



Shreyarth University

Gujarat Bhavan, Nr M. J. Library, Ashram Road, Ahmedabad – 380 006

NOTIFICATION-AC0803

No.: SU/ACD/AC/NOT/2026/1437

Date: 15/04/2026

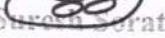
Subject: Approval of syllabus of various programmes of School of Engineering.

Read following with respect to the subject mentioned above:

- i. Resolution no. 3,4 of the 5th meeting of the Board of Studies of the School of Engineering dated 28/06/2025. (Attached as Appendix-1)
- ii. Resolution No. 5 of the 8th meeting of the Academic Council dated 16/03/2026. (Attached as Appendix-2)

In pursuance of the above mentioned read i and ii, the following decision is notified with regard to the approval of the syllabus of various programmes of School of Engineering:

- Resolved that the Academic Council, after reviewing the recommendations of the Board of Studies of the School of Engineering, be approved the Syllabus, Teaching and Examination Scheme of Diploma in Computer Science Engineering Semester III and Diploma in Information Technology Semester V programmes, as placed at Appendix-5, to be implemented with effect from the Academic Year 2026–27 onwards in accordance with the AICTE 2022 guidelines.


Dr. Surendra Sorathia,
Registrar (I/C),
Shreyarth University, Ahmedabad.



Attachments: As mentioned above

Copy forwarded for information and necessary action To:

- President, Shreyarth University
- Provost, Shreyarth University
- Library, Shreyarth University
- Director / Head of School of Engineering
- All the employees of the School of Engineering
- All academic and administrative sections of the University
- Select File



Shreyarth University

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Date: 05/03/2026

BOARD OF STUDIES – SCHOOL OF ENGINEERING

Notification no:

Minutes of the Meeting

The 5th meeting of the Board of Studies of School of Engineering, Shreyarth University, (constituted under Section 19 (d), of Gujarat Private Universities Act, 2009 and Proposed Statute – 1 of the Subsequent Statutes of the Shreyarth University) was held on 26/02/2026 at 4 PM at Shreyarth University campus in which the following members were present:

1. Ms. Jinal Bhatt – Head of School-Chairperson,
2. Dr. Harsha Padheriya-External Expert,
3. Dr. Kaushal Jani-External Expert,
4. Mr. Vinay Soni-External Expert,
5. Dr. Nikita Shah-Member Nominated by Provost,
6. Mr. Sanyam Sheth-Teacher Nominated by Provost,
7. Dr. Suresh Sorathia – Member Secretary

The following invitees have attended the meeting:

1. Dr. Apurv Raval – Director, Academics.
2. Ms. Hiral Vora – Academic Co-ordinator.
3. Mr. Vishwas Shukla-Invitee

In the beginning of the meeting, the Chairperson welcomed all and gave a brief idea about the meeting, and discussed progress of the School of Engineering. After the above deliberation following agenda was taken into consideration:

Item No 1 - Consideration of the Minutes of the 4th Meeting of the Board of Studies of School of Engineering held on 19.11.2025 at Shreyarth University Campus. (Appendix-I).

(Note: Minutes of the Meeting of the Board of Studies of School of Engineering was circulated on 22.11.2025 and no comments were received.)

Resolution:

Resolved that the Minutes of the 4th Meeting of the Board of the Studies of School of Engineering held on 22.11.2025 was confirmed as attached with the agenda.

Item No. 2 – To consider the Action Taken Report on the decisions of the 4th Meeting of the Board of Studies held on 19.11.2025 at Shreyarth University Campus.(Appendix-II).

Resolution:

Resolved that the note on actions taken on the decisions of the 4th Meeting of the Board of the Studies of School of Engineering held on 19.11.2025 be noted as attached with the agenda.





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Item No. 3 – Consideration of Syllabus with Course Learning Outcomes (CLOs) and Teaching and Examination Schema of Programme: Diploma in Computer Science Engineering, Semester–III(Appendix–III).

Resolution:

Resolved to recommend to the Academic Council that approval to be given to the Syllabus with Course Learning Outcomes (CLOs) and Teaching & Examination Scheme of Diploma in Computer Science Engineering Semester III Programme as attached with the agenda to be made effective from academic year 2026 – 2027 onward (Appendix – III).

