

Nirmala Memorial Foundation College of Commerce and Science

(Autonomous)

Re-accredited by NAAC with B++, ISO 9001-2015 Certified, Recognised under section 2(f) & 12(B) of the UGC Act 1956

Permanently Affiliated to the University of Mumbai,



Syllabus

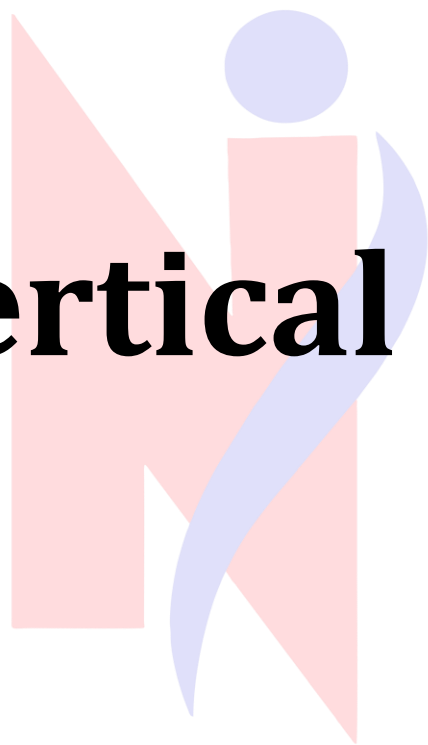
Bachelor of Science in Information Technology (B.Sc. Information Technology) (Semester II)

(Programme Code: UGIT01)

As Per New Education Policy (NEP) 2020

*(To be implemented from the Academic Year 2025-2026)
Approved in the Academic Council Meeting held on 5th July 2025*

Vertical - I



A stylized logo featuring a large, light red letter 'N' in the background. Overlaid on the 'N' is a blue figure of a person with arms raised, composed of a circular head, a rectangular torso, and a curved, wing-like shape. The text 'Semester- II' is centered in front of the logo.

Semester- II

Name of the Course: Programming with C++ using OOP

Sr. No.	Heading	Particulars
1	Description the course:	This course provides students' knowledge and skills to understand and implement the object oriented skills. It will help them to implement OOP solutions to real-world problems.
2	Vertical:	Major
3	Type:	Theory
4	Credits:	2 credits
5	Hours Allotted:	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives:	<ol style="list-style-type: none">1. Distinguish between Object-Oriented Programming and Procedural Programming approaches.2. Apply the core principles of OOP to write code that is modular, maintainable, and reusable.3. Grasp essential OOP concepts such as polymorphism, virtual functions, inheritance, and handling exceptions.4. Gain knowledge of file management and input/output operations using C++.5. Develop and implement classes and objects effectively to model real-world problems.6. Utilize debugging and testing techniques to ensure correctness and robustness of C++ programs.
8	Course Outcomes:	<p>CO1: Understand and articulate the core principles of Object-Oriented Programming and their role in software engineering.</p> <p>CO2: Design and construct classes and objects to effectively represent real-world scenarios in software applications.</p> <p>CO3: Utilize advanced OOP features such as polymorphism, virtual functions, inheritance, and exception handling in programming.</p> <p>CO4: Implement concepts like operator overloading, dynamic polymorphism, and generic programming to write flexible and reusable code.</p> <p>CO5: Apply file input/output operations to manage data persistence within applications.</p>
9	Modules:-	
	Module 1 (15 hours):	
		<p>Introduction to OOP: Objects, Classes, Data Abstraction and Data Encapsulation, Inheritance, Polymorphism, Dynamic Binding, Message Passing.</p> <p>Classes and Objects: Simple classes (Class specification, class members accessing), Defining member functions, passing object as an argument, Returning object from functions, friend classes, friend function.</p> <p>Constructors and Destructors: Introduction, Default Constructor, Parameterized</p>

	<p>Constructor and examples, Destructors.</p> <p>Inheritance: Introduction, Advantages provided by inheritance, choosing the access specifier, Derived class declaration, derived class constructors, class hierarchies, multiple inheritance, multilevel inheritance, hybrid inheritance.</p>	
	<p>Module 2 (15 hours):</p>	
	<p>Polymorphism: Types, Concept of function overloading, overloaded operators, overloading unary and binary operators.</p> <p>Virtual Functions: Introduction and need, Pure Virtual Functions, this Pointer, abstract classes, virtual destructors.</p> <p>Exception Handling: Introduction, Exception Handling Mechanism, Concept of throw & catch with example.</p> <p>Working with Files: Introduction, File Operations, Various File Modes, File Pointer and their Manipulation.</p>	
10	<p>Text Books</p> <ol style="list-style-type: none"> 1. Object Oriented Programming in C++ , E Balagurusamy 2. Object-Oriented Programming in C++ , Robert Lafore, Pearson Education. 	
11	<p>Reference Books</p> <ol style="list-style-type: none"> 1. Programming with ANSI C++ , Bhushan Trivedi 2. Oriented Programming with C++, Ravichandran 	
12	Internal Continuous Assessment: 40%	Semester End Examination: 60%
13	<p>Continuous Evaluation through:</p> <p>Class test of 15 marks</p> <p>Quizzes/ Presentations/ Assignments: 5 marks</p> <p>Total: 20 marks</p>	External Examination (30 Marks)– 1 hr duration
14	<p>Format of Question Paper: (Semester End Examination: 30 Marks. Duration:1 hour)</p> <p>Q1: Attempt any three (out of five) from Module 1 (15 marks)</p> <p>Q2: Attempt any three (out of five) from Module 2 (15 marks)</p>	

Name of the Course: Web Technologies

Sr. No.	Heading	Particulars
1	Description the course:	The objective of the Web Technology course is to provide instructions on creating and maintaining a web page for publishing on the Internet. Students will be able to use HTML editor to author pages that include text and graphics.
2	Vertical:	Major
3	Type:	Theory
4	Credits:	2 credits
5	Hours Allotted:	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives:	<ol style="list-style-type: none"> 1. To understand the fundamentals of Internet, and the principles of web design 2. To develop basic websites using HTML and Style Sheets. 3. To understand different style sheets used in web designing. 4. To implement JavaScript as a tool to add dynamism to static HTML pages.
8	Course Outcomes:	<p>CO1: Learners will be able to use the HTML programming language</p> <p>CO2: Learners will be able to execute web pages designed using HTML</p> <p>CO3: Describe the concepts of World Wide Web, and the requirements of effective web</p> <p>CO4: design List various tags in html and use these to create web page</p> <p>CO5: Gain necessary skills for designing and developing web applications</p>
9	Modules:- Module 1 (15 hours):	<p>Introduction to HTML 5: Definition of HTML, HTML Tags,Element, HTML Document Structure, Formatting Text by Using Tags: Headings ,Bold and Italic, Superscript, Subscript, Monospace and Preformatted Text Formatting, Using Lists: Creating Bulleted and Numbered Lists,Definition Lists, Inserting Special Characters, Inserting Horizontal Lines, Choosing Background and Foreground Colors. Creating Hyperlinks and Anchors-Hyperlinking to a Web Page, Creating Hyperlinking to an E-Mail Address, Hyperlinking to Other Content.Style Sheets and Graphics: Definition, type, Style Rules, Creating Styles for Nested Tags, Applying Styles to Hyperlinks, Creating and Linking to External Style Sheets. Formatting Text by Using Style Sheets: Font Family, Font Size and Color, Applying Bold ,Italics, Strikethrough and Underlining, Inline Spans, Spacing Between Letters. Formatting Paragraphs by Using Style Sheets: Indenting Paragraphs, Applying a Border to a Paragraph, Specifying the Horizontal Alignment of a Paragraph.</p> <p>Displaying Graphics Selecting a Graphics Format, Preparing Graphics for Web Use, Inserting Graphics, Arranging Elements on the Page, Controlling Image Size and Padding, Hyperlinking from Graphics, Using Thumbnail Graphics, Including Alternate Text for Graphics, Adding Figure Captions</p> <p>2.Page Layout and Navigation- Creating Navigational Aids , Creating a Text-Based and Graphical Navigation Bar, Creating an Image Map, Creating Tables, Specifying the Size of a Table, Specifying the Width of a Column, Merging Table Cells. Formatting Tables-</p>

Applying Table Borders, Applying Borders by Using Attributes, Applying Borders by Using Styles, Changing Cell Padding, Spacing, and Alignment. Setting Horizontal and Vertical Alignment **Creating User Forms-** Creating a Text Box, Text Area, Submit or Clear Button, Check Boxes and Option Buttons, Embedding Video Clips- Introducing the Tag, The Tag: Your Fallback Plan, Placing a Video Clip on a Web Page. Incorporating Audio on a Web Page- Playing Audio with the Tag, Placing an Audio Clip on a Web Page.

