administration, data analysis, and business intelligence, where MS Access proficiency is a valuable asset.</li></ul>
2	<b>Vertical :</b>	Skill Enhancement Course(SEC)
3	<b>Type :</b>	Practical
4	<b>Credits :</b>	2 credits
5	<b>Hours Allotted :</b>	60 Hours
6	<b>Marks Allotted:</b>	50 Marks
7	<b>Course Objectives (CO):</b>	

	<p>CO 1. Participants will grasp essential database concepts, including tables, relationships, and normalization principles.</p> <p>CO 2. Participants will design and construct well-organized databases in MS Access, showcasing proficiency in table design and data validation.</p> <p>CO 3. Participants will master the creation of complex queries in MS Access, enabling them to extract specific information efficiently.</p> <p>CO 4. Participants will develop expertise in crafting user-friendly forms and interfaces in MS Access, optimizing data entry processes.</p> <p>CO 5. Participants will generate comprehensive reports in MS Access, demonstrating skills in grouping, sorting, and presenting data for meaningful analysis.</p>	
8	<p><b>Course Outcomes (OC):</b></p> <p>OC 1. Participants can explain normalization importance, identify table relationships, and justify database design choices.</p> <p>OC 2. Participants create well-structured MS Access databases with proper relationships, data types, and normalization.</p> <p>OC 3. Participants execute advanced queries in MS Access, retrieving specific information based on diverse criteria.</p> <p>OC 4. Participants design intuitive MS Access forms, incorporating controls for an efficient and user-friendly data entry experience.</p> <p>OC 5. Participants produce insightful MS Access reports, organizing and presenting data effectively for analysis.</p>	
9	<p><b>Modules:- All Practicals are based on MS Access</b></p> <p><b>Module 1:</b></p> <p><b>Practical 1:</b></p> <p>A. Getting familiar with MS Access Ribbon options.</p> <p>B. With the help of access wizard Create Database. Add 2 Tables. In each table add 5 columns of different data types. Add 10-10 entries in each table. Add necessary integrity constraints.</p> <p>C. Use the Table Wizard to create a table. Add and delete fields in an existing table. Establish an input mask and validation rule for fields within a table. Switch between the Design and Datasheet views of a table.</p> <p><b>Practical 2:</b></p> <p>A. Create and use an Input Mask to enter the data in sample table.</p> <p>B. Adding records in table by using Datasheet View, using a Form and using SQL.</p> <p>C. Create the Employee Database with necessary table and data and then implement the following transitions:</p> <ul style="list-style-type: none"> <li>• Delete the record for Kelly Marder.</li> <li>• Change Pamela Milgrom's salary to \$59,500.</li> <li>• Use the Replace command to change all occurrences of "Manager" to "Supervisor".</li> </ul> <p><b>Practical 3:</b></p> <p>A. Create the Bookstore database with necessary table and data and modify the database to accommodate the following:</p>	<p><b>30 Hrs</b></p>

	<ul style="list-style-type: none"> <li>i. Add the book Exploring Microsoft Office 2000 Vol II (ISBN: 013-011100-7) by Grauer/Barber, published in 1999 by Prentice Hall, selling for \$45.00.</li> <li>ii. Change the price of Memory Management for All of Us to \$29.95.</li> <li>iii. Delete The Presentation Design Book.</li> </ul> <p>B. Create a table employ with (idno, name, job, age, salary). Insert 10 records. Create a query to display the information of all managers. Create a query to display the names of employs who"s salary is &gt;15000.</p> <p>C. Use the Form Wizard to create a form, Move and size controls within a form. Use the completed form to enter data into the associated table.</p> <p><b>Practical 4:</b></p> <ul style="list-style-type: none"> <li>A. Add fields to an existing table. Use the Lookup Wizard to create a combo box. Add controls to an existing form to demonstrate inheritance. Add command buttons to a form.</li> <li>B. Generate and use various the queries using Query Wizards.</li> <li>C. Generate and use various the Query with User Input.</li> <li>D. Demonstrate use of Expression Builder.</li> </ul> <p><b>Practical 5:</b></p> <ul style="list-style-type: none"> <li>A. Use the report wizard to create a new report. Modify an existing report by adding, deleting, and/or modifying its controls.</li> <li>B. Create a query containing a calculated control. Then, create report based on that query. Use the Sorting and Grouping command to add a group header and group footer to a report.</li> <li>C. Use action queries to modify a database. Create a crosstab query to display summarized values from a table.</li> </ul>	
<b>Module 2:</b>		
	<p><b>Practical 6:</b></p> <ul style="list-style-type: none"> <li>A. Create and Open a database with multiple tables; Identify the one-to-many relationships within the database and to produce reports based on those relationships.</li> <li>B. Create and Open a database with multiple tables; Identify the one-to-one relationships within the database and to produce reports based on those relationships.</li> <li>C. Create and Open a database with multiple tables; Identify the Many-to-Many relationships within the database and to produce reports based on those relationships.</li> </ul> <p><b>Practical 7:</b></p> <ul style="list-style-type: none"> <li>A. Demonstrate use of look up tables.</li> <li>B. Use the Report Wizard to create a report having the following requirements: <ul style="list-style-type: none"> <li>i. Select the LastName field from the Author table.</li> <li>ii. Select the Title and Price fields from the Book table.</li> <li>iii. Select the PubName field from the Publisher table.</li> </ul> </li> </ul>	<p><b>30 Hrs</b></p>

- iv. View the data by Publisher.
  - v. Add a grouping level using LastName.
  - vi. Sort the report by the Title field in ascending order.
  - vii. Choose Stepped layout and Portrait orientation.
  - viii. Type Book List as the report's title.
- C. Define the relationship between two tables and add a subform to a form.
- Practical 8:**
- A. Import an Access table from an Excel workbook. Create a one-to-many relationship between tables in a database. Create a multiple-table query.
- B. Import external data from the Excel spreadsheet file Bookstore.
- i. Make sure Import the source data into a new table in the current database is selected.
  - ii. Select the Author worksheet.
  - iii. Make sure that First Row Contains Column Headings is selected.
  - iv. For the AuthorID field, set the Data Type option to Long Integer and set the Indexed option to Yes (No Duplicates).
  - v. Select Choose my own primary key and make sure the AuthorID field is selected.
  - vi. Save the table with the name Author.
- C. Export data from access to various formats.
- Practical 9:**
- A. Relationships: Create and Use Author and Book Table.
- i. Create a relationship between the AuthorID field in the Author table and the AuthorCode field in the Book table. Put a checkmark in the box labeled Enforce Referential Integrity.
  - ii. Create a relationship between the PubID field in the Publisher table and the PubID field in the Book table. Put a checkmark in the box labeled Enforce Referential Integrity.
- B. Create a switchboard; Use the Link Tables command to associate tables in one database with the objects in a different database.
- C. Create an AutoExec and a Close Database macro and demonstrate the use.
- Practical 10:**
- A. Create the College Library database find out the following: -
- i. Total no. of copies of books subject wise.
  - ii. A report displays all books group by Publisher.
  - iii. A report displays all books group by Book Title.
  - iv. A report displays all books group by Book Edition
- B. Demonstrate the use of Database Splitter Wizard by splitting database.
- C. Make Access database as an executable-only

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**Online reference/Text Books**

1. [https://www.quackit.com/microsoft\\_access/tutorial/](https://www.quackit.com/microsoft_access/tutorial/)

	<p>2. <a href="https://www.tutorialspoint.com/ms_access/index.htm">https://www.tutorialspoint.com/ms_access/index.htm</a></p> <p>3. Access 2016 in easy steps, by Mike McGrath, In Easy Steps, 1st Edition, 2017</p> <p>4. Relational Databases and Microsoft Access, by Ron McFadyen, 1st Edition</p>
11	<p><b>Reference Books</b></p> <p>1. MICROSOFT ACCESS 2019 by David Murray, Kendall Hunt Publishing, 1<sup>st</sup> Edition, 2020.</p> <p>2. Step by Step Microsoft Access 2013, by Joyce Cox and Joan Lambert, 1<sup>st</sup> Edition, Microsoft Press, 2013</p> <p>3. Access 2019 Bible, by Michael Alexander, Richard Kusleika, Wiley, 1<sup>st</sup> Edition, 2018</p> <p>4. Access 2019 For Dummies, by Laurie A. Ulrich, Ken Cook, Wiley, 1<sup>st</sup> Edition, 2018</p>
12	<p><b>Internal Continuous Assessment: 40%</b></p>
	<p><b>Semester End Examination: 60%</b></p>
13	<p><b>Continuous Evaluation through:</b> Students are expected to attend each practical and submit the written practical of the previous session. Performing Practical and writeup submission will be continuous internal evaluation. 2.5 marks can be awarded for each practical performance and writeup submission totalling to 50 marks and can be converted to 20 marks.</p>
	<p>30 marks practical exam of 2 hours duration</p>
14	<p><b>Format of Question Paper: Duration 2 hours. Certified copy of Journal is compulsory to appear for the practical examination</b></p> <p>Practical Slip:</p> <p>Q1. From Module 1      13 marks</p> <p>Q2. From Module 2      12marks</p> <p>Q3. Journal and Viva    05 marks</p>

**Name of the Course: Fundamentals of Telecommunication Systems**

Sr.No	Heading	Particulars
1	<p><b>Description the course : Including but Not limited to:</b></p>	<p>The course on Fundamentals of Telecommunication Systems aims to provide an in-depth understanding of the basic concepts and theories of signals and systems, as well as their applications in the field of telecommunication engineering. The course also focuses on the latest trends in 5G technology, providing students with insights into the driver, pillars, and challenges of 5G networks.</p> <p>Relevance and Usefulness: The course is highly relevant to students pursuing degrees in electronics and communication engineering, as well as those interested in telecommunications engineering. By focusing on key concepts and terminologies, such as sets, mappings, functions, and systems operators, the course provides a foundation for understanding both the theoretical and</p>

practical aspects of signals and systems. Additionally, the course helps students understand the role of 5G technology in enabling advanced wireless communication and the internet of things (IoT), which can be useful for developing innovative applications and services.