Item No. 4 – Consideration of Syllabus with Course Learning Outcomes (CLOs) and Teaching and Examination Schema of Programme: Diploma in Information Technology, Semester–V (Appendix–IV).

Resolution:

Resolved to recommend to the Academic Council that approval to be given to the Syllabus with Course Learning Outcomes (CLOs) and Teaching & Examination Scheme of Diploma Information Technology Semester V programme as attached with the agenda to be made effective from academic year 2026 – 2027 onward (Appendix – IV).

Item No 5 – Consideration of the expert review received from the different experts from industry and academia(Appendix-V).

Resolution:

The expert review and suggestions received from external experts from industry and academia (Appendix V) were placed before the Board of Studies. The Board examined the recommendations in detail and approved incorporation of the relevant and feasible suggestions in the Semester V Diploma in Information Technology curriculum from academic year 2026-2027. The remaining suggestions were duly noted for consideration during future revisions. The revised syllabus was approved and recommended for implementation. (Appendix-V).

Item No 6 – Consideration of review of programme: Diploma in Computer Science Engineering Semester-I, Diploma in Information Technology Semester-III Semester End Examinations Question Papers on various parameters & formats(Appendix-VI).

Resolution:

The Board of Studies reviewed the Semester End Examination question papers of Diploma in Computer Science Engineering Semester-I and Diploma in Information Technology Semester-III on various academic parameters and prescribed formats (Appendix-VI). The Board found the papers appropriate and in accordance with the syllabus and examination guidelines. The same was noted and approved (Appendix-VI).






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As there was no business to discuss, the meeting ended with a Vote of Thanks to the Hon'ble Chair.


Dr. Suresh Sorathia
Registrar (I/C),
Shreyarth University





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SU/AC/MOM/2026/ 1108

Date: 19/03/2026

ACADEMIC COUNCIL

Minutes of the Meeting

The 8th Meeting of the Academic Council of the Shreyarth University constituted under section 19 (c) of the Gujarat Private Universities Act, 2009, (read with Section 22 (1) of the Gujarat Private Universities Act, 2009 and proposed draft first Statute 3 of the University) was held on 16/03/2026 at 02:00 pm at the Conference Room of the University, Gujarat Bhavan, Near M. J. Library, Ashram Road, Ahmedabad, where following members were present:

1. Prof. (Dr.) Apurv Raval - Chairman
2. Dr. Hemant Trivedi (Online – Google Meeting)
3. Prof. Malti Mehta
4. Dr. Kinjal Adhvaryu
5. Prof. Krupal Acharya
6. Dr. Nikita Shah
7. Prof. Milan Vyas
8. Dr. Jayraj Pandya
9. Prof. Jinal Bhatt
10. Prof. Zalak Modi
11. Prof. Riddhi Zala
12. Dr. Suresh Sorathia, I/C Registrar – Member Secretary

The following member have attended the meeting as Special Invitee:

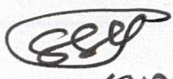
1. Hiral Vora – Academic Coordinator.

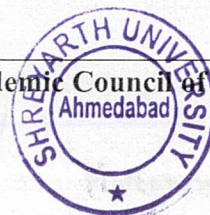
Leave of absence was granted to following member:

1. Dr. Dharmesh Shah

In the absence of the Provost, the Hon'ble President nominated the Dean and Director of Academics and Research, Prof. (Dr.) Apurv Raval, to chair the meeting, and he accordingly accepted and presided over it. At the outset, the Chairman introduced the new members and provided a brief overview of the meeting agenda. Following these initial proceedings, the agenda items were taken up for consideration.

Item No. 1: Consideration of the confirmation of the Minutes of the 7th meeting of the Academic Council held on 01/12/2025 at Shreyarth University Campus (**Appendix-1**).


Dr. Suresh Sorathia





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(Note: Minutes of the previous meeting were circulated on 16.12.2025 and no comments were received thereafter)

Resolution:

Resolved that the minutes of the 7th meeting of the Academic Council held at Shreyarth University on 01/12/2025, which were circulated on 16.12.2025 and on which no comments were received thereafter, be and are hereby confirmed.

Item No. 2: Consideration of note on the actions taken on the decisions of the 7th meeting of the Academic Council held on 01.12.2025 at Shreyarth University Campus (**Appendix-2**).

