



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Information Technology
 Choice Based Credit System (CBCS) in the light of NEP-2020
 Diploma CSE/AI/DS/Cyber Security
SEMESTER-I (2026-2029)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTMA101N	BS	APPLIED MATHEMATICS-I	Max	60	20	20	0	0	3	0	0	3
			Min	24	16							

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

COURSE OBJECTIVES:	
The student will have ability to:	
1.	Understand fundamentals of algebra, complex numbers, and quadratic equations.
2.	Apply binomial theorem and trigonometric concepts in problem solving.
3.	Build a strong mathematical foundation for higher studies
COURSE ALIGNMENT WITH UNSDG:	
“The Course aims to fulfill the United Nations Sustainable Development Goals, SDG 4 (Quality Education). ”	
COURSE OUTCOMES:	
After completion of the course, the student will be able to:	
CO1	Apply the techniques of algebra.
CO2	Understand the quadratic equations.
CO3	Know the fundamental concepts of Binomial theorem.
CO4	Study the trigonometric properties used in engineering.
TEACHING PEDAGOGY:	
T1	Classroom teaching (white board), Power Point Presentations, Interactive lectures, Inquiry-based teaching
T2	ABL activities, Assignments, Flip Class/ Seminars, Quizzes, Oral Viva-voce examination
ASSESSMENT TOOLS:	
ATL1	Quiz
ATL2	Activity Based Learning
ATL3	Midterm Exams
ATL6	Assignments
ATL8	Oral Viva-voce examination



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			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTMA101N	BS	APPLIED MATHEMATICS-I	Max	60	20	20	0	0	3	0	0	3
			Min	24	16							

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

PREREQUISITES:

Basic knowledge of arithmetic operations, algebraic expressions, equations, exponents, coordinate geometry, and elementary trigonometric concepts.

SYLLABUS:

Module	Descriptors/Topics	Hours	Assessment Tools
I	Algebra: Logarithm, Definition of natural and common Logarithm; Laws of Logarithm; Simple Problems based on laws of laws	7	ATL1 ATL3
II	Complex Numbers: Definition of Complex numbers, Cartesian and polar. Exponential forms of complex numbers; Modulus, amplitude & conjugate of a complex number; Algebra of Complex numbers (Equality, Addition, Subtraction, Multiplication).	7	ATL2 ATL3 ATL6
III	Cube root of unity & Quadratic Equations: Cube root of unity and properties of cube root of unity. Definition of Quadratic Equations, Analyzing the nature of roots using discriminant, Relation between roots & coefficients, simple problems.	7	ATL1 ATL3 ATL6
IV	Binomial Theorem: Definition of factorial notation, definition of permutation and combination with formula, Binomial theorem for positive index (statement only), General term and middle term. Binomial theorem for negative index (statement only).	6	ATL1 ATL3
V	Trigonometry: Relation between degree and radian, trigonometric ratios, sign of trigonometric ratios or functions, simple problems based on trigonometric functions.	8	ATL1 ATL3 ATL8
Total Hours		35	
A.	Value addition to course content/ Skill enhancement content:		

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Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

	[Template standard e-resource link placeholder]
B.	Remedial classes for slow learners:
	As per the AUMP SOP for slow and fast learners.
SUGGESTED READINGS:	
Textbooks	
1.	J. E. Hopcraft, R. Motwani and J. D. Ullman, Introduction to Automata Theory, Languages, and Computation, 3 rd Ed., Pearson, 2013.
2.	P. Linz, S. H. Rodger, An Introduction to Formal Languages and Automata, 7 th Ed., Jones & Bartlett Learning, 2023.
Reference Books	
1.	B.K. Paul, Diploma Engineering Mathematics (Vol-1), U.N. Dhār & Sons.
2.	G.P. Samanta, A Text Book of Diploma Engineering Mathematics, Volume-1, Learning Press.
3.	Dr. S. Bose & S. Saha, A Complete Text Book of Mathematics, Lakshmi Prakasan.
4.	H.S. Hall & S.R. Knight, Higher Algebra Book Palace, New Delhi.
Suggested e- resources (Websites/e- books)	
1.	https://www.khanacademy.org/math?utm_source=chatgpt.com
2.	https://tutorial.math.lamar.edu/?utm_source=chatgpt.com