**Application and Interest:** By completing the course, students will be equipped to apply their knowledge and skills in a range of industries and sectors, including telecommunication, internet of things, and wireless communication. The course is also highly engaging, as it covers several fascinating topics, including wireless communication, 5G technology, and IoT, among others.

**Connections with Other Courses:** The course has links with other courses in electronics and communication engineering, including digital signal processing, telecommunication theory and practice, mobile communication, Information Technology and internet of things.

**Demand in the Industry and Job Prospects:** Graduates with a background in signals and systems and 5G technology are in high demand in the telecommunication industry, as there is an increasing need for professionals who can design, implement, and oversee advanced communication networks. Specializations in 5G technology and signals and systems can open up a range of job prospects, including roles such as telecommunications engineer, network architect, systems engineer, and wireless communication developer, among others.

In conclusion, the course in signals and systems and 5G technology is highly relevant and useful for students pursuing degrees in electronics and communication engineering and Information Technology. The course is engaging and provides a solid foundation in key concepts and technologies, enabling students to pursue a range of job prospects within the telecommunication industry.

<b>2</b>	<b>Vertical :</b>	Skill Enhancement Course(SEC)
<b>3</b>	<b>Type :</b>	Theory
<b>4</b>	<b>Credits :</b>	2 credits (30 hours in a semester)
<b>5</b>	<b>Hours Allotted :</b>	30 Hours
<b>6</b>	<b>Marks Allotted:</b>	50 Marks
<b>7</b>	<b>Course Objectives(CO):</b> CO 1. Identify the fundamental concepts and terminologies of signals and systems theory through an introduction to sets, mappings, functions, and systems operators.	

	<p>CO 2. Demonstrate knowledge of the properties of continuous-time signals and systems, transformations of the independent variable, properties of functions, and representation of arbitrary functions.</p> <p>CO 3. Demonstrate knowledge of the properties of discrete-time signals and systems, transformations of the independent variable, properties of sequences, and representation of arbitrary sequences.</p> <p>CO 4. Analyze the drivers for 5G technology, identify the 10 pillars of 5G, and describe the evolution of wireless communication from LTE technology to beyond 4G.</p> <p>CO 5. Discuss the 5G internet of things (IoT), explain networking reconfiguration and virtualization support, and identify the mobility and quality of service control in 5G networks.</p> <p>CO 6. Evaluate the challenges of small cells in 5G mobile networks and identify the capacity limits and achievable gains with densification.</p>	
8	<p><b>Course Outcomes (OC):</b></p> <p>OC 1. Identify the fundamental concepts and terminologies of signals and systems theory through an introduction to sets, mappings, functions, and systems operators.</p> <p>OC 2. Demonstrate knowledge of the properties of continuous-time signals and systems, transformations of the independent variable, properties of functions, and representation of arbitrary functions.</p> <p>OC 3. Demonstrate knowledge of the properties of discrete-time signals and systems, transformations of the independent variable, properties of sequences, and representation of arbitrary sequences.</p> <p>OC 4. Analyze the drivers for 5G technology, identify the 10 pillars of 5G, and describe the evolution of wireless communication from LTE technology to beyond 4G.</p> <p>OC 5. Discuss the 5G internet of things (IoT), explain networking reconfiguration and virtualization support, and identify the mobility and quality of service control in 5G networks.</p> <p>OC 6. Evaluate the challenges of small cells in 5G mobile networks and identify the capacity limits and achievable gains with densification.</p>	
9	<p><b>Modules:-</b></p> <p><b>Module 1: Signals and Systems:</b></p> <p>1. <b>Signals and Systems:</b> Introduction, Signals, Systems, Why Signals and Systems? Preliminaries, Overviews, Sets, Mappings, Functions, Sequences, Abuse of notations, System operators, Basic Signal Properties.</p> <p>2. <b>Continuous-Time Signals and Systems:</b> Overview, Transformations of the Independent Variable, Transformations and the Dependent Variable, Properties of functions, Elementary functions, Representation of Arbitrary Functions using elementary functions, Continuous -time systems, Properties of systems,</p> <p>3. <b>Discrete-Time Signals and Systems:</b> Overview, Transformations of the independent variable, Properties of Sequences, Elementary Sequences, Representing Arbitrary Sequences Using Elementary Sequences, Discrete-Time Systems, Properties of Systems</p> <p><b>Module 2: Fundamentals of 5G Networks</b></p> <p>4. <b>Drivers for 5G:</b> Introduction, Historical trend of Wireless Communication, Evolution of LTE technology to beyond 4G, 5G</p>	<p><b>15 Hrs</b></p> <p><b>15 Hrs</b></p>

	<p>Roadmap, 10 pillars of 5G, 5G in Europe, 5G in Asia, 5G in Asia, 5G Architecture</p> <p>5. <b>The 5G Internet:</b> Introduction, Internet of Things and Context-Awareness, Networking Reconfiguration and Virtualisation Support, Mobility, Quality of Service Control, Emerging Approach for Resource Over-Provisioning</p> <p>6. <b>Small Cells for 5G Mobile Networks:</b> Introduction, What are small cells? Capacity Limits and Achievable Gains with Densification, Mobile Data Demand, Demand vs Capacity, Small-Cell Challenges, Conclusions and future directions</p>	
<b>10</b>	<p><b>Text Books:</b></p> <p>1. Signals and Systems, Michael Adams, University of Victoria, 3<sup>rd</sup> Edition, 2012</p> <p>2. Fundamentals of 5G Mobile Networks, Edited by Jonathan Rodriguez, Wiley Publications, 2015</p>	
<b>11</b>	<p><b>Reference Books</b></p> <p>1. Signals and Systems, Michael Adams, University of Victoria, 3<sup>rd</sup> Edition, 2012</p> <p>2. Fundamentals of 5G Mobile Networks, Edited by Jonathan Rodriguez, Wiley Publications, 2015</p>	
<b>12</b>	<b>Internal Continuous Assessment: 40%</b>	<b>Semester End Examination: 60%</b>
<b>13</b>	<p><b>Continuous Evaluation through:</b></p> <p>Class test of 1 of 15 marks</p> <p>Class test of 2 of 15 marks</p> <p>Average of the two: 15 marks</p> <p>Quizzes/ Presentations/ Assignments: 5 marks</p> <p>Total: 20 marks</p>	<p><b>Format of Question Paper:</b></p> <p><b>External Examination (30 Marks)–</b></p> <p><b>1 hr duration</b></p>
<b>14</b>	<p><b>Format of Question Paper: (Semester End Examination : 30 Marks. Duration:1 hour)</b></p> <p>Q1: Attempt any two (out of four) from Module 1 (15 marks)</p> <p>Q2: Attempt any two (out of four) from Module 2 (15 marks)</p>	

## As Per NEP 2020

# University of Mumbai



<b>Syllabus for Basket of OE</b>	
<b>Board of Studies in Business Economics</b>	
<b>UG First Year Programme</b>	
<b>Semester - I</b>	<b>A Semester- I</b>
<b>Title of Paper</b>	<b>Credits 2/ 4</b>
<b>I) Elementary Statistical Techniques for Economics</b>	<b>4</b>
<b>II)</b>	<b>2</b>
<b>III)</b>	<b>2</b>
<b>From the Academic Year</b>	<b>2024- 2025</b>

# OPEN ELECTIVE – I

**Programme Name: B.com in Business Economics**

**Course Name: Elementary Statistical Techniques for Economics**

**Total Credit: 4**

**University Assessment: 100 Marks**

**Pre-Requisite:** This course introduces the fundamental concepts and tools of statistics necessary for economic analysis. Students will learn the basics of data collection, classification, and tabulation, along with various methods for representing data through charts and diagrams. The course also covers frequency distribution, measures of central tendency, and measures of dispersion, which are crucial for making informed economic decisions. By the end of the course, students will have a strong foundation in elementary statistical techniques relevant to economics.

## **Course Objectives:**

- To understand the basic concepts and terminology related to statistics.
- To grasp the principles of data representation through charts and diagrams.
- To analyse measures of dispersion and their significance in economics.
- To apply statistical techniques to solve real-world economic problems.

## **Course Outcome:**

CO1: To define and recall fundamental statistical concepts and terminology.

CO2: To understand the principles of data representation through various types of charts and diagrams.

CO3: To utilize statistical tools to interpret and draw conclusions from economic data.

CO4: To analyse economic problems and data sets to select appropriate statistical techniques for analysis.

<b>Modules</b>	<b>Units</b>	<b>Lecture Hours</b>
1: Introduction to Statistics and Data Collection	Meaning and Scope of Statistics: Defining statistics and its role in data analysis and decision-making and exploring the various applications of statistics in economics.	15
	Data Types and Variables: Introduction to data types, including qualitative (categorical) and quantitative (numerical) data and explanation along with examples of variables and attributes in statistical analysis.	
	Data Sources and Collection Methods: Identifying primary and secondary data sources and their distinctions and overview of data collection methods, including surveys, experiments, and observations.	
2: Data Representation and Visualization	Diagrammatic Representation of Data: Objectives and importance.	15
	Types of Charts and Diagrams: Line diagram, bar diagram, pie diagram and pictogram.	
	Practical Application of Charts and Diagrams: Understanding the characteristics of data that influence the choice of chart or diagram. Principles of Effective Visualization: Fundamental principles of effective data visualization, including clarity, accuracy, simplicity, choosing colors, labels, scales, and axes.	
3. Frequency Distribution and Graphical Representation	Introduction to Frequency Distribution: Definitions of key terms, including observations, frequencies, and simple series. Construction and Components of Frequency Distribution: Definitions and explanations of terms such as midpoints, class intervals, and class	15

	boundaries.	
	Graphical Representation of Frequency Distributions: Different methods of graphical representation, including histograms, frequency polygons, and ogives.	
	Cumulative Frequency Distributions and Applications: Exploring cumulative frequency distributions and their utility, constructing cumulative frequency curves and application of cumulative frequency distributions in identifying percentiles and quartiles.	
4. Measures of Central Tendency and Dispersion	Measures of Central Tendency: Introduction to central tendency measures such as the mean, median, and mode, Important properties, and characteristics of mean, median, and mode and real-world applications of central tendency measures in economics.	15
	Measures of Dispersion (Range and Quartiles): Introduction to measures of dispersion and their importance in data analysis, understanding range and quartiles as measures of spread and variability and computation and interpretation of range and quartiles with practical examples.	
	Measures of Dispersion (Mean Deviation and Variance): Mean deviation and variance as measures of data variability, calculating and interpreting mean deviation and variance and standard deviation and its properties.	