Module 2 (15 hours):

JavaScript: What is JavaScript?: Variable, statements, Operators, Comments, constructs, Functions, expressions, JavaScript console, Scope, Events, Strings, String Methods, Numbers, Number Methods, Dates, Date Formats, Date,Methods,Arrays, Array Methods, Booleans, Comparisons, Control Structures: Conditions, Switch, Loop For, Loop While, Break. Operators: Arithmetic Operators, Assignment Operators, Comparison Operators, Logical Operators, Bitwise Operators Statements: Conditional Statements – if else, switch, Loops – while, do while, for, for in, for of, Loop Control – break, continue, labels JavaScript Objects: User-defined Objects, with Keyword, Native Objects – Array, String, Date, Math, Number, RegExp, Cookies Events and Event Handlers: HTML Events, DOM Events, DOM Event Listener, onAbort, onBlur, onChange, onClick, onDbClick, onError, onFocus, onKeyDown, onKeyPress, onKeyUp, onLoad, onMouseDown, onMouseMove, onMouseOut, onMouseOver, onMouseUp, onReset, onResize, onSelect, onSubmit, onUnload

Basics of JQuery, JQuery selection and events, JQuery Effects, JQuery traversal and manipulation, Data attributes and templates, jQuery Plugins.

JSON: Introduction, JSON Grammar, JSON Values, JSON Tokens, Syntax, JSON vs. XML, Data Types, Objects, Arrays, Creating JSON, JSON Object, Parsing JSON, Persisting JSON, Data Interchange, JSON HTML, JSONP

Introduction to Laraval (the PHP Framework) Introduction to Angular(single-page web application framework)

10

Text Books

1. Step by Step HTML5 by Faithe Wempen, Microsoft Press, 2011
2. The Complete Reference HTML & CSS, Thomas A. Powell. McGrawHill, 5 th Edition, 2010
3. The Complete Reference JavaScript Thomas A. Powell & Fritz Schneider McGrawHill 3rd 2012
4. Web Technologies: HTML, JAVASCRIPT, PHP, JAVA, JSP, XML and AJAX, Black Book Kindle Edition, by Kogent Learning Solutions Inc
5. HTML Black Book, Covers CSS 3, JavaScript, XML, XHTML, AJAX, PHP and jQuery, 2ed Kindle Edition, by DT Editorial Services
6. JSON at work, Tom MArrs, O'REILLY, First edition, 2017

11

Reference Books

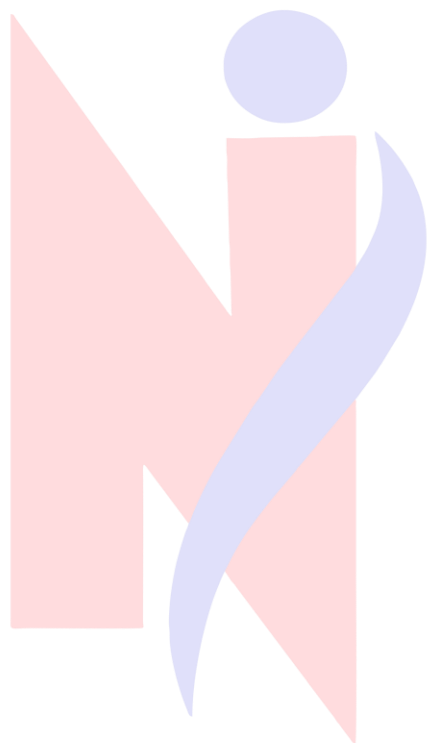
1. Learning Web Design A Beginner's Guide to Html, CSS, JavaScript, And Web Graphics, Jennifer Niederst Robbins, O'Reilly, 5th Edition, 2018.
2. Ivan Bayross, "Web Enabled Commercial Applications Development using HTML,
3. DHTML, Javascript, Perl CGI", BPB, 2004.
4. HTML 5 for Web Designers (By: Jeremy Keith) – [http:// freepdf-books.com](http://freepdf-books.com)
5. Introduction to JavaScript Object Notation: A To-the-Point Guide to JSON kindle Edition by Lindsay Bassett, O'REILLY
6. **Web Resources:** <https://www.w3schools.in/laravel>, <https://angular.io/tutorial>.

12

Internal Continuous Assessment: 40%

Semester End Examination: 60%

13	Continuous Evaluation through: Class test of 15 marks Quizzes/ Presentations/ Assignments: 5 marks Total: 20 marks	External Examination (30 Marks)– 1 hr duration
14	Format of Question Paper: (Semester End Examination: 30 Marks. Duration:1 hour) Q1: Attempt any three (out of five) from Module 1 (15 marks) Q2: Attempt any three (out of five) from Module 2 (15 marks)	



Name of the Course: C++ Programming + Web Technologies Practical

Sr. No.	Heading	Particulars
1	Description the course:	<p>C++ Programming Practical This course provides hands-on programming experience in Object-Oriented Programming using C++. Students will develop structured, reusable, and maintainable software through real-world problems focusing on C++ features like classes, inheritance, polymorphism, file handling, templates, and exception handling. Emphasis is placed on writing clean, modular code following object-oriented design principles.</p> <p>Web Technologies Practical Web Designing Practical Applying basic programming principles to the construction of websites</p>
2	Vertical:	Major
3	Type:	Practical
4	Credits:	2 credits (60 hours practical work in a semester)
5	Hours Allotted:	30 Hours (C++ Programming Practical)+ 30 Hours (Web Technologies Practical)
6	Marks Allotted:	50 Marks
7	Course Objectives:	<ol style="list-style-type: none"> 1. Understand the core concepts and unique features of the C++ programming language. 2. Apply object-oriented programming techniques to solve practical problems. 3. Develop well-structured C++ applications using features like classes, inheritance, templates, and exceptions. 4. Demonstrate competency in compiling, debugging, and testing C++ programs. 5. To understand how to effectively implement HTML. 6. To develop the concept of basic and advanced text formatting. 7. To understand Hyper linking, Designing of webpage.
8	Course Outcomes:	<p>CO1: Understand and use object-oriented principles such as encapsulation, inheritance, and polymorphism.</p> <p>CO2: Design and implement C++ programs using constructors, destructors, friend functions, and operator overloading.</p> <p>CO3: Utilize C++ features like dynamic memory allocation, templates, and exception handling.</p> <p>CO4: Apply stream and file I/O operations effectively in C++.</p> <p>CO5: Design modular and reusable software using advanced C++ features..</p> <p>CO6: Design static web pages using Hyper Text Markup Language (HTML).</p> <p>CO7: Use their learned skills, knowledge and abilities to develop web sites</p> <p>CO8: Collect information from the user with HTML Forms.</p> <p>CO9: Enhance the look of web pages by implementing audio and video</p>
9	Modules:-	
	Module 1 (30 hours):	
	Practical 1:-	
	a. Write a C++ program to find the volume of a cube, cone, and rectangle.	

- b. Write a C++ program to convert seconds into hours, minutes, and seconds.
- c. Write a C++ program to find the greatest of three numbers

Practical 2:-

- a. Write a C++ program to generate all the prime numbers between 1 and n.
- b. Write a C++ program to find the sum of even and odd n natural numbers.
- c. Write a C++ program using classes and objects to print student details

Practical 3:-

- a. Write a C++ program to demonstrate object counting using a static member function.
- b. Write a C++ program to find the maximum of two values using a friend function.
- c. Write a C++ program that allocates memory dynamically using a constructor.

Practical 4 :-

- a. Write a C++ program to represent complex numbers and perform operations using operator overloading.
- b. Write a C++ program to overload new and delete operators.
- c. Write a C++ program to access class members using a pointer to object members.

Practical 5 :-

- a. Write a C++ program to demonstrate single inheritance.
- b. Write a C++ program to demonstrate multiple inheritance.
- c. Write a C++ program to demonstrate multilevel inheritance.