COURSE ARTICULATION MATRIX (MAPPING OF COs WITH POs)

Course Outcom	Correlation with POs	Correlation with PSOs
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DTMA101N	BS	APPLIED MATHEMATICS-I	Max	60	20	20	0	0	3	0	0	3
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Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

es	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2	PSO 3
CO1	3	2	1	-	-	-	-	-	-	-	-	2	3	2	2
CO2	3	3	1	-	-	-	-	-	-	-	-	2	3	3	2
CO3	3	2	1	-	-	-	-	-	-	-	-	2	2	2	3
CO4	3	3	2	1	-	-	-	-	-	-	-	2	3	3	2

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				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTCS101	BEC	Introduction to Computing	Max	60	20	20	30	20	3	0	2	4
			Min	24	16		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

COURSE OBJECTIVES:	
The student will have ability to:	
1.	To understand the architecture and functioning of a computer system.
2.	To learn number systems, hardware components, and system software.
3.	To explore the basics of operating systems, networks, and internet technology.
4.	To introduce cloud computing and the fundamentals of cybersecurity.
5.	To develop basic practical skills for handling computing systems securely.
COURSE ALIGNMENT WITH UNSDG:	
“The Course aims to fulfill the United Nations Sustainable Development Goals, SDG 4 (Quality Education). ”	
COURSE OUTCOMES:	
After completion of the course, the student will be able to:	
CO1	Identify and explain computer components and their functions.
CO2	Convert and compute data using number systems.
CO3	Demonstrate OS operations and basic file handling.
CO4	Understand and apply safe internet and network usage practices.
CO5	Explain cloud computing basics and common cybersecurity threats
TEACHING PEDAGOGY:	
T1	Classroom teaching (white board), Power Point Presentations, Interactive lectures, Inquiry-based teaching
T2	ABL activities, Assignments, Flip Class/ Seminars, Quizzes, Oral Viva-voce examination
ASSESSMENT TOOLS:	
ATL1	Quiz
ATL2	Activity Based Learning

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ATL3	Midterm Exams
ATL6	Assignments
ATL8	Oral Viva-voice examination

PREREQUISITES:

Basic understanding of mathematics, logical reasoning, and familiarity with everyday computer and internet usage.

SYLLABUS:

Module	Descriptors/Topics	Hours	Assessment Tools
I	Basics of Computer Systems: Definition, characteristics, and applications of computers in various fields such as business, education, defense, and healthcare. Evolution of computing through different generations, classification of computers (digital, analog, hybrid), and functional components using block diagrams (input unit, memory unit, ALU, control unit, output unit).	10	ATL1 ATL3
II	Number Systems and Data Representation: Number systems: binary, decimal, octal, and hexadecimal. Includes conversions between number systems, binary arithmetic (addition, subtraction), and representation of characters using ASCII/Unicode. Emphasizes the importance of data formats in system security and low-level computation.	8	ATL2 ATL3 ATL6
III	Computer Hardware and System Software: Internal and external hardware components: CPU, RAM, ROM, cache, SSD, HDD, input/output devices, and buses. system software: operating systems, device drivers, compilers, and utility programs. Security aspects of hardware and BIOS/UEFI boot sequence.	9	ATL1 ATL3 ATL6

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IV	Operating Systems, Internet & Networking: Functions and types of operating systems. Covers file systems, memory and process management, and access controls. Overview of computer networks (LAN, WAN, protocols like TCP/IP), IP addressing, DNS, and safe internet usage. Introduces concepts of VPNs and firewalls for secure connectivity	9	ATL1 ATL3
V	Introduction to Cloud Computing & Cyber Security Fundamentals: Introduces cloud computing concepts—service models (IaaS, PaaS, SaaS), deployment models, and popular platforms (AWS, Azure). Discusses advantages like scalability, reliability, and cost-effectiveness. Fundamentals of cybersecurity: cyber threats, types of malware, phishing, data privacy, password security.	9	ATL1 ATL3 ATL8
Total Hours		45	

A.	Value addition to course content/ Skill enhancement content:
	[Template standard e-resource link placeholder]
B.	Remedial classes for slow learners:
	As per the SVVV SOP for slow and fast learners.
SUGGESTED READINGS:	
Textbooks	
1.	A. Goel, *Computer Fundamentals*, Pearson Education, 2010.
2.	P. K. Sinha and P. Sinha, *Computer Fundamentals*, BPB Publications, 2014.
Reference Books	
1.	P. Norton, *Introduction to Computers*, 6th ed., McGraw-Hill, 2004.