**Reference Books:**

1. Agresti, A., & Finlay, B. (2018). Statistical Methods for the Social Sciences. Pearson.
2. Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., & Cochran, J. J. (2019).

Statistics for Business & Economics. Cengage Learning.

3. Berenson, M. L., Levine, D. M., & Krehbiel, T. C. (2017). Basic Business Statistics. Pearson.
4. Freund, J. E., & Perles, B. M. (2018). Modern Elementary Statistics. Pearson.
5. Lind, D. A., Marchal, W. G., & Wathen, S. A. (2018). Statistical Techniques in Business and Economics. McGraw-Hill Education.
6. McClave, J. T., Sincich, T., & Mendenhall, W. (2019). Statistics. Pearson.
7. Monga, C S. (2000). Mathematics and Statistics for Economics. Vikas Publishing.
8. Newbold, P., Carlson, W., & Thorne, B. (2017). Statistics for Business and Economics. Pearson.

### INTERNAL CONTINUOUS ASSESSMENT: 40%

<b>Continuous evaluation pattern</b>		
1	Class Test based on objectives on-line/offline	20 marks
2	Assignment / Project / Presentation	20 marks
3	Book review / Newspaper review (in any language) / Case Study writing	20 marks
<b>Take best of TWO out of THREE from above</b>		<b>40 Marks</b>

### SEMESTER END EXAMINATION: 60%

<b>Format of Question Paper</b>		
<b>Time: 2 Hours</b>		<b>Mark: 60</b>
Note: 1. Attempt any <b>Four</b> questions out of Five. 2. Figures to the right indicate full marks.		
<b>Q1</b>	<b>Answer the following question (Any 2)</b>	<b>15 Marks</b>
A.		
B.		
C.		
<b>Q2</b>	<b>Answer the following question (Any 2)</b>	<b>15 Marks</b>
A.		
B.		
C.		
<b>Q3</b>	<b>Answer the following question (Any 2)</b>	<b>15 Marks</b>
A.		
B.		
C.		
<b>Q4</b>	<b>Answer the following question (Any 2)</b>	<b>15 Marks</b>
A.		

B.		
C.		
Q5	Write Short Notes (Any 3) (5 Marks Each)	15 Marks
A.		
B.		
C.		
D.		

**Sign of the  
 Offg. Dean  
 Prof. Kavita Laghate  
 Faculty of Commerce  
 & Management**

**Sign of the  
 Offg. Associate Dean  
 Dr. Ravikant  
 Balkrishna Sangurde  
 Faculty of Commerce**

**Sign of the  
 Offg. Associate  
 Dean  
 Prin. Kishori Bhagat  
 Faculty of  
 Management**

**Sign of the  
 Offg. Dean  
 Prof. Kavita Laghate  
 Faculty of  
 Commerce &  
 Management**

AC –20.04.2024  
Item No. –5.6 (N) Sem I (1a)

# As Per NEP 2020

## University of Mumbai



<b>Syllabus for Basket of AEC</b>	
<b>Board of Studies in English</b>	
<b>UG First Year Programme B.Sc</b>	
<b>Semester</b>	<b>I</b>
<b>Title of Paper</b>	<b>Credits</b>
<b>Introduction to Communication Skills in English I</b>	<b>2</b>
<b>From the Academic Year</b>	<b>2024-2025</b>

Sr. No.	Heading	Particulars
1	<b>Description of the course: Including but Not limited to:</b>	<p><b>Introduction to Communication Skills in English I</b></p> <p>Effective academic communication skills are essential for success in scholarly pursuits. In the academic realm, proficiency extends beyond verbal articulation to encompass precise and coherent written expression. Students are not only required to engage in thoughtful discussions and articulate complex ideas verbally but must also demonstrate their understanding through well-crafted written assignments, and presentations. Academic communication involves the mastery of scholarly conventions, such as adherence to academic writing styles, and the ability to engage in dialogue with peers and scholars. It encompasses the skillful navigation of academic discourse, fostering an environment where ideas are shared, challenged, and refined. Developing strong academic communication skills empower individuals to contribute meaningfully to intellectual conversations, enriching both their academic journey and the broader scholarly community.</p> <p>This course with its 30:20 pattern will also help in accomplishing this goal. The course is aimed at honing their cognitive, analytical, linguistic and creative skills. It is hoped that by the end of the academic year, the learners will have developed confidence in using the English language both for oral and written communication as well as develop interest in enhancing these skills later on.</p>
2	<b>Vertical:</b>	AEC (Ability Enhancement Course)
3	<b>Type:</b>	Theory
4	<b>Credit:</b>	2 credits (1credit=15 Hours for Theory in a semester)
5	<b>Hours Allotted:</b>	30Hours
6	<b>Marks Allotted:</b>	50Marks
7	<b>Course Objectives:</b>	<ol style="list-style-type: none"> <li>1. To cultivate a comprehensive understanding of communication skills</li> <li>2. To enhance reading proficiency with a diverse range of written texts with different genres and styles of written communication.</li> <li>3. To develop proficiency in grammatical accuracy with specific focus on common grammatical errors and provide targeted exercises for improvement.</li> <li>4. To equip learners with proficient presentation and conversation skills by integrating practical exercises for public speaking and interpersonal communication.</li> <li>5. To provide practical experience in formal writing, including Statement of Purpose (SoP) preparation.</li> </ol>

**8 Course Outcomes:**

At the end of the course, learners will:

- Demonstrate an understanding of essential aspects of communication skills
- Exhibit the ability to Read a variety of written text using subskills such as skimming and scanning.
- Identify and rectify common grammatical errors in English.
- Show competence in delivering compelling presentations and engage in articulate and effective conversations in English across different contexts.
- Display advanced formal writing skills in crafting job application letters, CVs, and Statements of Purpose.

**9 Modules: -**

**Module1: (15 Lectures)**

**A) Introduction to Communication Skills**

- The Seven Cs of Effective Communication
- Verbal and Non-Verbal Communication
- Cross-cultural communication
- Technology-enabled Business Communication
- Features of Effective Written Communication
- Characteristics of an Effective Speech
- Effective Listening Skills

**B) Reading Skills:**

- Scanning a text for information
- Skimming a passage to look for main ideas, understanding text type
- Guessing meaning of an expression (word/phrase/clause)
- Building inference skills

Passages from academic, professional, and literary domains around 200- 250 words, could be chosen in this section.

**C) Grammar**

- Subject Verb Agreement
- Tenses
- Question Tag
- Change the Voice
- Framing Interrogative sentence
- Synonyms and Antonyms
- Misplaced modifiers

Grammar should be taught with a remedial approach so as to enable learners to avoid common errors in their written and spoken communication.

**Module 2: (15 Lectures)**

**A) Speaking Skills in English**

**Conversation skills**

- Opening a conversation
- Introducing oneself in various contexts
- Introducing others formally and informally

**Presentation Skills**

- Introduction: Essentials of Presentation skills
- Analysis of model Presentations
- Planning and Delivering the Presentation
- Developing & Displaying Visual Aids
- Handling Questions from the Audience

**B) Formal Writing Skills:**

- Interpreting and describing different types of visual information
- Job applications with bio data (solicited and unsolicited)
- Statement of Purpose

**10 Text Books: N.A.**

**11 References:**

- Bellare, Nirmala. *Reading & Study Strategies*. Books. 1 and 2. Oxford University Press, 1997, 1998
- Bellare, Nirmala. *Easy Steps to Summary Writing and Note-Making*. Amazon Kindle Edition, 2020
- Comfort, Jeremy, et al. *Speaking Effectively: Developing Speaking Skills for Business English*. Cambridge University Press, 1994.
- Das, Bikram K., et. al. *An Introduction to Professional English and Soft Skills*. Cambridge University Press India Pvt. Ltd., 2010
- Das, Yadjnaseni & R. Saha (eds.) *English for Careers*. Pearson Education India, 2012.
- Dimond-Bayir, Stephanie. *Unlock Level 2 Listening and Speaking Skills Student's Book and Online Workbook: Listening and Speaking Skills Student's Book+ Online Workbook*. Cambridge University Press, 2014.
- Doff, Adrian and Christopher Jones. *Language in Use* (Intermediate and Upper Intermediate). CUP, 2004.
- Glendinning, Eric H. and Beverley Holmstrom. Second edition. *Study Reading: A Course in Reading Skills for Academic Purposes*. CUP, 2004
- Goodale, Malcolm. *Professional Presentations Video Pack: A Video Based Course*. Cambridge University Press, 1998.
- Grellet, F. *Developing Reading Skills*. Cambridge: Cambridge University Press, 1981
- Grussendorf, Marion. *English for Presentations*. Oxford University Press, 2007.