Resolution:

Resolved that the Academic Council noted the actions taken on the decisions of the 7th meeting of the Academic Council held on 01.12.2025 at Shreyarth University Campus, as placed before the members, and the same be and are hereby taken on record.

Item No. 3: Considerations of the recommendations of the Board of Studies of School of Managements to accord approval to the Syllabus & Teaching & Examination Scheme of, BBA (Hons.) Sem.-VII, Integrated BBA-MBA Semester-VII, B. Com (Hons) V Programmes to be made effective from academic year 2026-27 as aligned with NEP 2020. (**Appendix-3A,3B,3C**), respectively.

Resolution:

Resolved that the Academic Council, after reviewing the recommendations of the Board of Studies of the School of Management, be approved the Syllabus, Teaching and Examination Scheme of BBA (Hons.) Semester VII, Integrated BBA-MBA Semester VII, and B.Com (Hons.) Semester V programmes, as placed at Appendix-3A, 3B, and 3C respectively, to be implemented with effect from the Academic Year 2026–27 in alignment with the provisions of NEP 2020.

Item No. 4: Considerations of the recommendations of the Board of Studies of School of Computer Science and Applications to accord approval to the new Syllabus & Teaching & Examination Scheme of following programmes and semesters to be made effective from academic year 2026-27 and onward as aligned with NEP-2020. (**Appendix-4**).

Dr Suresh Sorethia





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Programme	Sem.	New / Modified Syllabus
BCA, Int. B.Sc.-M.Sc. (CA&IT)	VII	New
Int. B.Sc.-M.Sc. (CA&IT)	IX	New
M. Sc. (IT)	III	New
B.Sc. Cyber Security Cloud Computing and Networking	V	New
B. Sc. Animation, VFX & Gaming	VII	New

Resolution:

Resolved that the Academic Council, after reviewing the recommendations of the Board of Studies of the School of Computer Science and Applications, be approved the new Syllabus, Teaching and Examination Scheme of the programmes and semesters as detailed in Appendix-4, to be implemented with effect from the Academic Year 2026–27 onwards in alignment with the provisions of NEP 2020.

Item No. 5: Considerations of the recommendations of the Board of Studies of School of Engineering to accord approval to the Syllabus & Teaching & Examination Scheme of Diploma in Computer Science Engineering Sem-III and Diploma in Information Technology, Semester-V programmes to be made effective from academic year 2026-27 and onward as per AICTE 2022 guidelines. (Appendix-5).

Resolution:

Resolved that the Academic Council, after reviewing the recommendations of the Board of Studies of the School of Engineering, be approved the Syllabus, Teaching and Examination Scheme of Diploma in Computer Science Engineering Semester III and Diploma in Information Technology Semester V programmes, as placed at Appendix-5, to be implemented with effect from the Academic Year 2026–27 onwards in accordance with the AICTE 2022 guidelines.

Item No. 6: Consideration to constitute the following new authorities under the Section 19 (d) of the Gujarat Private Universities Act, 2009, Statute-4, Sub-sequent Statute 1 (1) of the University. (Appendix-6).

Dr. Suresh Sorathia
SSS





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- **Constitution of the Board of Studies for the B.Com. Programme under the School of Management.**

Resolution:

Resolved to recommend to the Board of Management and the Governing Body that the Academic Council, after reviewing the agenda for the constitution of new authorities under Section 19(d) of the Gujarat Private Universities Act, 2009, read with Statute-4 and subsequent Statute 1(1) of the University, proposed the constitution of a separate Board of Studies for the B.Com. Programme under the School of Management, considering the need for specialized academic guidance in the domain of accountancy and commerce.

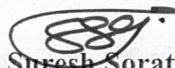
Item No. 7: Considerations of the recommendations of the Board of Studies of School of Management to accord post facto approval to the Modification in Syllabus & Teaching & Examination Scheme of the Internship course of BBA(Hons.) Sem VI, Integrated BBA-MBA Semester VI, programmes to be made effective from academic year 2025-26 as aligned with NEP 2020 (Appendix – 7).

Resolution:

Resolved that the Academic Council accorded post facto approval to the modifications in the Syllabus, Teaching and Examination Scheme of the Internship course for BBA (Hons.) Semester VI and Integrated BBA-MBA Semester VI programmes, as placed at Appendix-7. The Council further resolved that the same be implemented with effect from the Academic Year 2025-26, in alignment with the provisions of NEP 2020.