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2.	T. Erl, *Cloud Computing: Concepts, Technology & Architecture*, Pearson Education, 2013.
3.	C. Pfleeger and S. Pfleeger, *Security in Computing*, 5th ed., Pearson, 2015.

Suggested e- resources (Websites/e- books)

1.	https://www.tutorialspoint.com/computer_fundamentals/index.htm?utm_source=chatgpt.com
2.	https://www.khanacademy.org/computing/computer-science?utm_source=chatgpt.com

LIST OF PRACTICAL

S. No	Title	CO Mapping
1	Identify computer system components (CPU, RAM, storage, I/O)	CO1
2	Demonstrate system boot process and BIOS/UEFI settings	CO1
3	Convert numbers between binary, decimal, octal, and hexadecimal	CO2
4	Perform binary arithmetic operations manually	CO2
5	Use Windows/Linux OS: create folders, manage files	CO3
6	Explore system settings, device manager, and task manager	CO3
7	Install and uninstall applications safely	CO3
8	Use Control Panel/Settings to modify system configurations	CO3
9	Access IP configuration and troubleshoot local network	CO4
10	1Demonstrate secure email usage and phishing identification	CO5
11	1Use a browser safely: incognito mode, managing cookies, bookmarks	CO4
12	Setup cloud storage (Google Drive/Dropbox) and share files	CO5
13	Demonstrate file encryption and decryption using simple tools	CO5
14	Explore VPN setup and firewall settings	CO4
15	Case study: Identify and report a simulated cyber threat scenario	CO5

COURSE ARTICULATION MATRIX (MAPPING OF COs WITH POs)

Course	Correlation with POs	Correlation with
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Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; ***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Outcomes													PSOs		
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	2	1	-	1	-	-	-	-	-	-	1	3	1	2
CO2	3	3	2	-	1	-	-	-	-	-	-	1	3	1	3
CO3	2	2	3	1	2	-	-	-	-	-	-	1	2	3	3
CO4	2	3	2	2	3	-	-	-	-	-	-	1	1	3	2
CO5	2	2	1	2	3	1	-	-	-	-	-	2	2	3	2

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				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTCS102	SEC	Introduction to Programming (Python)	Max	60	20	20	30	20	2	0	2	3
			Min	24	16		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

COURSE OBJECTIVES:	
The student will have ability to:	
1.	Demonstrate the ability to write basic Python programs using appropriate data types, constants, and literals.
2.	Design and implement solutions by effectively using Python operators and control flow constructs like conditionals and loops
3.	Apply Python data structures such as lists, tuples, sets, and dictionaries to solve computational problems efficiently.
4.	Develop Python applications utilizing built-in functions, file I/O operations, and user-defined functions for modular programming.
5.	Implement object-oriented programming principles by creating and manipulating classes, objects, and methods in Python.
COURSE ALIGNMENT WITH UNSDG:	
“The Course aims to fulfill the United Nations Sustainable Development Goals, SDG 4 (Quality Education). ”	
COURSE OUTCOMES:	
After completion of the course, the student will be able to:	
CO1	Develop and execute fundamental Python programs by employing appropriate data types, constants, and literals.
CO2	Utilize operators and control flow structures to devise and execute solutions for the specified challenges.
CO3	Utilize data structures such as lists, tuples, sets, and dictionaries to develop efficient solutions for the given problems.
CO4	Apply Python's built-in functions, file handling features, and user-defined functions to develop effective solutions for the given problems
CO5	Implement object-oriented programming concepts using Python classes, objects, and class methods
TEACHING PEDAGOGY:	

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DTCS102	SEC	Introduction to Programming (Python)	Max	60	20	20	30	20	2	0	2	3
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Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

T1	Classroom teaching (white board), Power Point Presentations, Interactive lectures, Inquiry-based teaching
T2	ABL activities, Assignments, Flip Class/ Seminars, Quizzes, Oral Viva-voce examination

ASSESSMENT TOOLS:

ATL1	Quiz
ATL2	Activity Based Learning
ATL3	Midterm Exams
ATL6	Assignments
ATL8	Oral Viva-voce examination

PREREQUISITES:

Basic knowledge of computer operations, logical thinking, elementary mathematics, and familiarity with programming concepts such as variables, data types, and control structures.