- Hamp- Lyons, Liz and Ben Heasley. Second edition. *Study Writing: A Course in Writing Skills for Academic Purposes*. CUP, 2006
- Labade, Sachin, Katre Deepa et al. *Communication Skills in English*. Orient Blackswan, Pvt Ltd, 2021.
- Lewis, N. *How to Read Better & Faster*. New Delhi, Goyal Publishers & Distributors Pvt. Ltd, 2006.
- McCarthy, Michael and Felicity O'Dell. *English Vocabulary in Use*. Cambridge: Cambridge University Press, 2001.
- Mohan, RC Sharma Krishna. *Business Correspondence and Report Writing*. Third edition. Tata McGraw-Hill Education, 2002.
- Murphy, Raymond, et al. *Grammar in use: Intermediate*. Cambridge University Press, 2000
- Raman, Meenakshi, and Singh, Prakash. *Business Communication*. India, Oxford University Press, 2006.
- Richards, Jack C., and Chuck Sandy. *Passages Level 2 Student's Book*. Cambridge University Press, 2014.
- Sadanand, Kamlesh & S. Punitha. *Spoken English: A Foundation Course*. (Part 1 & 2). Orient Blackswan. 2009.
- Sasikumar, V., et al. *A Course in Listening & Speaking I*. 2005. Cambridge University Press India Pvt. Ltd. (under the Foundation Books Imprint), 2010
- Savage, Alice, et al *Effective Academic Writing*. Oxford: OUP, 2005
- Sethi, J. *Standard English and Indian usage: Vocabulary and grammar*. PHI Learning Pvt. Ltd., 2011.
- Taylor, Grant. *English Conversation Practice*. 1967. Tata McGraw-Hill, 2013
- Turton, Nigel D. *A B C of Common Grammatical Errors*. 1995. Macmillan India Ltd., 1996
- Vas, Gratian. *English Grammar for Everyone*. Mumbai, Shree Book Centre, 2015
- Watson, T. *Reading Comprehension Skills and Strategies: Level 6*. Saddleback Educational Publishing, 2002

#### Web link Resources:

- A conversation about household appliances: <https://youtu.be/rAPI0fSborU> 13.
- Video on psychology: Why do we dream? <https://youtu.be/2W85Dwxx218>
- Video on social media: What is a social media influencer? <https://youtu.be/39A3og7enz8>
- Tips on communication (TED Talk): The Secrets of Learning a New Language [https://youtu.be/o\\_XVt5rdpFY](https://youtu.be/o_XVt5rdpFY)
- Expressing opinions: If Cinderella Were a Guy: <https://youtu.be/p40yCNctKXg>
- Video on the English language: Where did English come from? <https://youtu.be/YEaSxhcns7Y>

12	<b>Internal Continuous Assessment: 40%</b>	<b>Semester End Examination: 60%</b>								
13	<p><b>Continuous Evaluation through:</b></p> <ul style="list-style-type: none"> <li>• Participation in an activity based on Presentation Skills and Conversation skills each (Module 2 A) (10 marks) The class may be divided into batches by creating formal schedule for the same before the semester End Examination.</li> <li>• Participation in two classroom activities involving skills other than presentation and conversation skills (05 marks)</li> <li>• Overall attendance (05 marks) (Percentage of learners' attendance in class to be considered)</li> </ul> <p><b>Suggested Activities:</b></p> <ul style="list-style-type: none"> <li>▪ Listening to audio clips/ books to enhance listening skills</li> <li>▪ Reading aloud from newspapers, magazines, stories, non-fiction followed by classroom discussion on these to enhance reading and speaking skills</li> </ul>									
14	<p><b>Format of Question Paper:</b> for the final examination</p> <table border="0" style="width: 100%;"> <tr> <td>Q.1. Short notes (2 out of 4) – On Module 1 (A)</td> <td style="text-align: right;">10 marks</td> </tr> <tr> <td>Q.2. A. Unseen Passage (200-250 words) (Module 1 B)</td> <td style="text-align: right;">06 marks</td> </tr> <tr> <td style="padding-left: 20px;">B. Questions on grammar (Module 1 C)</td> <td style="text-align: right;">04 marks</td> </tr> <tr> <td>Q. 3. Writing Skills (1 out of 2) on Module 2 (B)</td> <td style="text-align: right;">10 marks</td> </tr> </table>		Q.1. Short notes (2 out of 4) – On Module 1 (A)	10 marks	Q.2. A. Unseen Passage (200-250 words) (Module 1 B)	06 marks	B. Questions on grammar (Module 1 C)	04 marks	Q. 3. Writing Skills (1 out of 2) on Module 2 (B)	10 marks
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B. Questions on grammar (Module 1 C)	04 marks									
Q. 3. Writing Skills (1 out of 2) on Module 2 (B)	10 marks									

**Sign of BOS Chairman  
Prof. Dr. Shivaji Sargar  
Board of Studies in  
English**

**Sign of the Offg.  
Associate Dean  
Dr. Suchitra Naik  
Faculty of  
Humanities**

**Sign of the Offg.  
Associate Dean  
Dr. Manisha Karne  
Faculty of  
Humanities**

**Sign of the Dean  
Prof. Dr. Anil Singh  
Faculty of  
Humanities**

## As Per NEP 2020

### University of Mumbai



#### Title of the Course

**Foundation of Behavioural skills – Basic level**

**Semester – Sem I**

**Syllabus for Two Credit**

**(With effect from the academic year 2024-25)**

<b>PROGRAM</b>	BA /BSc/ BCOm
<b>SEMESTER</b>	I
<b>COURSE TITLE</b>	Foundation of Behavioural skills Basic level
<b>VERTICLE /CATEGORY</b>	E (Value Education Course)
<b>COURSE LEVEL</b>	50
<b>COURSE CODE</b>	
<b>COURSE CREDIT</b>	2
<b>HOURS PER WEEK THEORY</b>	2
<b>HOURS PER WEEK PRACTICAL/TUTORIAL</b>	

### **COURSE OBJECTIVE**

1. To develop understating about behavioural Skills.
2. To develop communication skills of students through experiential learning.
3. Life skill development through work life balance and stress management training.
4. To developing effective leadership quality among the learners.

### **COURSE OUTCOME**

CO1: Learners will be able to Define and Identify different life skills required in personal and professional life

CO2: Learners will develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.

CO3: Learners will be able to explain the basic mechanics of effective communication and demonstrate these through presentations and take part in group discussions

CO4: Learners will be able to use appropriate thinking and problem-solving techniques to solve new problems

## ORGANISATION OF THE COURSE

UNIT NO	COURSE UNITS	HOURS PER WEEK
1	Module 1: Behavioural skills	2*5=10
2	Module 2: Stress Management	2*2=04
3	Module 3: 21st-century skills	2*5=10
4	Module 4: Understanding Value Education	2*3=6
TOTAL HOURS		30

## COURSE DESIGN

UNIT TITLE	OUTCOME	DESCRIPTION	PEDAGOGICAL APPROACH
Behavioural skills	Learners will be able to Define and Identify different life skills required in personal and professional life.	<p>Overview of Life Skills: Meaning and significance of life skills, skills identified by WHO: Self-awareness, Empathy, Critical thinking, Creative thinking, Decision making, problem solving, Effective communication, interpersonal relationship, coping with stress, coping with emotion.</p> <p>Life skills for professionals: positive thinking, right attitude, attention to detail, having the big picture, learning skills, research skills, perseverance, setting goals and achieving them, helping others, leadership, motivation, self-motivation, and motivating others, personality development, IQ, EQ, and SQ2.</p>	Examples, TED Talks, videos.

Stress Management	Learners will develop an awareness of the self and apply well-defined techniques to cope with emotions and stress.	Stress, reasons and effects, identifying stress, stress diaries, the four A's of stress management, techniques, Approaches: action-oriented, emotion-oriented, acceptance-oriented, resilience, Gratitude Training, Coping with emotions: Identifying and managing emotions, harmful ways of dealing with emotions, PATH method and relaxation techniques.	Examples, Role Plays, Behavioral Simulations and Games
21st-century skills	Learners will be able to explain the basic mechanics of effective communication and demonstrate these through presentations and take part in group discussions	Creativity, Critical Thinking, Collaboration, Problem Solving, Decision Making, Need for Creativity in the 21st century, Imagination, Intuition, Experience, Sources of Creativity, Lateral Thinking, Myths of creativity, Critical thinking Vs Creative thinking,	Case Discussions, Games and simulations, Group discussions.
Understanding Value Education	Learners will be able to use appropriate thinking and problem-solving techniques to solve new problems	Introduction – Definition, Importance, Process & Classifications of Value Education: Understanding the need, basic guidelines, content and process for Value Education Understanding the thought-provoking issues; need for Values in our daily life Choices making – Choosing, Cherishing & Acting, Classification of Value Education: understanding Personal Values, Social Values, Moral Values & Spiritual Values.	Case Discussions, Games and simulations, Community Service, Presentations

<b>CONTINUOUS ASSESSMENT TESTS (CAT) &amp; SEMESTER END EXAMINATION (SEE)</b>			
<b>NATURE OF ASSESSMENT</b>	<b>MARKS</b>	<b>METHODOLOGY</b>	<b>COURSE OUTCOME</b>
CAT 1 *	10	Online Quiz, Open book test, Presentations, Projects and Viva	CO1
CAT 2 *	05	Presentations, Projects and Viva	CO1, CO2
CAT 3 *	10	Online Quiz, Open book test, Presentations, Project Assignment and Viva	CO3
CAT 4 *	05	Presentations, Projects and Viva	CO4
SEE	30	Five questions of 10 marks each (from each course unit), to be attempted any 3, 10 marks may be subdivided into two sub questions of 5 marks	CO1, CO2, CO3, CO4

\*Any Two for 20 marks

<b>ESSENTIAL READINGS</b>	<ol style="list-style-type: none"> <li>1. R R Gaur, R Sangal, G P Bagaria, 2009, A Foundation Course in Human Values and Professional Ethics.</li> <li>2. Shiv Khera, "You Can Win", Macmillan Books, New York, 2003.</li> <li>3. Barun K. Mitra, "Personality Development &amp; Soft Skills", Oxford Publishers, Third impression, 2017.</li> </ol>
<b>ADDITIONAL READINGS</b>	The 7 Habits of Highly Effective People: Powerful Lessons in Personal Change Stephen Covey Free Press (first published August 15th 1989)