As there being no other business to transact, the meeting concluded with a vote of thanks to the Hon'ble Chair.




Dr. Suresh Sorathia
Registrar (I/C),
Shreyarth University, Ahmedabad

SHREYARTH UNIVERSITY



SCHOOL OF ENGINEERING

TEACHING SCHEME AND SYLLABUS

DIPLOMA COMPUTER SCIENCE ENGINEERING

(A.Y.2025-2026)

Diploma in Computer Science Engineering Teaching Scheme

Diploma CSE Semester - 1

Diploma CSE Semester - 1												
Sr. No	Semester	Course Code	Course Name	Curricular Components	Teaching Scheme					Exam Scheme		
					L.	T.	P.	Credit	Contact Hours	CCE	SEE	Total
1	I		Mathematics - I	Basic Science	3	1	0	4	4	60	40	100
2	I		Physics	Basic Science	3	0	1	4	5	60	40	100
3	I		Communication Skills	Humanities	2	0	0	2	2	60	40	100
4	I		Essence of Indian Traditional Knowledge	Audit	0	0	0	0	2	100	0	100
5	I		Computer Workshop	Engineering Science	2	0	1	3	4	60	40	100
6	I		Fundamental of Computer	PCC	2	0	2	4	6	60	40	100
7	I		Introduction to Computer Programming	PCC	3	0	2	5	7	60	40	100
Total					15	1	6	22	30	460	240	700

Diploma CSE Semester - 2

Diploma CSE Semester - 2												
Sr. No	Semester	Course Code	Course Name	Curricular Components	Teaching Scheme					Exam Scheme		
					L.	T.	P.	Credit	Contact Hours	CCE	SEE	Total
1	II		Mathematics - II	Basic Science	3	1	0	4	5	60	40	100
2	II		Basic Electrical and Electronic Engineering	Engineering Science	3	0	1	4	5	60	40	100
3	II		Professional Development	Humanities	2	0	0	2	2	60	40	100
4	II		Web Technologies	PCC	2	0	2	4	6	60	40	100
5	II		Object Oriented Programming	PCC	3	0	2	5	7	60	40	100
6	II		Chemistry	Basic Science	3	0	0	3	3	60	40	100
Total					16	1	5	22	28	360	240	600

Diploma CSE Semester - 3

Sr. No	Semester	Course Code	Course Name	Curricular Components	Teaching Scheme					Exam Scheme		
					L.	T.	P.	Credit	Contact Hours	CCE	SEE	Total
1	III		Computer Organization and Architecture	Engineering Science	3	1	0	4	4	60	40	100
2	III		Data Structure	PCC	3	0	2	5	7	60	40	100
3	III		Database Management System	PCC	3	0	2	5	7	60	40	100
4	III		Basics of Digital Electronics	Engineering Science	3	0	1	4	5	60	40	100
5	III		Digital Literacy and Cyber Hygiene	VAC-1	2	0	0	2	2	60	40	100
6	III		Digital Marketing with SEO	SEC-1	2	0	0	2	2	60	40	100
Total					17	0	5	22	27	360	240	600

Course: Computer Organization and Architecture								
Course Code:			Credit:4	Semester: III		Programme: Diploma CSE		
Teaching Scheme				Evaluation Scheme				
				CCE		SEE		Total
Lecture	Tutorial	Practical	Contact Hours	CIE Theory	CIE Practical	SEE Theory	SEE Practical	Total
3	1	0	4	12/30	12/30	16/40	-	40/100

Course Objectives:

- To introduce basic concepts of computer organization and architecture
- To understand the structure and functioning of CPU and its components
- To explain data representation and instruction execution
- To familiarize students with memory and input/output organization

Course Outcomes (COs):

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

CO1: Explain the basic structure and functional units of a digital computer.

CO2: Analyze data representation, registers, instruction cycle, and addressing modes.

CO3: Explain CPU organization and memory hierarchy concepts.

CO4: Explain input/output organization and interrupt mechanisms in computer systems.