SYLLABUS:

Module	Descriptors/Topics	Hours	Assessment Tools
I	Introduction and Syntax of Python Programming: Introduction to python, history of python, python features, python applications, installing python, basic structure of python program, keywords and identifiers, variables, type casting, input-output functions: input, print, data types: number, string, set, tuple, list and dictionary, declaration and use of data types, literals, constants, identifiers	6	ATL1 ATL3
II	Operators and Control Flow Structures: Basic Operators: arithmetic, logical, comparison, assignment, bitwise, membership, identity operator, python operator precedence Control Flow: Concept of Indentation and if, if...else, if...el if...else statement with examples, while loop, for loop, range () function, break and continue, pass & return	6	ATL2 ATL3 ATL6

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DTCS102	SEC	Introduction to Programming (Python)	Max	60	20	20	30	20	2	0	2	3
			Min	24	16		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

	statements and Nesting of loops.		
III	Data Structure in Python: Concept list, tuple, dictionary and set: accessing, updating, deletion and basic operations of dictionary, list and tuple, Applications of list, tuple, dictionary and set functions.	6	ATL1 ATL3 ATL6
IV	Python Functions and File handling: Built-in functions: type/ data conversion functions, math functions, string functions. user defined functions: introduction to python user defined function, function definition, function calling, passing parameters to a function and returning values from a function, recursion, scope of variables- local variable and global variable. File handling: Files, file operations, files and streams, creating a file, reading from a file, iterating through files, writing file, maintain students record using file handling.	6	ATL1 ATL3
V	Object oriented programming with python: Learning python classes and objects, built-in class attributes and class methods.	6	ATL1 ATL3 ATL8
	Total Hours	30	
A.	Value addition to course content/ Skill enhancement content:		
	[Template standard e-resource link placeholder]		
B.	Remedial classes for slow learners:		
	As per the SVVV SOP for slow and fast learners.		
SUGGESTED READINGS:			
Textbooks			
1.	R. Nageswara Rao,Core Python Programming, 2ed, India: Dreamtech press,2018		

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SEMESTER-I (2026-2029)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTCS102	SEC	Introduction to Programming (Python)	Max	60	20	20	30	20	2	0	2	3
			Min	24	16		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

2.	A. Sweigart, <i>Automate the Boring Stuff with Python</i> , 2nd ed., San Francisco, CA, USA: No Starch Press, 2019.
3.	M. Lutz, <i>Learning Python</i> , 5th ed., Sebastopol, CA, USA: O'Reilly Media, 2013.

Reference Books

1.	B. Slatkin, <i>Effective Python: 59 Specific Ways to Write Better Python</i> , Boston, MA, USA: Addison- Wesley Professional, 2015.
2.	L. Ramalho, <i>Fluent Python</i> , 1st ed., Sebastopol, CA, USA: O'Reilly Media, 2015.

Suggested e- resources (Websites/e- books)

1.	https://docs.python.org/3/?utm_source=chatgpt.com
2.	https://www.python.org/?utm_source=chatgpt.com

LIST OF PRACTICAL

S.No	Title	CO Mapping
1	Write a python program to print “Welcome to SVVV”.	CO1
2	Write a python program to display data types of different variables.	CO1
3	Write a python program to check given character is a vowel or not.	CO2
4	Write a program to check if number is Armstrong.	CO2
5	Write a program to check special number. (Number is equal to the sum of its divisors).	CO2
6	Write a program to create and initialize a list with your name, enrollment number, age, branch and result. Perform insert, remove, update, append and extend operation on list	CO3
7	Create and print a dictionary that contains keys a,b,c,d with their values 1,2,3 and 4 respectively using curly bracket syntax and ‘dict’ in built function.	CO3
8	Using above created dictionary perform following operations: 1)Write a code to print out the value of a, d, and c. 2) Calculate the sum of the value of a,b,c,d and print it.	CO3
9	Write a program to perform addition of two numbers using user defined function.	CO4
10	Write a Python program to read content from a file and display the word with maximum length.	CO4