Syllabus Drafting Committee

Prof. Dr. Aruna Deshpande

Prof. Dr. Tejashree Deshmukh

Mr. Nitin Vazirani

Signature

Prof. Kavita Laghate

Mr. Bhooshan Maikani  
Dr. Vinita Pimple

Chairman of Board of Studies in Value Education

AC – 28.06.2024  
Item No. – 8.1 (N)

**As Per NEP 2020**

# University of Mumbai



<b>Syllabus for Indian Knowledge System</b>	
<b>Board of Studies in Indian Knowledge System</b>	
<b>UG First Year Programme</b>	
<b>Semester</b>	<b>I OR II</b>
<b>Title of Paper</b>	<b>Credits 2 for either I or II Semester</b>
<b>D) Indian Knowledge System</b>	
<b>From the Academic Year</b>	<b>2024-2025</b>

Sr. No.	Heading	Particulars
1	<b>Description the course : Including but Not limited to :</b>	Introduction, relevance, Usefulness, Application, interest, connection with other courses, demand in the industry, job prospects etc.
2	<b>Vertical :</b>	Major/Minor/Open Elective /Skill Enhancement / Ability Enhancement/Indian Knowledge System ( Choose By $\checkmark$ )
3	<b>Type :</b>	Theory / Practical
4	<b>Credit:</b>	2 credits ( 1 credit = 15 Hours for Theory or 30 Hours of Practical work in a semester )
5	<b>Hours Allotted :</b>	30 Hours
6	<b>Marks Allotted:</b>	50 Marks
7	<b>Course Objectives:</b> ( List some of the course objectives )	<ol style="list-style-type: none"> <li>1. To sensitize the students about context in which they are embedded i.e. Indian culture and civilisation including its Knowledge System and Tradition.</li> <li>2. To help student to understand the knowledge, art and creative practices, skills and values in ancient Indian system.</li> <li>3. To help to study the enriched scientific Indian heritage.</li> <li>4. To introduce the contribution from Ancient Indian system &amp; tradition to modern science &amp; Technology.</li> </ol>
8	<b>Course Outcomes:</b> ( List some of the course outcomes )	<ol style="list-style-type: none"> <li>1. Learner will understand and appreciate the rich Indian Knowledge Tradition</li> <li>2. Lerner will understand the contribution of Indians in various fields</li> <li>3. Lerner will experience increase subject-awareness and self-esteem</li> <li>4. Lerner will develop a comprehensive understanding of how all knowledge is ultimately intertwined</li> </ol>
9	<b>Modules:-</b>	
	<b>Module 1: ( 10 Hours )</b>	
		<ol style="list-style-type: none"> <li>1. Introduction to IKS (What is knowledge System, Characteristic Features of Indian Knowledge System)</li> <li>2. Why IKS? (Macaulay's Education Policy and its impact, Need of revisiting Ancient Indian Traditions)</li> <li>3. Scope of IKS (The Universality of IKS (from Micro to Macro), development form Earliest times to 18th Century CE)</li> <li>4. Tradition of IKS (Ancient Indian Education System: Home, Gurukul, Pathashala, Universities and ancient educational centres)</li> <li>5. Relevant sites in the vicinity of the Institute (Water Management System at Kanheri, Temple Management of Ambarnath, etc.)</li> </ol>

<b>Module 2: ( 10 Hours )</b>			
<ol style="list-style-type: none"> <li>1. Medicine (Ayurveda)</li> <li>2. Alchemy</li> <li>3. Mathematics</li> <li>4. Logic</li> <li>5. Art of Governance (Arthashastra)</li> </ol>			
<b>Module 3: (10 Hours) (Select Any FIVE out of the following)</b>			
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <ol style="list-style-type: none"> <li>1. Aesthetics</li> <li>2. Town Planning</li> <li>3. Strategic Studies</li> <li>4. Krishi Shastra</li> <li>5. Vyakaran &amp; Lexicography</li> <li>6. Natyashastra</li> <li>7. Ancient Sports</li> <li>8. Astronomy</li> </ol> </td> <td style="width: 50%; border: none;"> <ol style="list-style-type: none"> <li>9. Yoga and Wellbeing</li> <li>10. Linguistics</li> <li>11. Chitrasutra</li> <li>12. Architecture</li> <li>13. Taxation</li> <li>14. Banking</li> <li>15. Trade and Commerce</li> </ol> </td> </tr> </table>		<ol style="list-style-type: none"> <li>1. Aesthetics</li> <li>2. Town Planning</li> <li>3. Strategic Studies</li> <li>4. Krishi Shastra</li> <li>5. Vyakaran &amp; Lexicography</li> <li>6. Natyashastra</li> <li>7. Ancient Sports</li> <li>8. Astronomy</li> </ol>	<ol style="list-style-type: none"> <li>9. Yoga and Wellbeing</li> <li>10. Linguistics</li> <li>11. Chitrasutra</li> <li>12. Architecture</li> <li>13. Taxation</li> <li>14. Banking</li> <li>15. Trade and Commerce</li> </ol>
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<b>10</b>	<b>Reference Books</b> <ol style="list-style-type: none"> <li>1. Concise history of science in India- D.M. Bose, S.N Sen, B.V. Subbarayappa.</li> <li>2. Positive sciences of the Ancient Hindus- Brajendranatha seal, Motilal Banrasidas, Delhi 1958.</li> <li>3. History of Chemistry in Ancient India &amp; Medieval India, P.Ray- Indian Chemicals Society, Calcutta 1956</li> <li>4. Charaka Samhita- a scientific synopsis, P. Ray &amp; H.N Gupta National Institute of Sciences of India, New Delhi 1965.</li> <li>5. MacDonnell A.A- History of Sanskrit literature</li> <li>6. Winternitz M- History of Indian Literature Vol. I, II &amp; III</li> <li>7. Dasgupta S.N &amp; De S.K- History of Sanskrit literature Vol. I.</li> <li>8. Ramkrishna Mission- cultural heritage of India Vol. I, II &amp; III.</li> <li>9. Majumdar R. C &amp; Pushalkar A.D- History &amp; culture of the Indian people, Vol. I, II &amp; III.</li> <li>10. Keith A.B- History of Sanskrit literature.</li> <li>11. Varadachari V- History of Sanskrit literature Chaitanya Krishna- A new History of Sanskrit</li> </ol>		
<b>11</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"><b>Continuous Internal Assessment: 20 Marks</b></td> <td style="width: 50%;"><b>Semester End Examination : 30 Marks</b></td> </tr> </table>	<b>Continuous Internal Assessment: 20 Marks</b>	<b>Semester End Examination : 30 Marks</b>
<b>Continuous Internal Assessment: 20 Marks</b>	<b>Semester End Examination : 30 Marks</b>		
<b>12</b>	<b>Continuous Evaluation through:</b> Assignment/ Presentations/ Projects (Group/Individual) / Field Visit Report <b>10 Marks,</b> class Test / MCQ Test <b>5 Marks,</b> Overall Conduct and Class Participation <b>5 Marks</b>		
<b>13</b>	<b>Format of Question Paper: for the final examination</b> Q1. Attempt any TWO Questions out of FIVE. <b>6 Marks</b> Q2. Attempt any THREE Questions out of FIVE <b>12 Marks</b> Q3. Attempt any THREE Questions out of FIFTEEN. <b>12 Marks</b>		



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Dean  
Faculty of Interdisciplinary Studies  
Name of the Faculty**

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Faculty of  
Interdisciplinary Studies  
Name of the Faculty**

AC –28/06/204

Item No. – 5.6 (N)

# University of Mumbai



## Syllabus for Extension Work in Vertical VI - CC

Board of Studies in Extension Work

UG First Year Program

Semester

I

Title of Paper

Credit

Extension Work

2

From the Academic Year

2024-25

## **Introduction**

The National Education Policy (NEP) 2020 is a comprehensive framework introduced by the Government of India to revamp the country's education system. It has replaced the previous National Policy on Education, which has aim to ensure universal access to quality education from preschool to higher education, including vocational education. NEP 2020 emphasizes a more holistic, multidisciplinary, and flexible curriculum which lays emphasis on conceptual understanding rather than rote learning allowing students to choose subjects across disciplines without strict boundaries.

The National Education Policy (NEP) 2020 of India addresses the role of higher education institutions in fostering community engagement and extension work. It highlights the social responsibility of higher education institutions towards their communities. It encourages institutions to engage with local communities, address societal challenges, and contribute to sustainable development. The policy promotes the implementation of outreach programs by higher education institutions to disseminate knowledge, provide services, and support community development. These programs may include literacy campaigns, career development programs, social issues awareness programs, health and hygiene initiatives, skill development workshops, and technology-oriented activities. The policy suggests integrating extension work into the curriculum of higher education programs. This allows learners to gain practical experience, develop leadership skills, and contribute to community development while pursuing their studies. It recognizes incentives to encourage active engagement in community service and extension activities.

Overall, NEP 2020 recognizes the significant role of higher education institutions in promoting community engagement, social responsibility, and sustainable development through extension work. By integrating extension activities into their mission and operations, institutions can contribute to building inclusive and resilient societies.

*Extension work in the context of education refers to the activities and programs conducted by educational institutions to engage with communities, address societal needs, and promote social development.*

### Aim of Extension Work under NEP:

- Extension work aims to identify and address the specific needs and challenges faced by communities. NEP 2020 encourages higher education institutions to engage with local communities and contribute to their development by offering programs and services that

address social needs, such as literacy programs, health awareness campaigns, and vocational training.

- Extension work aims to empower communities by providing them with the knowledge, skills, and resources they need to address their own requirements and improve their quality of life.