Practical 6 :-

- a. Write a C++ program to demonstrate hierarchical inheritance.
- b. Write a C++ program to show constructor calling order in multiple inheritance.
- c. Write a C++ program to calculate a student's final result using multilevel inheritance combining academic and sports scores.

Practical 7 :-

- a. Write a C++ program to illustrate the use of virtual functions.
- b. Write a C++ program to use this pointer to find the eldest person from a group.
- c. Write a C++ program to create a digital library system using runtime polymorphism.

Practical 8 :-

- a. Write a C++ program to convert string to integer and vice versa.
- b. Write a C++ program demonstrating formatting using self, unself, and precision.
- c. Write a C++ program to perform string I/O operations with file storage.

Practical 9 :-

- a. Write a C++ program to perform binary read/write operations on a file using objects.
- b. Write a C++ program to implement exception handling with multiple catch blocks.
- c. Write a C++ program to implement exception handling with rethrowing in Exception.

Practical 10 :-

- a. Write a C++ program to create a simple calculator using class templates.
- b. Write a C++ program to get the maximum of two numbers using class templates.

Module 2 (30 hours):

Practical 1:- Design a webpage that makes use of Document Structure Tags ,Various Text Formatting Tags ,List Tags ,Image and Image Maps

Practical 2:- Design a webpage that makes use of Table tags ,Form Tags (forms with various form elements), Navigation across multiple pages, Embedded Multimedia elements

Practical 3:- Design a webpage that make use of Cascading Style Sheets with CSS properties to change the background of a Page, CSS properties to change Fonts and Text Styles, CSS properties for positioning an element

Practical 4 :- Write JavaScript code for Performing various mathematical operations such as calculating factorial / finding Fibonacci Series / Displaying Prime Numbers in a given range / Evaluating Expressions / Calculating reverse of a number , Validating the various Form

Elements

Practical 5 :- Write JavaScript code for Demonstrating different JavaScript Objects such as String, RegExp, Math, Date. Demonstrating different JavaScript Objects such as Window, Navigator, History, Location, Document, Storing and Retrieving Cookies.

Practical 6 :- Write JavaScript code for Validating User fields , Write a JavaScript program to create a calculator, Write a JavaScript program that prompts the user to enter a student's name and age, then checks whether the student is eligible to vote or not .

Practical 7 :- JQuery: Use JQuery effect in page, Write a JQuery code to find the data passed with the on() method for each element, Use JQuery Events

Practical 8 :- JSON basics and working with JSON, Demonstrate us of JSON objects in array, print array on web page using document object, Read a data from JSON file and convert it into JavaScript object and display the data in web page using document object.

Practical 9 :- Angular JS: Create a simple HTML “Hello World” Project using AngularJS, Write a program to perform validation of a form using AngularJS.

Practical 10 :- Laravel: Create a route in Laravel that returns "Hello, World", Define a route that accepts a parameter (e.g., /user/{id}) and passes it to a controller, Create a form that submits data to a controller and saves it in the database.

10

Text Books

1. Step by Step HTML5, Faithe Wempen, Microsoft Press,2011
2. The Complete Reference HTML & CSS, Thomas A. Powell. McGraw Hill, 5th Edition,2010
3. Programming with ANSI C++ , Bhushan Trivedi
4. Oriented Programming with C++, Ravichandran

11

Reference Books

- 1.MASTERING C, K. R. Venugopal and Sudeep R. Prasad, Tata McGraw-Hill Publications.
2. “A Computer Science –Structure Programming Approaches using C”,Behrouz Forouzan, Cengage Learning.
3. Schaum outlines “Programming with C”, Byron S. Gottfried, Tata McGraw-Hill Publications.
- 4.“Basics of Computer Science”, Behrouz Forouzan , Cengage Learning.
- “Programming Techniques through C”, M. G. Venkateshmurthy, Pearson Publication.
- 5.“Programming in ANSI C”, E. Balaguruswamy, Tata McGraw-Hill Education.
6. Learning Web Design A Beginner’s Guide to Html, CSS, JavaScript, And Web Graphics, Jennifer Niederst Robbins, O’Reilly, 5th Edition,2018.
7. Web Enabled Commercial Applications Development using HTML, DHTML, Javascript, Perl CGI”, Ivan Bayross, BPB, 2004
- 8.HTML 5 for Web Designers (By: Jeremy Keith) – [http:// freepdf-books.com](http://freepdf-books.com)

12

Internal Continuous Assessment: 40%

Semester End Examination: 60%

13

Continuous Evaluation through:

Performance and write-up submission of 20 marks.

30 marks practical exam of 2 hours duration

14

Format of Question Paper: (Semester End Examination: 30 Marks. Duration: 2 hour)

Practical Slip:

Q1. From Module 1 13 marks

Q2. From Module 2 12marks

Q3. Journal and Viva 05 marks



Nirmala Memorial Foundation College of Commerce and Science

(Autonomous)

Re-accredited by NAAC with B++, ISO 9001-2015 Certified, Recognised under section 2(f) & 12(B) of the UGC Act 1956

Permanently Affiliated to the University of Mumbai,



Syllabus

Bachelor of Science in Information Technology

(B.Sc. Information Technology)

(Programme Code: UGIT01)

As Per New Education Policy (NEP) 2020

(Vertical – II)

(Minor)

(Semester – II)

(To be implemented from the Academic Year 2025-2026)

Approved in the Academic Council Meeting held on 5th July 2025

Name of the Course: Linear Algebraic Structures and Predictive Modelling

Sr. No.	Heading	Particulars
1	Description the course:	<ul style="list-style-type: none"> • Introduction: Descriptive Statistics simplifies complex data, revealing patterns through measures like central tendency and data visualization, forming the foundation for data understanding. • Relevance and Usefulness: Descriptive Statistics is essential in today's data-driven world, turning raw data into clear insights. Used across fields like business and healthcare, it helps professionals make informed decisions through measures like mean, median, and visualizations. • Applications: Widely applicable, Descriptive Statistics is employed in finance, healthcare, sociology, and beyond, making it an essential skill for professionals in data analysis. • Interest and Connection with Other Courses: Descriptive Statistics unravels complex data visually, appealing to both analytical and creative minds. It lays the groundwork for advanced studies like inferential statistics and machine learning. • Demand in the Industry: With industries becoming more data-driven, the demand for professionals skilled in Descriptive Statistics is rising—particularly in roles such as data analysts, business analysts, and statistical consultants. • Job Prospects: Professionals proficient Descriptive Statistics are highly sought after, contributing significantly to organizational success through data-driven decision-making.
2	Vertical:	Major
3	Type:	Theory
4	Credits:	2 credits (1 credit = 15 Hours for Theory)
5	Hours Allotted:	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives:	<ol style="list-style-type: none"> 1: To understand different types of Data, and to analyze and present the data. 2: To compute various Measures of Central Tendencies. 3: To compute various Measures of Dispersion. 4: To understand the concept of Skewness and Kurtosis. 5: To compute the Correlation Coefficient for bivariate data and further apply the regression analysis.
8	Course Outcomes :	<ol style="list-style-type: none"> CO 1. Able to organize, manage and present the data. CO 2. To understand the use Measures of Central Tendencies and Dispersion. CO 3. Able to understand and compute the consistent and inconsistent data CO 4. Able to identify the association between variables CO 5. Able to understand forecasting techniques and to find cause and effect relationship between variables through regression analysis.