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COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTCS102	SEC	Introduction to Programming (Python)	Max	60	20	20	30	20	2	0	2	3
			Min	24	16		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

11	Write a Python program to combine each line from first file with the corresponding line in second file.	CO4
12	Write a Python program to read first n lines of a file.	CO4
13	Write a Python program to write students information into csv file and read that details.	CO4
14	Create a class Employee with data members: name, department and salary. Use constructor to initialize values and display() method for printing information of three employees.	CO5
15	Write a program to create class Student with following attributes: instance variables enrollment_no, name and branch; instance methods get_value() and print_value(); class variable cnt; static method show(). Variable cnt counts number of instances created and show() method displays value of cnt.	CO5

COURSE ARTICULATION MATRIX (MAPPING OF COs WITH POs)

Course Outcomes	Correlation with POs												Correlation with PSOs		
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	2	2	-	2	-	-	-	-	-	-	1	3	2	2
CO2	3	3	3	1	2	-	-	-	-	-	-	1	3	3	2
CO3	3	2	3	1	3	-	-	-	-	-	-	1	3	3	3
CO4	3	3	3	2	3	-	-	-	-	-	-	2	3	3	3
CO5	3	2	3	2	2	-	-	-	-	-	-	2	3	2	3

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			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTCS103	SEC	Office Automation Tools	Max	0	0	0	30	20	0	0	2	1
			Min	0	0	14	9					

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

COURSE OBJECTIVES:	
The student will have ability to:	
1.	Understand the use of Office automation tools.
2.	Understand various procedures of word processing.
3.	Understand basic spreadsheet applications.
4.	Understand the use of powerpoint in creating presentations.
5.	Understand office automation applications.
COURSE ALIGNMENT WITH UNSDG:	
“The Course aims to fulfill the United Nations Sustainable Development Goals, SDG 4 (Quality Education). ”	
COURSE OUTCOMES:	
After completion of the course, the student will be able to:	
CO1	Efficiently use word processing tools in office suite applications like Microsoft Word.
CO2	Create and manage professional presentations using Microsoft PowerPoint.
CO3	Handle data and perform operations using spreadsheet tools such as Microsoft Excel.
CO4	Apply electronic signature solutions like DocuSign or Adobe Sign for digital document signing.
CO5	Gain practical experience with video conferencing platforms used for virtual meetings and webinars.
TEACHING PEDAGOGY:	
T1	Classroom teaching (white board), Power Point Presentations, Interactive lectures, Inquiry-based teaching
T2	ABL activities, Assignments, Flip Class/ Seminars, Quizzes, Oral Viva-voce examination
ASSESSMENT TOOLS:	
ATL1	Quiz
ATL2	Activity Based Learning

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			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTCS103	SEC	Office Automation Tools	Max	0	0	0	30	20	0	0	2	1
			Min	0	0		14	9				

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ATL3	Midterm Exams
ATL6	Assignments
ATL8	Oral Viva-voice examination

PREREQUISITES:

Basic computer literacy, including familiarity with operating systems, file management, keyboard usage, and internet browsing.

SYLLABUS:

Module	Descriptors/Topics	Hours	Assessment Tools
I	Introduction to MS Office & MS Word: MS-Word: Features of MS-Word, MS-Word Window components, working with formatted text, Shortcut keys, Formatting documents: Selecting text, Copying & moving data, formatting characters, changing cases, Paragraph formatting, Indents, Drop Caps Using format painter, Page formatting, Header & footer, Bullets & numbering, Tabs, Forming tables. Finding & replacing text, go to (F5) command, proofing text (Spell-check, Auto correct).	12	ATL1 ATL3
II	MS Word Advanced features: Difference between Wizard and Template - Customize the Quick Access Tool Bar - Macros: Purpose - Creating Macro - Using Macro - Storing Macro - Inserting pictures: From Computer, Online Pictures Insert 3d Models Insert Shapes Insert Text Box - Insert Equation, Hyperlinks, Tables Insert tables Mail merging, Printing documents, Tables Insert tables, Mathematical calculations on tables data. Insert Text Box etc.	12	ATL2 ATL3 ATL6
III	Introduction to MS Excel & Its features: MS-Excel: Excel Features, Spread sheets, workbooks, creating, saving & editing a workbook, Renaming sheet, cell entries (numbers, labels, and formulas), spell check, find and replace, Adding and deleting rows and columns Filling series, fill with drag, data sort, Formatting worksheet, Functions and its parts, Some useful Functions in Excel (SUM, AVERAGE, COUNT, MAX, MIN, IF),	12	ATL1 ATL3 ATL6