*Key objectives of Extension Work under NEP:*

- To ensure equal access to quality education and educational opportunities to aspirants.
- To support the government initiatives in achieving universal foundational literacy and numeracy as per sustainable development program.
- To organize remedial programs to address the learning breaches among the youth and provide unending education opportunities.
- To offer more holistic, multidisciplinary, and flexible curricular activities with an emphasis on conceptual understanding and personality development.
- To offer a wide range of activities & promote critical thinking, creativity, and innovation.
- To provide aspirants with multiple pathways for skill development and employment.
- To implement outreach programs to disseminate knowledge, provide services, and support community development.

**Extension Work Activities:**

Extension Work activities introduced by DLLE are a crucial aspect of the educational environment, offering multifaceted benefits that extend beyond academic learning. Many extension activities focus on social issues, sustainability, and environmental conservation. These activities educate the communities on sustainable practices which promote inclusivity and social justice. These activities focus especially on training women in various skills, including entrepreneurship and digital literacy through various vocational skill-oriented projects offered by the department. These activities have significantly contributed to skill development among community members, leading to improved employment opportunities and personality development. Learners participate in extension work activities as part of their curriculum, to gain practical experience and to contribute to community development. Thus, engaging in extension work fosters a sense of social responsibility and civic engagement among the learners and facilitators.

## **THE EXTENSION DIMENSION (Reach to Unreached)**

The college students are enrolled for extension work and perform various activities for the **social awareness based on various issues / problems in the society such as Save Girl Child, Pollution, Aids, Global Warming, Environment, Tree Plantation, Importance of Education, Illiteracy, Child Labour, Dowry Deaths, Malnutrition, Watershed Management and so many.** The students are creating awareness about these social problems / issues through various activities such as Street Play, Exhibition, Poster Making, Songs, Speech, Survey, Elocution, and participation in Seminar & Conferences. For this purpose, students are going to remote areas and involve the community and make them aware of our role in eradicating social problems faced by the society and trying to convince the people human duties as an ideal citizen.

To facilitate the sensitization of the student to the socio-cultural realities, the Department offers extension work projects encompassing social issues for the student. There are many Extension Work Projects being offered by the department under the two different units for enhancing the employability and IT skills of the student. The projects are given below, for which the details are available on DLLE website at [www.mudlle.ac.in](http://www.mudlle.ac.in).

### **I) Vocational Career Oriented Projects**

1. Career Project [CP]
2. Industry Orientation Project [IOP]
3. Anna Poorna Yojana [APY]
4. Skill Development (SD)

### **II) Community Oriented Projects**

1. Population Education Club (PEC)
2. Survey Research
3. Education for All (EFA- NIOS, IDOL)
4. Environment Education
5. Civic Sense (CS)
6. Consumer Guidance

Given below are the activities / programs to be conducted by the colleges as a part of Extension Work Syllabus as enlisted. The learner will participate in the following activities during Semester I in this academic year.

**ACTIVITIES FOR SEMESTER I = TOTAL 2 Credits**

Sr. No.	Unit / Activities	No. of Lectures
1	<p><u>Exhibit your talent (Talent Search Program)</u></p> <p><b>Talent Search: Need, Aim and Objectives, Nurturing Talent. Usefulness in Extension Work.</b></p> <p><u>Organizing Talent Search Program.</u></p> <p><b>The Extension Work Teacher will orient the learners and organize such program during lecture hours.</b></p> <p style="padding-left: 40px;">A talent search program is a critical component of modern human resource management that compel sensitization of self-awareness. By systematically identifying, attracting, and nurturing talent, the colleges can build a workforce that is capable, diverse, and aligned with their strategic goals to achieve objectives of extension work.</p> <p style="padding-left: 40px;">The following talents / skills are expected from learners to conduct training, extension work and field outreach activities. (Organization, Crowd control, Storytelling, Stage performance (singing, acting, musical instrument playing), Script writing, Poetry composition, Drawing &amp; painting, Collage, Drafting and writing report, PPT presentation and Video Making.</p>	<p>Total 8 Lectures including guidance for preparations and actual conduct of program.</p>
2	<p><u>Organizing &amp; Participation in Training Session and Note Making</u></p> <p>Every learner should attend the training session organized by their college for orientation of annual extension work program. Attendance is compulsory.</p> <p><b>In this session the learners will be oriented about all the extension work topics / activities as enlisted followed by question-and-answer session.</b></p> <p>The learner must read resource material and guidelines carefully</p>	

	<p>and understand the structure of Extension Work under NEP 2020 and accordingly plan for participation in various programs, college level and field outreach activities as given below. Documentation of the activity and report preparation needs to be completed by the learners.</p>	
3	<p><u>Self- Introductory Video / Stage Performance</u></p> <p><b>All learners enrolled in Extension Work subject can make self-introductory video or stage performance (3-4 minutes duration) stating his / her name, college, areas of interest, reason to join Extension Work, goals, why did he / she choose the particular topic /activity, how will he/she perform &amp; achieve his/her objectives etc. followed by 2-page report writing to be submitted to college. Report writing proforma to be prepared by college.</b></p> <p><b>In this session the learners will be oriented about making self-introductory video/ stage performance, prior preparations, grooming styles and presentation skills, practice sessions and other requirements.</b></p>	
4	<p><u>Participation in Activities /Programs</u> as given below.</p> <p>- Organize and participate in activities / programs related to five enlisted social issues / government policies. <b>The Learners will be oriented to following activities and motivated to participate in:</b></p> <ol style="list-style-type: none"> <li>1. Seminar /conferences, discussion sessions, debate, rallies</li> <li>2. Competitions (essay/creative writing, elocution, poster/ video/ rangoli making etc.- Minimum 2 competitions)</li> <li>3. Extension Work group activities of other groups in the college.</li> <li>4. Prepare your PPT, design your posters / charts.</li> <li>5. Survey / short term academic courses / innovative programs.</li> </ol> <p><b>Learners should perform and <u>participate in above activities (Minimum 3)</u> related to enlisted topics and strictly follow the guidelines. All the activities / programs must be related to extension work topics to fulfil the DLLE objectives.</b></p>	<p>20 Lectures including guidance for practice session, preparations and actual conduct of program.</p>

	<p><b>The learners will be oriented about <u>any 5 Topics</u> selected by college for awareness under Extension Work. The college may select more than 5 topics if the enrolment of learners is more than 200. The learners will participate in above activities based on these topics selected by college.)</b></p> <ol style="list-style-type: none"> <li>1. Maharashtra Policy for women.</li> <li>2. Status of women in India. / Women achievers of modern India</li> <li>3. Banking procedures.</li> <li>4. Legal procedures.</li> <li>5. Violence against women / Laws protecting women/ Inheritance laws.</li> <li>6. Child Labour.</li> <li>7. Environment- pollution and its effect / Save Trees and Natural Resources</li> <li>8. Water Harvesting.</li> <li>9. Pollution (Noise pollution / industrial pollution etc.)</li> <li>10. Issues related to LGBT.</li> <li>11. HIV –AIDS / Covid 19 etc.</li> <li>12. Consumer Awareness (Act 2019), Need and Importance</li> <li>13. E-waste management</li> <li>14. Stress and Harassment.</li> <li>15. Global warming</li> <li>16. Importance of Ethics and Values</li> <li>17. Old Age Homes / Status of Senior Citizens</li> <li>18. Distance Education Opportunities</li> <li>19. First Aid Awareness</li> <li>20. Election Literacy / Voting rights / Human Rights</li> </ol>	
5	<p><u>Report Writing and Final submission of assignment / report</u></p> <p><b>The learners will be oriented to prepare final assignment / report of the activities to the college.</b> Present report during the college program. Proforma of Report to be prepared by college.</p> <ul style="list-style-type: none"> <li>- College will organize a program in the hall / classroom for all learners and give them opportunity to present their assignment</li> </ul>	2 Lectures

	/ report with PPT presentation followed by question answer session / test / interview by the college.	
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### **Evaluation Pattern**

#### **Internal Assessment**

<b>Sr. No.</b>	<b>Assessment Criteria</b>	<b>Maximum Marks</b>
1	Attendance, punctuality, completion of hours, participation in programs, presentations and feedback.	10
2	Proficiency in required skill sets, overall performance, submission of written report / assignments and expected development.	10
	Total	20 Marks

#### **External Assessment**

**(Based on Extension Work guidelines and five enlisted topics chosen by the college.)**

#### **Question Paper Pattern**

**Time: 1.00 Hours**

**Total Marks 30**

**Instructions: 1. All questions are compulsory.**

**2. Figures to the right indicate maximum marks.**

Q.1. Rewrite the following statement by choosing correct alternative given below. - 06 Marks  
(6 statements. One mark each)

Q.2. Write short Notes On (Any Two out of Four) - 06 Marks

Q.3. Answer the following questions. (Any Three out of Five) - 18 Marks

**References:**

- Guidelines for Extension Work published by Department of Lifelong Learning and Extension, University of Mumbai.
- Agricultural Extension: Principles and Methods" by "Ray V. Herren (2008)
- Agricultural Extension by G. S. R. Murthy (2010)
- Introduction to Agricultural Extension by S. S. Acharya (2015)
- Agricultural Extension in Developing Countries by R. W. Snapp (2012)
- Extension Communication and Management by B. M. Panda (2016)

**Sign of BOS Chairman  
Prof. Kunal Jadhav  
Ad-hoc Board of  
Studies in Extension  
Work**

**Sign of the Offg.  
Associate Dean  
Dr. Suchitra Naik  
Faculty of  
Humanities**

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Associate Dean  
Dr. Manisha Karne  
Faculty of  
Humanities**