9	Modules:- Module 1: (15 Hours)
	<p>1.Introduction of Statistics: Meaning of Statistics, Importance of Statistics, Different types of Scales: Nominal, Ordinal, Interval and ratio. Univariate frequency distribution of discrete and continuous variables and Cumulative frequency distribution. Data Presentation: Frequency Distribution, Frequency Curve, Frequency Polygon Histogram and Ogives Curves.</p> <p>2. Measures of Central Tendencies: Concept of Central Tendency: Mean, Median, Mode, characteristics of good measures of Central Tendency, Partition values: Quartiles, Deciles and Percentiles -examples of ungrouped and grouped data</p> <p>3.Measures of Dispersion: Concept of Dispersion, measures of Dispersion: Range, Quartile Deviation, Mean Absolute Deviation, Standard Deviation, Combined Standard Deviation-examples of ungrouped and grouped data, Variance.</p> <p>4.Moments: Raw and Central Moments, relation between Raw and Central moments, concept of Coefficient of Skewness and Kurtosis.</p>
	Module 2: (15 Hours)
	<p>1.Correlation: Concept of Correlation, its properties, Scatter Diagram, Karl Pearson's Coefficient of Correlation and Spearman's Rank Correlation, and Spearman' s Rank Correlation (with and without ties)</p> <p>2.Concept of multiple correlation: example for three variables</p> <p>3.Regression: Linear regression: Coefficients of regression, Concept of Linear Regression, Principle of Least Square, Fitting a straight line by method of least square. Non-linear regression: Fitting a quadratic polynomial, exponential function and multiple regression by method of least square.</p> <p>4. Relation between Correlation and Regression</p>
10	Text Books <ol style="list-style-type: none"> 1.Sarma, K. V. S. (2001). Statistics Made it Simple: Do it yourself on PC. Prentce Hall of India, NewDelhi. 2.Agarwal, B. L. (2003). Programmed Statistics, Second Edition, New Age International Publishers, NewDelhi. 3.Purohit, S. G., Gore S. D., Deshmukh S. R. (2008). Statistics Using R, Narosa Publishing House, NewDelhi. 4.Schaum"s Outline Of Theory And Problems Of Beginning Statistics, Larry J. Stephens, Schaum"s Outline Series Mcgraw-Hill 5.Gupta, S.C. and Kapoor, V.K. (1987): Fundamentals of Mathematical Statistics, S. Chand and Sons, New Delhi
11	Reference Books <ol style="list-style-type: none"> 1.Goon AM, Gupta MK, Das Gupta B: Fundamentals of Statistics, Vol-I, the World Press Pt. Ltd, Kolkata 2. Shah R.J: Descriptive Statistics: Seth Publication, Eight Edition 3.Spiegel M.R: Theory and Problems of Statistics, Schaum's Publishing Series, Tata McGraw-Hill, First Edition 4. Basic Statistics: Agarwal B.L: New Age International Ltd

12	Internal Continuous Assessment: 40%	Semester End Examination: 60%																
13	Continuous Evaluation through: Class test of 15 marks Quizzes/ Presentations/ Assignments: 5 marks Total: 20 marks	Format of Question Paper: External Examination (30 Marks)- 1 hr duration																
14	Format of Question Paper: (Semester End Examination: 30 Marks. Duration:1 hour)																	
	<table border="1"> <thead> <tr> <th>Questions</th> <th>Based On</th> <th>Options</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Q.1</td> <td>Module 1</td> <td>Any 2 out of 4</td> <td>10</td> </tr> <tr> <td>Q.2</td> <td>Module 2</td> <td>Any 2 out of 4</td> <td>10</td> </tr> <tr> <td>Q.3</td> <td>Module 1 & 2</td> <td>Any 2 out of 4</td> <td>10</td> </tr> </tbody> </table>	Questions	Based On	Options	Marks	Q.1	Module 1	Any 2 out of 4	10	Q.2	Module 2	Any 2 out of 4	10	Q.3	Module 1 & 2	Any 2 out of 4	10	
Questions	Based On	Options	Marks															
Q.1	Module 1	Any 2 out of 4	10															
Q.2	Module 2	Any 2 out of 4	10															
Q.3	Module 1 & 2	Any 2 out of 4	10															



Nirmala Memorial Foundation College of Commerce and Science

(Autonomous)

Re-accredited by NAAC with B++, ISO 9001-2015 Certified, Recognised under section 2(f) & 12(B) of the UGC Act 1956

Permanently Affiliated to the University of Mumbai,



Syllabus

Vertical – III

Open Electives(OE)

Semester II

(To be implemented from the Academic Year 2025-2026)
Approved in the Academic Council Meeting held on 5th July 2025

Name of the Course: Basics of Stock Market

Sr. No.	Heading	Particulars
1	Description the course:	<p>This course provides a comprehensive introduction to the Indian financial system, offering foundational knowledge of its structure, components, and functioning. It delves into the role of banks and other financial institutions in economic development and explores various banking services available to individuals and businesses. The course also introduces students to the basics of insurance and personal financial planning, enabling them to make informed financial decisions and develop sound saving and investment strategies.</p> <p>Through real-world examples, case studies, and practical insights, students will gain a deeper understanding of how financial instruments, services, and institutions interact to support the financial stability of individuals and the economy.</p>
2	Vertical:	Open Electives
3	Type:	Theory
4	Credits:	2 credits
5	Hours Allotted:	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives:	<ol style="list-style-type: none"> 1. Understand the concept and function of stock markets. 2. Identify the key participants and their roles in the stock market. 3. Familiarize with Indian stock exchanges (NSE & BSE). 4. Recognize common stock market terms such as shares, IPO, and dividends. 5. Compare features of stocks, bonds, mutual funds, ETFs, and SIPs. 6. Understand the concept of risk vs return. 7. Learn the importance of diversification in portfolio building.
8	Course Outcomes (CO):	<p>After completing this course, students will have the knowledge and skills to</p> <p>CO1. Explain the basic structure of stock markets, key participants, and commonly used investment terms.</p> <p>CO2. Differentiate between various investment options and evaluate them based on risk and return, with basic understanding of portfolio diversification.</p>
●	Modules:-	<p>Module 1 (15 hours): Introduction to Stock Markets</p> <ul style="list-style-type: none"> ● What is a stock market?

- Types of markets: Primary vs Secondary
- Key participants: Investors, Brokers, SEBI
- Indian stock exchanges: NSE, BSE
- Basic terms: stock, share, equity, IPO, index, dividend

Module 2 (15 hours): Investment Instruments

1. Types of investment options: Stocks, Bonds, Mutual Funds, ETFs, SIPs
2. Risk vs Return: Low-risk vs High-risk options
3. Diversification and Portfolio basics

10 Text Books

1. Halan, Monika. *Let's Talk Money*, Harper Business
2. Pathak, Bharati V. *The Indian Financial System* (selected basic chapters)
3. RBI's "Financial Literacy" booklets and SEBI's student guides

11 Reference Books

1. Investment Analysis and Portfolio Management – Prasanna Chandra
2. Security Analysis and Portfolio Management – Punithavathy Pandian
3. Financial Markets and Institutions – L.M. Bhole & Jitendra Mahakud
4. Investment Management – V.K. Bhalla

12 Internal Continuous Assessment: 40%

External Assessment : 60%

13 Continuous Evaluation through:

Semester End Examination (30 Marks)

Sr. No	Particular	Marks
1.	Class Test	15
2.	Class participation	05
	Total	20

14 Format of Question Paper: (Semester End Examination: 30 Marks. Duration:1 hour)

Questions	Type & Module	Marks
Q1.	Objective Question	
	A) Multiple choice questions	08 Marks
	B) True or False	07 Marks
Q2.	Theory Question	15 Marks
OR		
Q2.	Theory Question	15 Marks
	Total	30

Nirmala Memorial Foundation College of Commerce and Science

(Autonomous)

Re-accredited by NAAC with B++, ISO 9001-2015 Certified, Recognised under section 2(f) & 12(B) of the UGC Act 1956

Permanently Affiliated to the University of Mumbai,



Syllabus **Open Electives(OE)**

As Per New Education Policy (NEP) 2020

Vertical – III - Semester II

(To be implemented from the Academic Year 2025-2026)
Approved in the Academic Council Meeting held on 5th July 2025

Name of the Course: Research Principles And Practices

Sr. No.	Heading	Particulars
1	Description the course :	This course provides a comprehensive introduction to the principles and practices of research, with a focus on its application in academic and professional settings. Students will explore both qualitative and quantitative research methods , learn how to formulate research problems , and understand the process of developing a research proposal . Key aspects include literature review, data collection strategies, research design, and hypothesis formulation . By the end of the course, students will be equipped with the essential skills to initiate, plan, and present a research study , preparing them for future academic projects, internships, or industry-driven research.
2	Vertical :	Open Elective
3	Type :	Theory
4	Credits :	2 credits
5	Hours Allotted :	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives:	<ul style="list-style-type: none"> • To introduce students to the fundamental concepts, types, and purposes of research. • To develop an understanding of qualitative and quantitative research methodologies. • To guide students through the research process—from identifying a topic to formulating objectives and hypotheses. • To familiarize students with research design strategies, ethical considerations, and techniques for writing research proposals.
8	Course Outcomes:	<p>By the end of the course, students will:</p> <p>CO1. Gain a clear understanding of what research is and why it is important in academic and professional fields.</p> <p>CO2. Learn the difference between qualitative and quantitative research methods and when to apply them.</p> <p>CO3. Be able to identify research topics, review related literature, and frame effective research questions and hypotheses.</p> <p>CO4. Understand various research designs and how to choose appropriate methods for different types of studies.</p> <p>CO5. Acquire the skills to prepare a structured and ethical research proposal, ready for academic or practical use.</p>
9	Modules:	<p>Module 1: Foundations of Research (15 Hrs)</p> <ol style="list-style-type: none"> 1. Definition and Purpose of Research 2. Types of Research (Qualitative vs Quantitative; Basic vs Applied) 3. The Research Process (From idea to publication) 4. Sources of Research Problems 5. Research Ethics and Integrity