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			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTCS103	SEC	Office Automation Tools	Max	0	0	0	30	20	0	0	2	1
			Min	0	0	14	9					

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

IV	Collaboration & Communication and Electronic Signature: Microsoft Teams: Combines chat, video conferencing, file storage, and application integration for team collaboration. Zoom: Video conferencing software for online meetings and webinars. Electronic Signature: DocuSign: Allows users to electronically sign documents, contracts, and agreements. Adobe Sign: Part of the Adobe Document Cloud, offering electronic signature capabilities.	12	ATL1 ATL3
V	Future Trends in Office Automation: Emerging technologies and their impact on office automation Security and Privacy: Importance of security in office automation, Best practices for securing office documents and communications	12	ATL1 ATL3 ATL8
Total Hours		60	

A.	Value addition to course content/ Skill enhancement content:
	[Template standard e-resource link placeholder]
B.	Remedial classes for slow learners:
	As per the SVVV SOP for slow and fast learners.

SUGGESTED READINGS:

Textbooks

1.	Fundamentals of Computer - V. Rajaraman, Printice Hell of India.
2.	Introduction to Computers-Peter Norton McGraw-Hill.

Reference Books

1.	Ramesh Bangia, "Learning Microsoft Office 2010", Khanna Publishers
2.	Satish Jain, Shashi Singh, M. Geetha Iyer, "Bpb'S Computer Course Windows 10 With MS Office 2016", BPB Publications.

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			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTCS103	SEC	Office Automation Tools	Max	0	0	0	30	20	0	0	2	1
			Min	0	0	14	9					

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

3.	Computer Fundamentals-Pradeep K. Sinha: BPB Publications.
4.	Fundamentals of Computers -Reema Thareja, Oxford University Press India.

Suggested e- resources (Websites/e- books)

1.	https://learn.microsoft.com/training/?utm_source=chatgpt.com
2.	https://www.tutorialspoint.com/word/index.htm?utm_source=chatgpt.com

LIST OF PRACTICAL

S. No	Title	CO Mapping
1	Create and format a basic document using different font styles, sizes, and colors	CO1
2	Apply paragraph formatting, set indents, line spacing, and alignment.	CO1
3	Use the format painter, insert drop caps, bullets, and numbering.	CO1
4	Create a header and footer, apply page borders, and use tabs.	CO1
5	Create and format a table, merge cells, and apply table styles.	CO1
6	Use “Find & Replace” and “Go To (F5)” feature in a document.	CO1
7	Use spelling and grammar check, and explore AutoCorrect options.	CO1
8	Demonstrate the difference between Wizard and Template.	CO1
9	Customize the Quick Access Toolbar.	CO1
10	Record, run, and save a Macro in MS Word.	CO1
11	Insert pictures, 3D models, shapes, and text boxes.	CO2
12	Insert and solve a basic equation in a document.	CO1
13	Create and use hyperlinks within the document.	CO1
14	Perform mail merge using a sample address list.	CO1
15	Perform basic mathematical calculations inside tables (sum, average).	CO1
16	Create, save, and edit a workbook with multiple sheets.	CO3
17	Enter data (numbers, labels, formulas), use spell check, find & replace.	CO3
18	Add and delete rows & columns, and fill series using drag.	CO3
19	Format cells, apply borders, number formats, and styles.	CO3

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			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTCS103	SEC	Office Automation Tools	Max	0	0	0	30	20	0	0	2	1
			Min	0	0	14	9					