Course Content:

Module	Topics	Weightage (%)
1	Introduction to Computer Organization: Basic organization of a digital computer, block diagram and functional units, Von Neumann and Harvard architecture, CPU overview, registers and register transfer concept, system bus structure, instruction execution overview and basic performance concepts.	25
2	Data Representation & Instruction Cycle: Number systems and base conversions, binary arithmetic operations, signed number representation, fixed point and floating-point representation, instruction format and instruction cycle, addressing modes.	25
3	CPU & Memory Organization: Arithmetic Logic Unit (ALU) and control unit, register organization and control signals, instruction execution process, primary memory organization, RAM and ROM	25

	types, cache memory and memory hierarchy, secondary storage devices and their characteristics.	
4	Input / Output Organization: Input and output devices and interfaces, programmed I/O and interrupt driven I/O, polling mechanism, interrupt mechanism and priority interrupt, Direct Memory Access (DMA), memory-mapped I/O and isolated I/O, basic performance concepts and overview of I/O data transfer.	25

Text Book(s):

- M. Morris Mano, *Computer System Architecture*, Pearson Education.
- Carl Hamacher, Zvonko Vranesic, Safwat Zaky, *Computer Organization*, McGraw-Hill.

Reference Book(s):

- William Stallings, *Computer Organization and Architecture: Designing for Performance*, Pearson.
- David A. Patterson & John L. Hennessy, *Computer Organization and Design*, Morgan Kaufmann.

Continuous Internal Evaluation (CIE) Components:

- Unit / Class Test
- Written Assignments
- Quiz / MCQ Tests
- Classroom Interaction & Attendance

Mapping with Programme Outcomes (POs):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	–	–	–	–	1
CO2	3	3	1	1	–	–	1
CO3	3	2	1	–	–	–	1
CO4	2	2	1	–	–	–	1

Course: Data Structure								
Course Code: -			Credit:5	Semester: III		Programme: Diploma CSE		
Teaching Scheme				Evaluation Scheme				
				CCE		SEE		
Lecture	Tutorial	Practical	Contact Hours	CIE Theory	CIE Practical	SEE Theory	SEE Practical	Total
3	0	2	7	12/30	12/30	16/40	-	40/100

Course Objectives:

- Understand and classify data structures and analyse algorithms for efficient problem solving.
- Perform basic operations on arrays, stacks, queues, and linked lists using appropriate techniques.
- Construct and manipulate trees and apply suitable traversal, sorting, and searching algorithms.
- Select and implement appropriate data structures and algorithms to solve real-world computational problems.

Course Outcomes (COs):

CO1: Explain the fundamentals of data structures and algorithms, and implement array, string operations and searching using C language.

CO2: Implement and apply stack and queue data structures along with their operations and applications using C language.

CO3: Design and implement linked list data structures using pointers and perform insertion, deletion and searching operations.

CO4: Construct and apply binary search trees, and implement sorting techniques to solve computational problems efficiently.

Course Content:

Module	Topics	Weightage (%)
1	Introduction to Data Structures: Introduction to Data Structure: Advantages, Applications, Types of Data Structure: Primitive and Non-Primitive, Linear and Non-Linear, Introduction to Algorithms, Algorithm Analysis, Array, Types of Arrays, Various operations on array: Traversing, Insertion, Deletion,	25

	Searching, String Operations, Introduction to Searching: Sequential Searching, Binary Searching	
2	Stack and Queue: Stack, Characteristic of Stack, Operations on Stack, Stack operations: Push, Pop, Applications of Stack, Recursion, Conversion of algebraic expression, Queue: Characteristic of Queue, Types of Queues: Simple Queue, Circular Queue	25
3	Linked List: Pointer, Structure using Pointer, Basic operations on Linked List - Insertion of node, Basic operations on Singly Linked List - Deletion and Searching of node, Concept of Circular Linked List, Concept of Doubly Linked List	25
4	Binary Tree, Sorting and Searching Techniques: Binary Search Tree construction, BST - Insertion, Deletion and searching operations, Tree Traversal, Introduction to Sorting, Bubble Sort, Selection Sort, Insertion Sort.	25

Practical List:

1. Write a program to get elements from the user and store them in 1-dimensional and 2-dimensional arrays.
2. Write a program to implement factorial of a number.
3. Write a program to find the length of a string.
4. Write a program to copy one string to another.
5. Write a program to implement sequential search.
6. Write a program to implement push and pop operations of Stack.
7. Write a program to implement insert and delete operation of Queue.
8. Study the implementation of binary tree.
9. Write a program to implement bubble sort.
10. Write a program to implement selection sort.