	Module 2: Research Design (15 Hrs) <ol style="list-style-type: none"> 1. Types of Research Designs (Experimental, Exploratory, Descriptive) 2. Formulation of Hypothesis 3. Sampling Methods and Techniques 4. Preparing a Research Proposal (Topic, Objectives, Research Questions) 5. Data Collection Techniques and Tools 	
10	References <ul style="list-style-type: none"> • Booth, W. C. Colomb, G. G. and Williams, J. M. (2016). <i>The Craft of Research</i>. 4th edition, University of Chicago Press. • Bryman, Alan. (2018). <i>Social Research Methods</i>, London: OUP. • Creswell, J.W.(2014). <i>Research Methods: A Practical Guide</i>. 9th Edition, Pearson • Creswell, J.W.(2014). <i>Research Methods: A Practical Guide</i>. 9th Edition, Pearson. • Creswell, J.W. and Creswell, D. J. (2017). <i>Research Design: Qualitative, Quantitative, and Mixed Methods Approaches</i> , 5th edition, SAGE Publications. • Creswell, J.W. and Creswell, D. J. (2017). <i>Research Design</i>, New Delhi: SAGE Publications. • Ghosh, B.N. (1984). <i>Scientific Method and Social Research</i>, New Delhi: Sterling. • Goode, W. J. and Hatt, P. K. (1952). <i>Methods in Social Research</i>, New York: Mc Graw-Hill Book Co. 	
11	Internal Continuous Assessment: 40%	Semester End Examination: 60%
12	Continuous Evaluation through: Internal Evaluation: 20 Marks <ul style="list-style-type: none"> • Classroom Presentations/ Assignments :10 Marks • Essay Submission/ Book review/ • Field Visit Report /Educational Activity Report 10Marks 	Semester End Examination : 30 Marks
14	Format of Question Paper: for the final examination Time: 1hour Marks: 30 Q.1 Answer the following: (ATTEMPT ANY 2 OUT OF 4) (10 Marks) Q.2 Answer the following: (ATTEMPT ANY 2 OUT OF 4) (10 Marks) Q.3 Answer the following: (ATTEMPT ANY 2 OUT OF 4) (10 Marks)	

Nirmala Memorial Foundation College of Commerce and Science

(Autonomous)

Re-accredited by NAAC with B++, ISO 9001-2015 Certified, Recognised under section 2(f) & 12(B) of the UGC Act 1956

Permanently Affiliated to the University of Mumbai,



Syllabus

Bachelor of Science in Information Technology (B.Sc. Information Technology) Semester – II

(Programme Code: **UGIT01)**

As Per New Education Policy (NEP) 2020

*(To be implemented from the Academic Year 2025-2026)
Approved in the Academic Council Meeting held on **5th July 2025***

A stylized logo featuring a large, light red letter 'N' on the left. To its right is a blue figure consisting of a circular head, a vertical rectangular body, and a curved, wing-like shape extending from the right side of the body. The text 'Vertical - IV' is centered horizontally and partially overlaid by the 'N' and the blue figure.

Vertical - IV

A stylized logo featuring a large, light red letter 'N' in the background. Overlaid on the right side of the 'N' is a blue figure of a person with arms raised, composed of a circular head and a curved body. The text 'Semester- II' is centered in front of the logo.

Semester- II

Vocational & Skill Enhancement Courses (VSEC)

Name of the Course: Linux Practical

Sr. No.	Heading	Particulars
1	Description the course:	This practical course introduces students to fundamental operations and utilities of modern operating systems through hands-on exercises. It emphasizes the installation and configuration of virtual machines and operating systems (Linux and Windows), command-line proficiency for files and process management, and usage of desktop environments and system utilities. The course aims to develop practical skills in navigating Linux and Windows OS, managing files and directories, executing process control commands, and handling system-level tasks. These practicals serve as a foundation for understanding the real-world functioning of operating systems.
2	Vertical:	Vocational Skill Course (VSC)
3	Type:	Practical
4	Credits:	2 credits
5	Hours Allotted:	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives:	<ol style="list-style-type: none">1. Install and configure virtual machines and operating systems (Linux and Windows).2. Execute essential Linux and Windows commands for managing files, directories, and processes.3. Navigate and utilize Linux and Windows desktop environments and system utilities.4. Perform system administration tasks including file permissions, process control, and software installation.5. Understand and apply basic OS tools to gather system information and manage system resources.6. Develop practical proficiency in operating system utilities and command-line interfaces for effective system management.
8	Course Outcomes:	<p>CO1. Install virtual machines and operating systems (Linux and Windows) and configure their basic settings.</p> <p>CO2. Use Linux commands to efficiently manage files, directories, and system processes.</p> <p>CO3. Execute Windows DOS commands to perform file management, system configuration, and process control.</p> <p>CO4. Operate and customize Linux and Windows desktop environments using graphical utilities and tools.</p> <p>CO5. Install and manage software utilities on Linux and Windows operating systems.</p> <p>CO6. Retrieve and interpret system information using command-line and graphical tools on both Linux and Windows platforms.</p>
9	Modules:-	Module 1 (15 hours):

Practical 1:-Installation of virtual machine software.

Practical 2:-Installation of Linux operating system (RedHat / Ubuntu) on virtual machine.

Practical 3:-Installation of Windows operating system on virtual machine

Practical 4:-Linux commands: Working with Directories:

- pwd, cd, ls, mkdir, rmdir,
- file, touch, rm, cp, mv, rename, head, tail, chmod

Practical 5:-Linux commands: Working with files:

- ps, top, kill, pkill, bg, fg,
- grep, locate, find, locate.
- date, cal, uptime, w, whoami, finger, uname, man.

Practical 6:-Windows (DOS) Commands – 1

- Date, time, prompt, md, cd, rd, path.
- Chkdsk, copy, xcopy, format, fidsk, cls, defrag, del, move.

Practical 7:-Windows (DOS) Commands – 2

- doskey, echo, systeminfo, Diskcomp, diskcopy, diskpart,.
- Edit, fc, find, rename, set, type, ver, hostname, tasklist, taskkill, ipconfig /all.

Practical 8:-Working with Linux Desktop and utilities

- The vi editor.
- Graphics
- Terminal
- Adjusting display resolution
- Using the browsers

Practical 9:-Working with Windows Desktop and utilities

- Notepad
- Use File Explorer
- Paint
- Taskbar
- Adjusting display resolution

Practical 10:-Installing utility software on Linux and Windows

10	<p>Text Books</p> <ol style="list-style-type: none"> The Linux Command Line" by William Shotts "Linux For Beginners" by Jason Cannon, 	
11	<p>Reference Books</p> <ol style="list-style-type: none"> UNIX and Linux System Administration Handbook – Evi Nemeth et al. Linux Kernel Development – Robert Love Linux From Scratch – Gerard Beekmans The Art of Unix Programming – Eric S. Raymond 	
12	<p>Internal Continuous Assessment: 40%</p>	<p>Semester End Examination: 60%</p>
13	<p>Continuous Evaluation through: Performance and write-up submission of 20 marks.</p>	<p>30 marks practical exam of 2 hours duration</p>

14 **Format of Question Paper:**

Duration 2 hours. Certified copy of Journal is compulsory to appear for the practical examination

Practical Slip:

Q1. From Module 1 13 marks

Q2. From Module 2 12marks

Q3. Journal and Viva 05 marks



Skill Enhancement Course (SEC)