**Sign of the Dean  
Prof. Dr. Anil Singh  
Faculty of  
Humanities**

**As Per NEP 2020**

**University of Mumbai**



**Title of the Program**

**Co-Curricular Course  
Introduction to Sports, Physical Literacy,  
Health and Fitness and Yog**

**SEM I**

**Syllabus for Two Credit**

**(With effect from the academic year 2024-25)**

## Semester I Course Structure

Semester	Paper	Title of Paper	No of lecture (Theory)	Internal Evaluation (IE)	End Semester Evaluation	Total Marks	Credits
First	CC	Introduction to Sports, Physical Literacy, Health & Fitness and Yoga	30	20	30	50	02
Second	CC	Introduction to Sports, Physical Literacy, Health & Fitness and Yoga	30	20	30	50	02
<b>Total</b>	-	-	<b>60</b>	<b>40</b>	<b>60</b>	<b>100</b>	<b>04</b>

### Semester I

#### 1.1 Preamble:

India is growing rapidly as a global super-power. To face the challenges of the century and to keep up with the pace of the world, maintaining health is of prime importance. Giving thrust to healthy society, Physical Education, Sports, Health & fitness and Yoga are of great significance in today's world. The Government of India insists on Physical Fitness, Mental Health and Overall Development of Personality for every citizen. In these lines, the Government has launched Fit India Movement, Khelo India, TOPS and National Sports Day, International Day of Yoga etc. These initiatives have given impetus and awareness among general public, professional and academicians. However, creating efficient and skilled human resource in the field of Physical Education, Sports and Yoga is identified as the need of the hour. Thus, the Governments of India and Government of Maharashtra have included Physical Education, Sports and Yoga as a key area under the NEP 2020.

#### 1.2 Objectives of the Course:

1. To make students familiarize with concepts of Health, Fitness, Yoga, Sports & Physical Literacy.
2. To sensitize the students about background knowledge of Sports structure of Sports Federations, Indian Olympic Association, Khelo India Schemes, FIT India movement, National Sports Day, Intercollegiate Sports structure of University of Mumbai.

3. To familiarize the students with the various physical education concepts and information regarding various Olympic Sports.
4. To make students aware about famous sports personalities and various awards given to Sports person and coaches.
5. To educate students regarding various career opportunities in the sports management, sports coaching, sports industry, health and fitness, sports infrastructure, yoga, etc.
6. The course is designed primarily to educate those interested in becoming a Physical Literacy Trainer/Ambassador as well as those who wish to stay lifelong active and want to influence others to be active for life.

### **1.3 Salient features of the course:**

1. The course is designed to enhance the Competency, attitude and skills related knowledge to Physical Literacy, health & fitness, Sports & Yoga.
2. The course is design to implemented as per CBCS pattern .

### **1.4 Utility of the course:**

1. The course may provide opportunity in the field of physical education, sports management, health & fitness, yoga, etc.
2. The course is significant to enhance the abilities of the student to work in the different fields of physical education in the area of coaching, event management, health & fitness, yoga etc.
3. The professional abilities and personality of the students may be enhanced.

### **1.5 Program outcomes:**

By the end of the program the students will be able to:

1. The curriculum would enable the pass out students to be entrepreneur (to start their own fitness center, gym, yoga studio etc.) and device appropriate fitness program for different genders and age groups at all level
2. The curriculum would enable to officiate, supervise various sports events and organize sports events.
3. Students acquire the knowledge of Physical Education, Sports and Yoga and understand the purpose and its development.
4. The student learns to plan, organize and execute sports events.
5. Student will learn theoretical and practical aspects of game of his choice to apply at various levels for teaching, learning and coaching purposes efficiently.
6. Student acquires the knowledge of opted games, sports and yoga and also learns the technical and tactical experience of it.
7. Student will learn to apply knowledge of Physical fitness and exercise management to lead better quality life.
8. Students will understand and learn different dimension of active life style.
9. Student will learn the knowledge of nutrition and diet.
10. Students will be able to assess the physical fitness in a scientific way.
11. The students will be able to continue professional courses and research in Physical Education, sports and yoga.
12. It helps the student to understand theory and practical aspects of physical literacy. These aspects include role of motivation and confidence, how to focus on positive experience, new styles of teaching, inclusive session planning and review the progress in physical activities.

**1.6 Programme Duration:** The structure of Sports & Physical Literacy has two semesters in total covering a period of two years.

**1.7 Duration of the Course:** First Year comprises two semesters. Each semester will have theory paper 30 marks for End Semester Examination and 20 marks for Internal Evaluation for each paper.

**1.8 Modes of Internal Evaluation:** Assignment, Tutorial, Presentation, MCQs via Google, Field Visits, any other suitable mode along with marks for Attendance of the students.

**1.9 Medium of Instruction:** English

#### 1.10 Course Structure

**Credits: 02**

**Lectures: 30**

**Marks: 50**

<b>Unit Number</b>	<b>Title of the Unit</b>	<b>No. of Lecture</b>	<b>No. of Credits</b>
1	<b>Introduction to Sports, Physical Literacy, Health &amp; fitness and Yoga</b> 1.1 Meaning and Definition of Sports, Physical Literacy, Health & Fitness and Yoga 1.2 Aim, Objectives & Importance of Sports, Physical Literacy, Health & Fitness and Yoga 1.3 History of Sports, Physical Literacy, Physical Education and Yoga 1.4 Modern trends of Sports, Physical Literacy, Health & Fitness and Yoga	15	1

2	<p><b>Introduction to Structure of Sports associations, Fitness Training &amp; Yogic Asanas</b></p> <p>2.1 Various government schemes, awards and famous sports personalities</p> <p>2.2 Sports Structure of Sports Federations, Khelo India, Sports Tournaments of University of Mumbai and Indian Olympic Association</p> <p>2.3 Fundamental Principles of Fitness training and Yoga</p> <p>2.4 Components of health related and skill related physical fitness</p> <p>2.5 Types of Yogic practices – Asanas, Pranayama and Meditation</p>	15	1
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### References –

1. Bucher, C. A. (n.d.) Foundation of physical education. St. Louis: The C.V. Mosby Co. Deshpande, S. H. (2014). Physical Education in Ancient India. Amravati: Degree college of Physical education.
2. Mohan, V. M. (1969). Principles of physical education. Delhi: Metropolitan Book Dep. Nixon, E. E. & Cozen, F.W. (1969). An introduction to physical education. Philadelphia: W.B. Saunders Co.
3. William, J. F. (1964). The principles of physical education. Philadelphia: W.B. Saunders Co.
4. Coalter, F. (2013) Sport for Development: What game are we playing? .Routledge.
5. Singh Hardayal (1991), Science of Sports Training, DVS Publication, New Delhi
6. Muller, J. P.(2000). Health, Exercise and Fitness. Delhi : Sports.
7. Russell, R.P.(1994). Health and Fitness Through Physical Education. USA : Human Kinetics.
8. Uppal, A.K. (1992). Physical Fitness. New Delhi : Friends Publication.
9. Nagendra, H. R. & Nagarathna, R. (2002). Samagra Yoga Chikitse. Bengaluru: Swami Vivekananda Yoga Prakasana.
10. Kumar, Ajith. (1984) Yoga Pravesha. Bengaluru: Rashtrothanna Prakashana.
11. D.M Jyoti, Yoga and Physical Activities (2015) lulu.com3101, Hills borough, NC27609, United States
12. D.M Jyoti, Athletics (2015) lulu.com3101, Hills borough, NC27609, United States
13. Gharote, M. L. & Ganguly, H. (1988). Teaching methods for yogic practices. Lonawala: Kaivalyadhama.
14. Pinto John and Roshan Kumar Shetty (2021) Introduction to Physical Education, Louis Publications, Mangalore
15. Shekar, K. C. (2003). Yoga for health. Delhi: Khel Sahitya Kendra.
16. Amit Arjun Budhe, (2015) Career aspects and Management in Physical Education, Sports Publication, New Delhi
17. Pinto John and Ramachandra K (2021) Kannada Version, Daihika Shikshanada Parichaya, Louis



**As Per NEP 2020**

**University of Mumbai**



**Title of the Program**

**Introduction to Cultural Activities**

**SEM I**

**Syllabus for Two Credit**

**(With effect from the academic year 2024-25)**

## Aims and Objectives

- To study the importance of cultural activities in India.
- To discuss the historical importance of cultural activities.
- To define and describe the overview of cultural practices at Indian and Global level.
- To list the various forms of cultural activities and its applied skills.
- To describe the role of organizations for organizing cultural activities in India.

## Learning Outcomes

- Understand the significance of cultural activities
- Sensitize students towards Indian culture and its preservation
- Apply the knowledge and skills of the cultural activities in their practical life
- Participate in the various cultural activities

## Modules at Glance Semester I

Module No.	Unit	Content	No. of Hours
1	I	Overview to Cultural Activities	05
	II	History of Student Cultural Activities	05
2	III	Forms / Types of Literary and Fine Arts Activities and its Applied Skills	10
	IV	Forms / Types of Performing Arts Activities and its Applied Skills	10
<b>Total No. of Hours</b>			<b>30</b>

Module No.	Unit	Content	No. of Hours
1	<b>I</b>	<b>1.1 Overview to Cultural Activities</b> <ul style="list-style-type: none"><li>• Definition of culture and its manifestations</li><li>• Understanding cultural diversity and inclusivity</li><li>• The role of cultural activities in preserving heritage</li><li>• Overview of Indian cultural practices</li><li>• Overview of global cultural practices</li></ul>	05
	<b>II</b>	<b>2.1 History of Student Cultural Activities</b> <ul style="list-style-type: none"><li>□ Role of student cultural activities</li><li>□ History of student cultural activities in India</li></ul>	05