Text Book(s):

1. E. Balagurusamy, Data Structures Using C, McGraw-Hill.
2. Reema Thareja, Data Structures Using C, Oxford University Press.

Reference Book(s):

1. Ellis Horowitz, Sartaj Sahni, Susan Anderson-Freed, *Fundamentals of Data Structures in C*, Computer Science Press.
2. Seymour Lipschutz, *Data Structures (Schaum's Outline Series)*, McGraw-Hill.

Continuous Internal Evaluation (CIE) Components:

- Internal Written Test
- Assignments / Tutorials
- Practical / Lab Performance

- Quiz / MCQ Test
- Attendance & Class Participation
- Group Presentation

Mapping with Programme Outcomes (POs):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	2	–	2	–	1
CO2	2	3	3	1	2	–	1
CO3	2	3	3	1	2	1	1
CO4	3	3	3	1	2	–	1

Course: Database Management System								
Course Code: -				Credit:5	Semester: III		Programme: Diploma CS	
Teaching Scheme				Evaluation Scheme				
				CCE		SEE		Total
Lecture	Tutorial	Practical	Contact Hours	CIE Theory	CIE Practical	SEE Theory	SEE Practical	Total
3	0	2	7	24/60		16/40		40 / 100

Course Objectives:

- Understand the basic concepts of DBMS, data abstraction, and different database architectures.
- Describe database constraints, relational algebra, and design E-R diagrams for applications.
- Retrieve and manipulate data using SQL functions, queries, and subqueries.
- Understand normalization concepts and design database tables at different normal forms.

Course Outcomes (COs):

CO1: Explain fundamental concepts of DBMS, data abstraction and database architecture.

CO2: Apply integrity constraints and relational algebra to design ER diagrams.

CO3: Write SQL queries using joins, functions and subqueries for data manipulation

CO4: Design and normalize relational database tables using normal forms.

Course Content:

Module	Topics	Weightage (%)
1	Data Management Concepts: Describe the basic aspects of Database Management System, explain concepts of data abstraction, Describe various types of database Architecture,	25
2	Integrity Constraints: Describe various database constraints, Explain Relational Algebra and its notations in relation to database management, Explain the concept of E-R diagrams, Design E –R diagrams for an application.	25
3	Structure Query Language: Basics of SQL, DDL, DML, DCL, Retrieve data/information using Structured Query Language, Use SQL Functions for different operations, Write queries to use various	25

	SQL functions, Use SQL complex queries and Sub queries to retrieve data.	
4	Relational Database design: Describe the concept of Normalization of a database, Design database table at different levels of normalizations– 1NF, 2NF, 3NF, Decomposition using FD-dependency preservation, Multivalued dependency.	25

Practical List:

1. **Create Database and Tables** – Design tables like Students, Departments, Courses, Enrollment with appropriate attributes.
2. **Insert, Update, Delete Records** – Perform basic data manipulation on all tables.
3. **Apply Constraints** – Implement PRIMARY KEY, FOREIGN KEY, NOT NULL, UNIQUE, CHECK, DEFAULT.
4. **Retrieve Records with Conditions** – Use SELECT with WHERE clause and operators like =, >, <, IN, BETWEEN, LIKE.
5. **Use ORDER BY and DISTINCT** – Sort query results and retrieve unique values.
6. **Aggregate Functions with GROUP BY & HAVING** – Perform COUNT, SUM, AVG, MAX, MIN with grouping and filtering.
7. **SQL Functions** – Use date, numeric, and character functions on table data.
8. **Views and Reporting** – Create views for specific data and generate reports using SELECT and aggregate queries.

1. SUGGESTED LIST OF STUDENT ACTIVITIES

Following is the list of proposed student activities like:

- i. Seminar with Power point Presentations.
- ii. Design a Model for any real time system.

2. SPECIAL INSTRUCTIONAL STRATEGIES

Prepare databases like student information , banking, library, insurance etc.

Text Book(s):

1. Abraham Silberschatz, Henry Korth, S. Sudarshan, *Database System Concepts*, McGraw-Hill.
2. Ivan Bayross, *SQL, PL/SQL: The Programming Language of Oracle*, BPB Publications.