Name of the Course: Microprocessor and Microcontroller Practical

Sr. No.	Heading	Particulars
1	Description the course:	This course teaches how to write low-level software for the 8085 microprocessor, covering its architecture, instruction set, and program development. It is vital for students in computer science and engineering, especially those interested in embedded systems and microprocessor programming. The course builds foundational skills for careers in firmware development, embedded software, and hardware control. It connects with key subjects like Computer Architecture, Operating Systems, and Embedded Systems Design. Industry demand is strong across sectors like automotive, aerospace, and healthcare, offering roles such as embedded engineer, firmware developer, and more.
2	Vertical:	Skill Enhancement Course (SEC)
3	Type:	Practical
4	Credits:	2 credits
5	Hours Allotted:	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives:	<ol style="list-style-type: none">1. To gain a thorough understanding of the 8085 microprocessor architecture and its associated instruction set.2. To develop the ability to write and debug assembly language programs for the 8085 microprocessor.3. To learn the principles of computer organization and how they relate to the 8085 microprocessor.4. To become proficient in the use of 8085 assembly language programming tools, simulators, and debuggers.5. To learn how to interface different input/output devices with the 8085 microprocessor.6. To understand the concept of interrupts and how they are used in 8085 assembly language programming.
8	Course Outcomes:	<p>CO1: Explain the architecture of the 8085 microprocessor and its associated instruction set.</p> <p>CO2: Identify the different types of registers and their functions in the microprocessor.</p> <p>CO3: Describe the memory organization and addressing modes of the 8085 microprocessor.</p> <p>CO4: Write assembly language programs for the 8085 microprocessor using various instructions and addressing modes.</p> <p>CO5: Debug and troubleshoot assembly language programs for the 8085 microprocessor using simulators and debuggers.</p> <p>CO6: Implement conditional branching and looping constructs in assembly language programs.</p> <p>CO7: Use 8085 assembly language programming tools, such as editors, assemblers, and emulators for developing and testing programs.</p>

CO8: Simulate microprocessor operations using emulators and debuggers.
CO9: Connect input/output devices, such as LEDs, switches, and displays, to the 8085 microprocessor.

9 Modules:-

Practical 1:- Perform the following Operations related to memory locations.

- Addition and Subtraction of a two 8 bit number stored in D001H and D002H and Store result in D003H.
- Exchange the contents of memory locations D050H and D051H.

Practical 2:- Simple assembly language programs.

- Find the 1's & 2's complement of the number stored at memory location 4400H and store the complemented number at memory location 4300H.
- Find the absolute difference of two 8-bit numbers.

Practical 3:- Unpacking operations.

- Two digit BCD number is stored in memory location 4200H. Unpack the BCD number and store the two digits in memory locations 4300H and 4301H such that memory location 4300H will have lower BCD digit.

Practical 4 :- Register Operations

- Write a program to shift an eight bits data four bits right. Assume that data is in register C.
- Write a program to count number of 1's in the contents of D register and store the count in the B register.

Practical 5 :- Multiple memory locations.

- Multiply two 8-bit numbers stored in memory locations 2200H and 2201H by repetitive addition and store the result in memory locations 2300H and 2301H.
- Divide 16-bit number stored in memory locations 2200H and 2201H by the 8-bit number stored at memory location 2202H. Store the quotient in memory locations 2300H and 2301H and remainder in memory locations 2302H and 2303H.

Practical 6 :-

- Find the number of negative elements (most significant bit 1) in a block of data. The length of the block is in memory location 2200H and the block itself begins in memory location 2201H. Store the number of negative elements in memory location 2300H.
- Find the largest number in a block of data. The length of the block is in memory location 2200H and the block itself starts from memory location 2201H. Store the maximum number in memory location 2300H. Assume that the numbers in the block are all 8 bit unsigned binary numbers.

Practical 7 :-

- Calculate the sum of series of even numbers as well as odd numbers from the list of numbers. The length of the list is in memory location 2200H and the series itself begins from memory location 2201H. Assume the sum to be 8 bit number so you can ignore carries and store the sum at memory location.
- Find the square of the given numbers from memory location 6100H and store the result from memory location 7000H.

Practical 8 :-

- Search the given byte in the list of 50 numbers stored in the consecutive memory locations and store the address of memory location in the memory locations 2200H and 2201H.

	<p>Assume byte is in the C register and starting address of the list is 2000H. If byte is not found store 00 at 2200H and 2201H.</p> <ul style="list-style-type: none"> Write an assembly language program to separate even numbers from the given list of 50 numbers and store them in the another list starting from 2300H. Assume starting address of 50 number list is 2200H <p>Practical 9 :-</p> <ul style="list-style-type: none"> Write an assembly language program to generate Fibonacci number. Program to calculate the factorial of a number between 0 to 8. <p>Practical 10 :-</p> <ul style="list-style-type: none"> Interface 8051 with D/A Converter and generate a square wave and triangular wave of given frequency on oscilloscope. Interface stepper motor with 8051 and write a program to move the motor through given angle in clockwise or counterclockwise direction. 	
10	Text Books	
	1. 8080A/8085 Assembly Language Programming, Lance A. Leventhel, Osborne, 1978	
11	Reference Books	
	1. Microprocessors Architecture, Programming and Applications with the 8085, Fifth Edition, Penram Publications, 2012	
12	Internal Continuous Assessment: 40%	Semester End Examination: 60%
13	Continuous Evaluation through: Performance and write-up submission of 20 marks.	30 marks practical exam of 2 hours duration
14	<p>Format of Question Paper:</p> <p>Duration 2 hours. Certified copy of Journal is compulsory to appear for the practical examination</p> <p>Practical Slip:</p> <p>Q1. From Module 1 13 marks Q2. From Module 2 12marks Q3. Journal and Viva 05 marks</p>	

Nirmala Memorial Foundation College of Commerce and Science

(Autonomous)

Re-accredited by NAAC with B++, ISO 9001-2015 Certified, Recognised under section 2(f) & 12(B) of the UGC Act 1956

Permanently Affiliated to the University of Mumbai,



Syllabus

Ability Enhancement Courses(AEC)

(To be implemented from the Academic Year 2025-2026)
Approved in the Academic Council Meeting held on 5th July 2025

A stylized logo featuring a large, light red 'N' shape. Overlaid on the right side of the 'N' is a light blue figure of a person with a circular head and a curved, flowing line representing an arm or leg. The text 'Vertical - v' is centered horizontally and partially overlaid by the logo.

Vertical - v



Semester – II

Communication Skills in English II

Sr. No.	Heading	Particulars
1	Description of the course :	This course develops essential communication skills for professional and digital environments. It covers vocabulary, business writing, effective communication techniques, public speaking, and presentation skills. Learners also gain digital communication abilities, including virtual meeting etiquette, content creation for blogs and social media, SEO writing, and cross-cultural awareness for global interactions.
2	Vertical :	V
3	Type :	Theory
4	Credit:	2 credits
5	Hours Allotted :	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives:	<ol style="list-style-type: none"> 1. To equip the learners with confidence and proficiency in spoken and written English in and professional and social context 2. To enhance confidence in public speaking, interpersonal exchanges and professional interactions 3. To enable the learners to adapt to diverse audiences, cultural frameworks and workplace setups 4. To equip them with deftness in use of different digital platforms to communicate efficiently in every situation
8	Course Outcomes:	<p>After completion of the course, learners would be able to:</p> <p>CO1. Acquire proficiency in English for media-specific platforms and forums</p> <p>CO2. Speak and write effectively for diverse media platforms</p> <p>CO3. Enhance critical abilities to present effective social media content</p> <p>CO4. Understand the roles and functions of English in global media framework</p> <p>CO5. To attain proficiency in understanding media trends at a global level</p>
9	Modules:-	
	Module 1:	
	1.1 Professional English Language Development	
	<ul style="list-style-type: none"> ● Vocabulary Building ● Punctuation and Style ● Close Reading of Content for Different Genre ● Phrasal Verbs and Idioms ● Business English for Letters, Emails, Reports ● Paraphrasing 	
	1.2: Essentials for Effective Communication	
	<ul style="list-style-type: none"> ● The Seven C's of Effective Communication ● The 4 C's of 21st Century Skills ● 'You' Attitude and Professional Etiquette ● Conflict Management 	
	1.3 Public Speaking and Presentation Skills	
	<ul style="list-style-type: none"> ● Organizing a speech ● Presentation skills with visual aids like PowerPoint 	