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20	Use basic Excel functions: SUM, AVERAGE, COUNT, MAX, MIN.	CO3
21	Use IF function to apply conditional logic in a cell.	CO3
22	Sort and filter data in a spreadsheet.	CO3
23	Join or host a meeting using Microsoft Teams, share files and chat.	CO5
24	Join a Zoom meeting, explore screen sharing and chat options.	CO5
25	Sign a document electronically using DocuSign or Adobe Sign.	CO4
26	Explore secure document sharing options in MS Word or OneDrive.	CO4
27	Demonstrate how to set a password for a Word or Excel document.	CO4
28	Discuss and list best practices for securing digital documents	CO4

COURSE ARTICULATION MATRIX (MAPPING OF COs WITH POs)

Course Outcomes	Correlation with POs												Correlation with PSOs		
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	2	2	3	1	3	-	-	-	-	2	-	1	3	2	2
CO2	2	2	3	1	3	-	-	-	-	2	-	1	3	2	2
CO3	3	3	3	2	3	-	-	-	-	2	-	1	3	3	3
CO4	2	2	2	2	3	1	-	1	-	2	-	1	2	3	2
CO5	2	2	3	1	3	-	-	-	2	3	-	1	2	3	2

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			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTCS103	SEC	Office Automation Tools	Max	0	0	0	30	20	0	0	2	1
			Min	0	0		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; *Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

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			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTPH101		Elementary Physics	Max	60	20	20	30	20	3	1	2	5
			Min	24	16		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

COURSE OBJECTIVES:

The student will have ability to:

1. Explain the concepts of physical quantities, SI units, dimensions, measurement techniques, errors, and significant figures for accurate scientific measurements.
2. Describe the mechanical properties of matter, including elasticity, viscosity, and surface tension, and relate them to engineering applications.
3. Explain the fundamental principles of wave optics, including reflection, refraction, interference, diffraction, and polarization of light.
4. Apply the basic principles of electricity and magnetism to analyze simple electrical circuits, electric and magnetic fields, and electromagnetic induction.
5. Describe the working principles of lasers and optical fibres and explain their applications in modern engineering, communication, and industrial technologies.
6. Develop experimental skills to visualize and realize the concepts of Physics studied in theory and apply them in simple experiments.

COURSE ALIGNMENT WITH UNSDG: The Course aims to fulfill the United Nations Sustainable Development Goals, **SDG 4 (Quality Education)**.

COURSE OUTCOMES:

After completion of the course, the student will be able to:

1. Apply the principles of measurement, unit systems, dimensional analysis, and error estimation in scientific and engineering problems.

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COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTPH101		Elementary Physics	Max	60	20	20	30	20	3	1	2	5
			Min	24	16		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit; ***Teacher Assessment** shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

- Interpret the mechanical behaviour of materials and fluids using the concepts of elasticity, viscosity, and surface tension for engineering applications.
- Explain optical phenomena and their significance in optical instruments, imaging systems, and communication technologies.
- Analyze the behaviour of basic electrical and magnetic systems using the principles of electrostatics, current electricity, magnetism, and electromagnetic induction.
- Demonstrate an understanding of laser and optical fibre technologies and recognize their applications in communication, manufacturing, medicine, and instrumentation.
- Perform basic physics experiments, record and analyze observations, and interpret results to verify physical principles.

Teaching Pedagogy:

T1	Classroom teaching (white board), Power Point Presentations, Interactive lectures, Inquiry-based teaching
T2	ABL activities, Assignments, Flip Class/ Seminars, Quizzes, Oral Viva-voce examination

Assessment Tools

AT1-1	Quiz
AT1-2	Activity Based Learning

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				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
DTPH101		Elementary Physics	Max	60	20	20	30	20	3	1	2	5
			Min	24	16		14	9				

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;

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AT1-3	Midterm Exams
AT1-4	Flip Class
AT1-5	Seminar Presentation
AT1-6	Assignments
AT1-7	Poster
AT1-8	Oral Viva-voce examination
AT1-9	Industrial Visit Report

Prerequisites: HSC Standard knowledge of Physics.