Reference Book(s):

1. C. J. Date, *An Introduction to Database Systems*, Pearson.
2. Raghu Ramakrishnan & Johannes Gehrke, *Database Management Systems*, McGraw-Hill.

Continuous Internal Evaluation (CIE) Components:

- Internal Written Test
- Assignments / Tutorials
- Practical / Lab Performance
- Quiz / MCQ Test
- Attendance & Class Participation
- Presentation

Mapping with Programme Outcomes (POs):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	–	–	1	–	1
CO2	2	3	3	1	2	–	1
CO3	2	2	3	1	3	1	1
CO4	2	3	3	1	2	–	1

Course: Basics of Digital Electronics								
Course Code:			Credit:4	Semester: III		Programme: Diploma CS		
Teaching Scheme				Evaluation Scheme				
				CCE		SEE		Total
Lecture	Tutorial	Practical	Contact Hours	CIE Theory	CIE Practical	ESE Theory	ESE Practical	Total
3	0	1	5	12 / 30	12/30	16 / 40	-	40 / 100

Course Objectives:

- To introduce students to number systems, binary arithmetic, and fundamental digital concepts used in digital electronics and computer systems.
- To develop understanding of binary logic, Boolean algebra, logic gates, and simplification techniques for logical expressions.
- To familiarize learners with basic digital circuits such as adders, multiplexers, decoders, encoders, and comparators.
- To provide knowledge of sequential circuits including flip-flops, counters, and their applications in digital system design.

Course Outcomes (COs):

CO1: Explain different number systems and perform number system conversions along with binary arithmetic operations.

CO2: Apply Boolean algebra rules and logic gates to simplify, construct, and analyze digital logic expressions and circuits

CO3: Design and implement combinational logic circuits such as adders.

CO4:Analyze the operation of sequential circuits and implement various encoders, decoders, multiplexers, flip-flops.

Course Content:

Module	Topics	Weightage (%)
1	Binary Systems Introduction of Digital Computers and Digital Systems , Binary Number System, Octal Number System, Decimal Number System, Hexadecimal Number System, Conversion of Number System- Binary to Octal, Binary to Decimal, Binary to Hexadecimal, Decimal to Binary, Decimal to Hexadecimal, Decimal, Octal to Binary, Octal to Hexadecimal, Octal to Decimal, Hexadecimal to Binary, Hexadecimal to Octal, Hexadecimal to Decimal, Binary Addition	25
2	Binary Logic And Boolean Algebra Binary Logic And Boolean Algebra ,Basic Binary logic ,Logic Gates AND , OR, NOT, Boolean algebra, De-Morgan's Theorems	25
3	Basic Digital Logic Circuit-I XOR, XNOR, NAND, NOR gates and their truth tables, Circuit Equivalent, Half Adder and Full Adder	25
4	Basic Digital Logic Circuit-II Encoder (8 X 3 line), Decoder (3 X 8 line), Multiplexer (4 X 1, 8 X 1), Flip Flop , RS Flip Flop , D Flip Flop , JK Flip Flop	25

Practical List :

1. Perform number system conversions between binary, decimal, octal and hexadecimal.
2. Perform binary arithmetic operations and calculate 1's and 2's complement.
3. Verify truth tables of basic logic gates (AND, OR, NOT, NAND, NOR, XOR, XNOR).
4. Simplify Boolean expressions using Boolean algebra.
5. Simplify Boolean expressions using Karnaugh Map (K-Map).
6. Design and implement half adder and full adder circuits.
7. Design and implement half subtractor and full subtractor circuits.
8. Implement encoder and decoder circuits.
9. Implement multiplexer and demultiplexer circuits.
10. Study and verify operation of SR, JK, D and T flip-flops.

Text Book(s):

1. M. Morris Mano, *Digital Logic and Computer Design*, Pearson Education.
2. R. P. Jain, *Modern Digital Electronics*, McGraw-Hill.