	<ul style="list-style-type: none"> • Overcoming stage fright • Use of visual aids and storytelling 									
	<p>Module 2 :</p> <p>1.1: Digital Communication Skills</p> <ul style="list-style-type: none"> • Communicating in online platforms • Managing digital identity • Virtual meetings etiquette (Zoom, Teams) • Understanding Video scripts and Podcast Scripts • Social Media Marketing <p>1.2: Digital Writing and Content Creation</p> <ul style="list-style-type: none"> • Writing Blogs, Articles, and Online Features • SEO Writing and Keyword Optimization • Writing for Social Media • Writing Captions, White Paper and Headlines <p>1.3 Cross-cultural Communication</p> <ul style="list-style-type: none"> • Cultural Quotient and Cultural Intelligence • Cultural differences in communication styles • Global communication etiquette • Dining Etiquette in Professional and Social Setup 									
10	<p>References:</p> <ol style="list-style-type: none"> 1. Effective Communication Skills” – by M.S. Rao 2. Mass Communication in India (4th Edition): Keval J. Kumar 3. Taylor, Grant. English Conversation Practice. 1967. Tata McGraw-Hill, 2013 4. Labade, Sachin, Katre Deepa et al. <i>Communication Skills in English</i>. Orient Black swan, Pvt Ltd, 2021 5. Sethi, J. Standard English and Indian usage: Vocabulary and grammar. PHI Learning Pvt. Ltd., 2011 6. The Secret of Viral Content Creation- Priyanka Agarwal 7. Mohan, R C Sharma Krishna. Business Correspondence and Report Writing. Third edition. Tata McGraw-Hill Education, 2002 8. Writing Skills For Technical Purposes: Raj Mohan Josh 9. Cross-Cultural Communication: Concepts, Cases and Challenges: Francisca O. Norales 10. Fundamentals of Writing: How to Write Articles, Media Releases, Case Studies, Blog Posts and Social Media Content: Paul Lima 11. Excuse Me: The Survival Guide to Modern Business Etiquette: Rosanne Thomas 12. Business Etiquette: A Guide For The Indian Professional: Shital Kakkar Mehra 									
11	<p>Internal Evaluation: 20 Marks</p> <p>10 marks Assignment,</p> <p>05 marks Viva,</p> <p>05 marks Class Participation and Attendance</p>									
12	<p>External Evaluation : 30 Marks</p> <p>Semester End Examination</p> <p style="text-align: center;"><u>Question Paper Pattern</u></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Question No.</th> <th>Questions</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Q 1</td> <td>Writing Skills/ Comprehension</td> <td>15 marks</td> </tr> <tr> <td>Q 2</td> <td>Practical/ Theory</td> <td>15 marks</td> </tr> </tbody> </table>	Question No.	Questions	Marks	Q 1	Writing Skills/ Comprehension	15 marks	Q 2	Practical/ Theory	15 marks
Question No.	Questions	Marks								
Q 1	Writing Skills/ Comprehension	15 marks								
Q 2	Practical/ Theory	15 marks								

Nirmala Memorial Foundation College of Commerce and Science

(Autonomous)

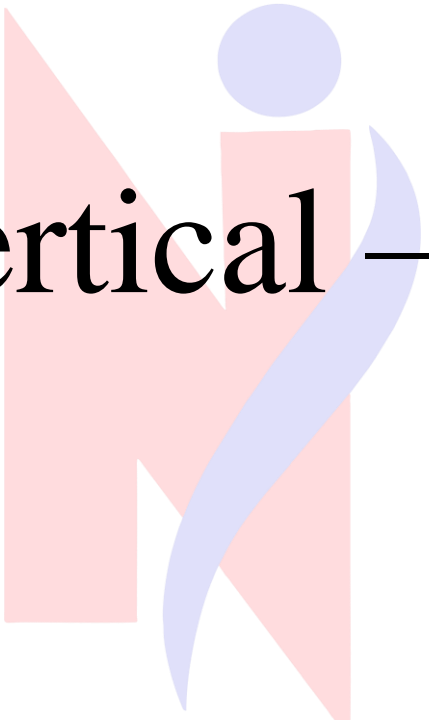
Re-accredited by NAAC with B++, ISO 9001-2015 Certified, Recognised under section 2(f) & 12(B) of the UGC Act 1956

Permanently Affiliated to the University of Mumbai,



Syllabus **Value Education Course(VEC)**

(To be implemented from the Academic Year 2025-2026)
Approved in the Academic Council Meeting held on 5th July 2025

A stylized logo consisting of a large, light red letter 'N' and a blue figure of a person with arms raised, positioned behind the text.

Vertical – v



Semester – II

Environmental Systems and Management-II

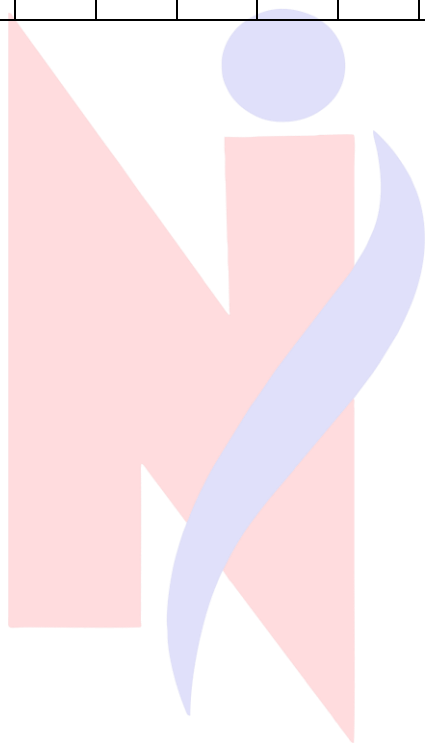
Sr. No.	Heading	Particulars
1	Description of the course :	<p>This course introduces students to the vital link between the environment and the world of commerce. It offers an essential understanding of how ecological systems interact with economic activities, preparing future professionals to make informed, responsible decisions in business and society.</p> <p>What They Will Learn:</p> <ul style="list-style-type: none"> • Ecosystems and Biodiversity: Understand the balance of natural systems and the economic value of biodiversity in sectors like agriculture, tourism, and healthcare. • Human Impact on the Environment: Analyze how industries, trade, and consumer behavior contribute to environmental challenges such as resource depletion, pollution, and climate change. • Sustainability and Commerce: Explore sustainable business practices and how commerce can play a role in achieving long-term environmental and economic goals. <p>Why It Matters for First Year Undergraduate Students:</p> <p>In any specialization, environmental awareness is essential in today's global business environment. This course empowers students to:</p> <ul style="list-style-type: none"> • Become socially responsible citizens: Make ethical decisions that consider environmental impact and sustainability. • Understand environmental challenges in business contexts: Gain insight into how issues like climate change, waste management, and pollution affect business operations, supply chains, and policy. • Explore emerging green career paths: Discover opportunities in environmental consulting, sustainable business strategy, and green entrepreneurship.
2	Vertical :	VEC
3	Type :	Theory
4	Credit:	2 credits
5	Hours Allotted :	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives:	<ul style="list-style-type: none"> • To provide knowledge on types of disasters and their impact on human life and the economy. • To equip students with the principles of disaster management and waste management strategies. • To promote understanding of sustainable development models and eco-friendly innovations. • To introduce key environmental movements, ethics, and legal frameworks relevant to environmental conservation.