Module	Descriptors/Topics	Hours	Assessment tools
I	Units and Measurements: Indian Knowledge System (IKS) for length, mass, and time measurements; requirements of standard units; various unit systems (CGS, FPS, MKS, SI); conversions; fundamental and derived physical quantities and their units and dimensions. Errors in measurement, significant figures, and precision; accuracy and precision of instruments. Vernier calipers and Screw Gauge	08	AT1 AT2 AT3 AT6 AT8
II	Properties of Matter: Elasticity: Deformation, restoring force, Stress, Strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulus of rigidity (qualitative idea only), Poisson's ratio.	08	AT1 AT2 AT3

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Diploma 2026 Onwards

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME						L	T	P	CREDITS
			Marks	THEORY			PRACTICAL					
				END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
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	Fluid Mechanics: Newton's law of viscosity, coefficient of viscosity, streamline and turbulent flow, factors affecting viscosity. Cohesive and adhesive forces, surface tension, factors affecting surface tension.		AT6 AT8
III	Optics: Wave Theory of Light: Huygen's theory, wavefronts, laws of reflection and refraction, total internal reflection, dispersion. Interference and Diffraction: Principle of superposition, constructive and destructive interference, Introduction to diffraction, Fresnel and Fraunhofer diffraction.	08	AT1 AT2 AT3 AT6 AT8
IV	Electricity and Magnetism: Coulomb's Law, Electric Field, Intensity of Electric field and Electric Potential, Ohm's law, Resistivity, Conductivity, Series and Parallel combination of resistors. Magnetic field, Magnetic flux, Magnetic flux density. Concept of electromagnetic Induction, Faraday's law, Lorentz Force, Oersted's experiment.	08	AT1 AT2 AT3 AT6 AT8
V	Laser and Fibre Optics Laser: Stimulated and Spontaneous Emission, Population Inversion, Pumping, Optical Resonator, Properties and Applications of Laser, Ruby Laser. Optical fibre: Introduction to Optical fibre, Ray theory of propagation through optical fibre, Concept of Acceptance angle and cone Types of Optical fibre, applications of optical fibre, Applications of AI in Physics.	8	AT1 AT2 AT3 AT6 AT8
	Total Hours	40	

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List of Experiments	1. Determination of Least count and zero error of Vernier callipers and observations with Spectrometer. 2. Determination of Least count and Zero error of Micrometre Screw Gauge. 3. Use of Micrometre Screw Gauge and observations with travelling microscope. 4. Determination of Frequency of A.C. mains by electrically maintained vibrating rod. 5. Determination of wavelength of LASER using Diffraction Grating. 6. To verify Hooke's law. 7. To determine Young's Modulus using Cantilever method. 8.. To verify Ohm's law.
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Additional Resources

A. Value addition to course content/ Skill enhancement content:

https://onlinecourses.swayam2.ac.in/nou25_ma10/preview

B. Remedial classes for slow learners: As per the AUMP SOP for slow and fast learners.

Suggested Readings:

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Reference Books	1. Engineering Physics by Gaur R. K. and Gupta S. L., Dhanpat Rai Publications, New Delhi, Eighth Edition 2010, Physics Textbook of 11th & 12th std. (NCERT) 2. Fundamentals of Physics Extended, By Halliday D., Resnik R. and Walker, Wiley, India, New Delhi, Eighth Edition, 2008. 3. 2. Physics for scientists and Engineers by Serway R. A. and Jewett, Jr. J. W., Thomson Learning (Indian reprint), New Delhi, Sixth Edition, 2007. 4. B.Sc. Practical Physics, C. L. Arora, S. Chand Publishing, Revised Edition.
Suggested e- resources (Websites/e-books)	• https://nptel.ac.in/courses/111106146 • https://nptel.ac.in/courses/111105122 • https://nptel.ac.in/courses/112106004

Course Articulation Matrix (Mapping of COs with POs)

Course Outcomes	Correlation with POs												Correlation with PSOs		
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3

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CO1	3	2	1	2	-	1	-	1	1	1	-	2			
CO2	3	2	2	2	2	2	1	1	1	1	-	2			
CO3	3	2	2	1	1	1	1	1	1	1	-	2			
CO4	3	2	2	1	2	1	2	1	1	1	-	2			
CO5	3	2	1	2	2	1	2	1	1	1	-	2			
CO6	2	2	2	2	2	2	3	2	2	2	1	3			

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