		<ul style="list-style-type: none"> <li>• Role of AIU in preserving cultural heritage of India</li> <li>• History of student cultural activities in Maharashtra</li> <li>• Student Cultural activities at University of Mumbai</li> </ul>	
2	III	<p><b>3.1 Forms / Types of Literary and Fine Arts Activities and its Applied Skills</b></p> <p><b>3.1.1 Various Forms of Literary Arts</b></p> <ul style="list-style-type: none"> <li>• <b>Elocution:</b> Reading Skills, Soft Skills, Languages, Communication Skills, etc.</li> <li>• <b>Debate:</b> Reading Skills, Soft Skills, Languages, Communication Skills, etc.</li> <li>• <b>Story Writing:</b> Introduction, Plot, Characterization, Presentation, Relevance, Language Style, etc.</li> <li>• <b>Story Telling:</b> Introduction, Plot, Characterization, Presentation, Relevance, Language Style, etc.</li> <li>• <b>Quiz:</b> General Knowledge skills</li> </ul> <p><b>3.1.2 Various Forms of Fine Arts</b></p> <ul style="list-style-type: none"> <li>• <b>Painting:</b> Visualization, Delivery of the Subject, Composition, Colour Application, Presentation and Overall Impact</li> <li>• <b>Collage:</b> Visualization, Delivery of the Subject, Handling of Medium, Composition, Presentation and Overall Impact</li> <li>• <b>Poster Making:</b> Visualization, Delivery of the Subject, Presentation, Tagline and Overall Impact</li> <li>• <b>Clay Modeling:</b> Visualization, Delivery of the Subject, Handling of Medium, Composition, Presentation and Overall Impact</li> <li>• <b>Cartooning:</b> Visualization, Delivery of the Subject, Characters, Synchronization, Colour Application, Composition, Presentation and Overall Impact</li> <li>• <b>Rangoli:</b> Visualization, Delivery of the Subject, Colour Scheme, Elements, Presentation and Overall Impact</li> <li>• <b>Mehendi Designing:</b> Originality, Creativity, Decorative Art with Aesthetic Sense, Presentation and Overall Impact</li> </ul>	10

		<ul style="list-style-type: none"> <li>• <b>Spot Photography:</b> Impact, Composition, Technical Quality and Suitability for the Specific Theme</li> <li>• <b>Installation:</b> Visualization, Delivery of the Subject, Handling of Medium, Synchronization, Composition, Presentation and Overall Impact</li> </ul>	
	<b>IV</b>	<p><b>4.1 Forms / Types of Performing Arts Activities and its Applied Skills</b></p> <p><b>4.1.1 Various Forms of Dance</b></p> <ul style="list-style-type: none"> <li>• <b>Folk Dance:</b> History and Origin of Folk Dance In India, Types and their Uniqueness, Significance of Folk Dance, Folk Dances in Maharashtra</li> <li>• <b>Classical Dance:</b> History of Classical Dance, Types and their Peculiarities, Significance of Classical Dances in India</li> </ul> <p><b>4.1.2 Various Forms of Theatre</b></p> <ul style="list-style-type: none"> <li>• History of Indian Theatre</li> <li>• Types and their Uniqueness</li> <li>• Significance of Indian Theatre</li> <li>• <b>Various Forms of Theatre:</b> One Act Play, Skit, Mime, Mimicry</li> </ul> <p><b>4.1.3 Various Forms of Music</b></p> <ul style="list-style-type: none"> <li>• History of Indian Music,</li> <li>• Types and their Uniqueness,</li> <li>• Significance of Music in India</li> <li>• <b>Various Forms of Music:</b> Classical Singing, Light Vocal, Percussion, Non-Percussion, Nattiyasangeet, Western Vocal, Western Instrumental</li> </ul>	<b>10</b>

### Scheme of Evaluation

The Scheme of Examination shall be of 50 marks. It will be divided into Internal Evaluation (20 marks) and Semester End Examination (30 Marks).

### Semester I (50 Marks, 2 Credits) Internal Evaluation (20 Marks)

Sr. No.	Particulars	Marks
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1	Presentation <b>OR</b> Project <b>OR</b> Assignment	15
2	Participation in Workshop / Conference / Seminar (as decided by the Teacher) <b>OR</b> Participation in Online Workshop / Conference / Seminar (as decided by the Teacher) <b>OR</b> Field Visit <b>OR</b> Attendance	5
<b>Total</b>		<b>20</b>

### Semester End Examination (30 Marks)

Question No.	Particulars	Marks
1	<b>Objective Type Questions (All Units)</b>	6
2	<b>Descriptive Question(s) on Unit I</b> [This question may be divided into sub questions like (a) (b) for 3 Marks + 3 Marks or 4 Marks + 2 Marks pattern]	6
3	<b>Descriptive Question(s) on Unit II</b> [This question may be divided into sub questions like (a) (b) for 3 Marks + 3 Marks or 4 Marks + 2 Marks pattern]	6
4	<b>Descriptive Question(s) on Unit III</b> [This question may be divided into sub questions like (a) (b) for 3 Marks + 3 Marks or 4 Marks + 2 Marks pattern]	6
5	<b>Descriptive Question(s) on Unit IV</b> [This question may be divided into sub questions like (a) (b) for 3 Marks + 3 Marks or 4 Marks + 2 Marks pattern]	6
Total		30

### Reference Books

- 1) Rabindranath Tagore, The Centre of Indian Culture. Rupa and Co, India, 2017.
- 2) Chopra, J. K. Indian Heritage and Culture. Unique Publisher, India, 2013.
- 3) Patnaik Devdatta, Indian Culture, Art and Heritage. Pearson, India, 2021.
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- 5) Pingle Bhavanrav A., History of Indian Music: with particular reference to theory and practice, Dev Publishers and Distributors, India, 2021.
- 6) Popley Herbert A., The Music of India. Central Archaeological Library, New Delhi, 1921.

- 7) Tomory Edith, History of Fine Arts in India and the West. Orient Longman, Mumbai, 1989.
- 8) Arthur Schopenhauer, The Art of Literature, S. Sonnenschein and co London. 1981.
- 9) M. Keith Booker, A Practical Introduction to Literary theory and Criticism. Routledge. Michigan, 1996.
- 10) Vatsyayan Kapila, Indian Classical Dance. Publications Division, Ministry of Information and Broadcasting, Govt. of India, 1992.
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**As Per NEP 2020**

**University of Mumbai**



**Title of the Program**

**Co-Curricular Course  
NATIONAL SERVICE SCHEME**

**SEM I & SEM II**

**Syllabus for Two Credit**

**(With effect from the academic year 2024-25)**

**UNIVERSITY OF MUMBAI**  
**National Service Scheme**

**1.1 Preamble:**

Students in the National Service Scheme are better able to comprehend all the most recent ideas. These courses include an Introduction to National Service Scheme that covers the concept of social services, which are a variety of public services meant to offer support and help to targeted specific groups, most often the underprivileged. They could be offered by individuals, autonomous, private entities, or under the management of a government body.

**1.2 Objectives of the Course:**

1. To Introduce National Service Scheme to learners and explain how it is used in current social studies.
2. To make the students aware of the need of having a foundation in social science and NSS.
3. To introduce students to social concepts and issues in society, as well as to get involved in resolving social issues.

**1.3 Learning Outcomes of the Course:** The students will be able to

1. The course will help students comprehend the foundations of the National Service Program.
2. To understand the unique camping program.
3. Students will learn about the regular activities of NSS.

**1.4. Programme Specific Outcomes:**

1. Students will be familiar with NSS fundamentals and history, particularly as they pertain to social work.
2. Students will recognize NSS and its ongoing operations.

**1.5 Programme Outcomes:**

1. Students will comprehend fundamental ideas and facts about the National Service Program.
2. Students will learn the essentials of NSS-related procedures.
3. Students will learn social work skills (such as Voter Awareness, Campus Cleanup, Tree Plantation, and Rallies).

**1.6 Modes of Internal Evaluation:** Assignment, Tutorial, Presentation, MCQs via Google, Field Visits, any other suitable mode along with marks for Attendance of the students.

**UNIVERSITY OF MUMBAI**  
**Semester I**  
**NSS CC**

**Sub: - Introduction to National Service Scheme**

**Credits: 02**

**Marks:50**

<b>Unit Number</b>	<b>SEMESTER 1 Title of the Unit</b>	<b>No. of Lecture</b>
1	<b>Introduction to National Services Scheme</b> NSS- History,Philosophy & Need of Emergence Aims, Objectives, Motto and Emblem of NSS, NSS Theme Song Organizational Structure of NSS-Hierarchy at different levels (National,State,University,College) Roles and Responsibilities of Program Officer Financial Provisions -Grant in Aid for NSS Advisory committees & their functions	15
2	NSS Programmes and Activities (Regular activities) NSS Programmes and Activities (Special Camp activities) Yearly Action Plan of NSS Unit Volunteerism– Meaning, definition, basic qualities of volunteers, need of volunteerism for National development. Opportunities in NSS for Volunteers (Various Camps) Report Writing	15

## Evaluation Pattern

### Internal Assessment

Assessment Criteria	Marks
Assignment / Project / Quiz/Presentations	10
Attendance, Class and Activity Participation	10
<b>Total</b>	<b>20</b>

### External Assessment Question Paper Pattern

**Time: 1:00 Hours**

**Total Marks: 30**

- Introduction:-** 1. All questions are compulsory.  
2. Figure to the Right indicates full marks.  
3. Draw neat labeled drawings wherever necessary.
- 

Q.1) Rewrite the following by choosing the correct options given below  
(with four alternatives) 6 Objectives question of 1 mark each **06 marks.**

1. a)                      b)                      c)                      d)  
2. a)                      b)                      c)                      d)

Q.2) Short Notes . (Any Two out of Four) **06marks**

- 1.
- 2.
- 3.
- 4.

Q.3) Answer the following questions (Any Three out of Five) **18 marks**

- 1.
  - 2.
  - 3.
  - 4.
  - 5.
- .....

## References:

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2. Salunkhe P.B. Ed, Chhtrapati Shahu the Pillar of Social Democracy
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19. Clarke, N. (2011). An integrated conceptual model of respect in leadership