8	<p>Course Outcomes: After studying this course students will be in position to :</p> <ul style="list-style-type: none"> • To describe different types of disasters and outline the phases of disaster management. • To apply concepts of waste reduction, reuse, and recycling in real-life scenarios. • To evaluate sustainable development initiatives and propose eco-friendly business strategies. • To critically assess environmental movements, laws, and policies, and their role in conservation and management.
9	<p>Modules:-</p>
	<p>Unit I: Dealing with Environmental Concerns</p> <ul style="list-style-type: none"> • Concept and Classification of Disaster (Natural, Man-made and Hybrid Disaster). General effects of Disaster on Human Life- Physical, Psychological, Economic and Social • Disaster Management: Meaning and Phases of Disaster Management (Prevention, Mitigation, Preparedness, Response, and Recovery) • Waste Management: Meaning and Types of Waste (biodegradable, non-biodegradable, hazardous, e-waste, etc). • Waste Management- Reduce, Reuse, and Recycle Strategies in Daily Life
	<p>Unit II: Sustainable Development and Environmental Conservation</p> <ul style="list-style-type: none"> • Introduction to Sustainable Development: Meaning and Importance. Sustainable Development Goals (SDGs). Case Studies • Environmental Movements and Ethics: Chipko, Silent Valley, Bishnoi of Rajasthan. Role of Religion and Culture in Environmental Conservation. • Innovative Models: Eco Tourism, Green Marketing, Organic Farming, and Eco-Friendly Packaging • Environmental Legislation and Policies: Major environmental laws and policies at national and international levels, and their effectiveness in environmental conservation
10	<p>References:</p> <ul style="list-style-type: none"> • 1. Ahluwalia, V. K. (2015). Environmental Pollution, and Health. The Energy and Resources Institute (TERI). • 2. Central Pollution Control Board Web page for various pollution standards. https://cpcb.nic.in/standards/ • 3. Masters, G. M., & Ela, W. P. (2008). Introduction to environmental engineering and science (No. 60457). Englewood Cliffs, NJ: Prentice Hall. • 4. Jørgensen, Sven Marques, Erik João Carlos and Nielsen, Søren Nors (2016) Integrated Environmental Management, A transdisciplinary Approach. CRC Press. • 5. Barrow, C. J. (1999). Environmental management: Principles and practice. Routledge. • 6. Theodore, M. K. and Theodore, Louis (2021) Introduction to Environmental Management, 2nd Edition. CRC Press. • 7. Richard A. Marcantonio, Marc Lame (2022). Environmental Management: Concepts and Practical Skills. Cambridge University Press. • 8. UNEP (2007) Multilateral Environmental Agreement Negotiator's Handbook, University of Joensuu, ISBN 978-952-458-992-5 • 9. Ministry of Environment, Forest and Climate Change (2019) A Handbook on International Environment Conventions & Programmes. https://moef.gov.in/wp-content/uploads/2020/02/convention-V-16-CURVE-web.pdf • 10. Ministry of Environment, Forest and Climate Change (2019) A Handbook on International Environment Conventions & Programmes. https://moef.gov.in/wp-content/uploads/2020/02/convention-V-16-CURVE-web.pdf • 11. India Code – Digital repository of all Central and State Acts: https://www.indiacode.nic.in/ • 12. University Grants Commission, D.O.No.F. 14-5/2015(CPP-II) dated 2nd August 2019. •

11	Internal Continuous Assessment: 40%	Semester End Examination: 60%
12	Project Work 15 Marks Attendance and Participation in Seminar, Workshop, and Activity, etc. 05 Marks	Report Submission based on Suggested Practical Activities by Faculty Members for 30 Marks.
13	<p>Suggested Practical Activities:</p> <ul style="list-style-type: none"> • A field visit to observe and identify different environmental components (e.g., land, water bodies, air, flora, fauna) in a local park or urban green space. • Develop a mini-awareness campaign (e.g., posters, short video, etc.) on a chosen environmental issue for their college or local community. • Report on an endangered species in India and the conservation efforts being undertaken. • Hands-on experiment involving simple water quality testing (e.g., pH, turbidity) of different water samples (e.g., tap water, pond water). <ul style="list-style-type: none"> • A debate or discussion on the role of individual actions vs. governmental policies in combating climate change. • Beach Cleaning Activity • Tree Plantation (One Student – One Plant) • Environment Conservation Activity 	



Course Outcomes (CO)	PO 1	PO 2	PO 3	PO 4	PO 5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1: Acquire proficiency in English for media-specific platforms and forums	2	3	0	2	2	2	2	2	1	2
CO2: Speak and write effectively for diverse media platforms	2	3	0	2	2	2	3	2	2	2
CO3: Enhance critical abilities to present effective social media content	2	2	0	3	3	3	3	3	3	3
CO4: Understand the roles and functions of English in global media framework	3	2	0	3	2	2	2	0	2	3
CO5: To attain proficiency in understanding media trends at a global level	3	2	0	3	3	2	3	0	3	3



Nirmala Memorial Foundation College of Commerce and Science

(Autonomous)

Re-accredited by NAAC with B++, ISO 9001-2015 Certified, Recognised under section 2(f) & 12(B) of the UGC Act 1956

Permanently Affiliated to the University of Mumbai,



Syllabus

Co-Curricular Courses

Fitness and Sports II

(To be implemented from the Academic Year 2025-2026)

*Approved in the Academic Council Meeting held on **5th July 2025***

A stylized logo consisting of a large, light red letter 'N' and a blue figure of a person with arms raised, positioned behind the text.

Vertical – VI

A stylized logo consisting of a large, light red letter 'N' and a blue figure of a person with arms raised, positioned behind the text.

Semester II

Name of the Course: Fitness and Sports II - **UG.2CCS**

Sr. No.	Heading	Particulars
1	Description the course :	<p>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.</p> <p>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.</p>
2	Vertical :	Co-Curricular
3	Type :	Activity Based
4	Credit:	2 credits
5	Hours Allotted :	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives:	<ul style="list-style-type: none"> • To develop foundational knowledge of physical fitness techniques including strength, cardiovascular, and flexibility training, along with understanding basic nutrition for sports performance. • To enhance students' mental preparedness and focus by introducing key concepts of sports psychology such as goal setting, motivation, confidence, and stress management. • To promote a holistic approach to health and performance, integrating physical
8	Course Outcomes:	<p>CO1. Apply appropriate physical training methods including strength, cardiovascular, and flexibility routines to enhance overall fitness and performance.</p> <p>CO2. Demonstrate understanding of basic sports nutrition and its role in supporting physical activity and athletic goals.</p> <p>CO3. Utilize principles of sports psychology such as goal setting, stress management, and motivation to improve mental focus and performance in sports.</p>
9	Module :	<p>This module covers key aspects of physical training, including strength training through bodyweight and resistance methods, and cardiovascular workouts like HIIT and circuit training. It introduces flexibility and mobility routines essential for injury prevention and performance. Basic nutrition for fitness and sports is also discussed. The module then explores sports psychology, focusing on mental preparation and goal setting. It addresses techniques to manage performance anxiety and stress. Finally, it highlights the role of concentration, confidence, and motivation in achieving success in sports.</p>
10	Reference Books:	<ol style="list-style-type: none"> 1. Singh, Hardayal. (1991). Science of Sports Training. New Delhi: DVS Publications. 2. Uppal, A.K. (1992). Physical Fitness. New Delhi: Friends Publication.

	3. Iyengar, B.K.S. (2001). Light on Yoga. London: Thorsons. 4. Tiwari, O.P. (1996). Asana: Why and How? Lonavla: Kaivalyadhama Yoga Institute. 5. Nagendra, H. R. & Nagarathna, R. (2002). Samagra Yoga Chikitse. Bengaluru: Swami	
12	Internal Continuous Assessment: 40%	Semester End Examination: 60%
11	Internal Continuous Assessment: 40% (20 Marks) <ul style="list-style-type: none"> • Assignment/Report Writing 	
12	External Assessment: 60% : (30 Marks) <ul style="list-style-type: none"> • Submission of minimum 3 certificates from approved fitness/sports activities (yoga, aerobics, team sports, etc.). • Attendance and involvement in fitness sessions, group games, or workshops. <p><i>Note: Students participating in sports competitions conducted by University at State or National Level, students who have represented Mumbai University or College at Intercollegiate / Inter Zonal / West Zone Inter University / All India Inter University/ International tournament are exempt from submission of report.</i></p>	



Letter Grades and Grade Points:

Semester GPA/ Program CGPA Semester/ Program	% of Marks	Alpha-Sign / Letter Grade Result		Grade Points
9.00-10.00	90.0-100	O	(Outstanding)	10
8.00-<9.00	80.0-<90.0	A+	(Excellent)	9
7.00-<8.00	70.0-<80.0	A	(Very Good)	8
6.00-<7.00	60.0-<70.0	B+	(Good)	7
5.50-<6.00	55.0-<60.0	B	(Above Average)	6
5.00-<5.50	50.0-<55.0	C	(Average)	5
4.00-<5.00	40.0-<50.0	P	(Pass)	4
Below 4.00	Below 40	F	(Fail)	0
Ab (Absent)	-	AB	(Absent)	0

Signature of BOS Chairman
Ms. Vaishali Mishra
BOS (Information Technology)

Signature of Faculty Member
Ms. Hiral Parakhiya
(Information Technology)

Signature of I/C Principal
Dr. Swiddle D'Cunha