Reference Book(s):

1. Charles H. Roth Jr. & Larry L. Kinney, *Fundamentals of Logic Design*, Cengage.

Continuous Internal Evaluation (CIE) Components:

- Internal Written Test

- Assignments / Tutorials
- Practical / Lab Performance
- Quiz / MCQ Test
- Attendance & Class Participation

Mapping with Programme Outcomes (POs):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	–	–	–	–	1
CO2	3	3	2	1	1	–	1
CO3	2	3	3	1	2	–	1
CO4	2	3	3	1	2	1	1

Course: Digital Literacy and Cyber Hygiene								
Course Code:			Credit:2	Semester: III		Programme: Diploma CSE		
Teaching Scheme				Evaluation Scheme				
				CCE		SEE		Total
Lecture	Tutorial	Practical	Contact Hours	CIE Theory	CIE Practical	SEE Theory	SEE Practical	Total
2	0	0	2	12/30	12/30	16/40	-	40/100

Course Objectives:

- Develop basic digital literacy skills among students
- To create awareness about digital services and online platforms
- To introduce fundamental concepts of cyber security
- To promote cyber hygiene and safe digital practices

Course Outcomes (COs):

- CO1.** Explain basic concepts of digital literacy, digital devices and internet usage.
CO2. Demonstrate responsible use of digital services and online platforms.
CO3. Identify common cyber threats and security risks.
CO4. Apply cyber hygiene practices for safe and secure digital usage.

Course Content:

Module	Topics	Weightage (%)
1	Digital Literacy Basics: Meaning and importance of digital literacy, digital devices (computer, laptop, smartphone, tablet), basic components of computer system, introduction to operating systems, basics of internet, email and online communication tools	25
2	Digital Services and Online Platforms: Introduction to digital services, online education, banking and payment systems, government digital services and portals, cloud storage and digital documents, social media platforms – uses and risks, responsible use of digital platforms	25
3	Cyber Security Fundamentals: Introduction to cyber security, types of cyber threats (virus, malware, worm, trojan), phishing, identity theft and online fraud, safe browsing practices, antivirus software and firewalls, awareness of cyber attacks	25
4	Cyber Hygiene and Safe Practices: Concept and importance of cyber hygiene, strong password creation and management, two-factor authentication, data privacy and protection, safe use of public Wi-Fi,	25

	identification of suspicious links and messages, data backup and recovery basics	
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Suggested Student Activities:

1. Demonstration of secure password creation and password strength checking
2. Identifying phishing emails and fake websites
3. Awareness session on online banking and UPI safety
4. Demonstration of enabling two-factor authentication
5. Reporting cybercrime through the national cybercrime portal
6. Mini Project on Cyber Hygiene and Digital Awareness.

Text Books / Learning Resources:

1. *Cyber Safety: A Handbook for Students*, Ministry of Electronics and Information Technology (MeitY), Government of India.
2. CERT-In, *Information Security Awareness Handbook*, Indian Computer Emergency Response Team.

Reference Resources:

1. *National Cyber Security Awareness Portal* (<https://www.cybercrime.gov.in>)
2. *Digital India Initiative learning materials* (<https://www.digitalindia.gov.in>)

Continuous Internal Evaluation (CIE) Components:

- Unit / Class Test
- Written Assignments
- Quiz / MCQ Tests
- Classroom Interaction & Attendance

Mapping with Programme Outcomes (POs):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	1	–	–	1	1	2
CO2	1	1	1	–	2	2	2
CO3	1	2	–	–	2	2	2
CO4	1	1	1	–	2	3	2

Course: Digital Marketing with SEO								
Course Code:			Credit:2	Semester: III		Programme: Diploma CS		
Teaching Scheme				Evaluation Scheme				
				CCE		SEE		Total
Lecture	Tutorial	Practical	Contact Hours	CIE Theory	CIE Practical	SEE Theory	SEE Practical	Total
2	0	0	2	12 / 30	12/30	16 / 40	-	40/100

Course Objectives:

- To understand the basic concepts, importance, and platforms of Digital Marketing.
- To learn website creation, search engine working, and digital marketing tools used for online promotion.
- To develop skills in SEO, SEM, social media marketing, content marketing, and online advertising techniques.
- To understand lead generation, campaign management, web analytics, and the role of a Digital Marketing Manager in business growth.

Course Outcomes (COs):

CO1: Explain the fundamental concepts, platforms, and importance of digital marketing in modern business.

CO2: Describe website fundamentals, domain and hosting concepts, and the role of search engines in digital marketing.

CO3: Apply basic digital marketing tools and techniques for lead generation and online promotion.

CO4: Analyze emerging digital marketing strategies such as SEO, SEM, email marketing, and online advertising.

Course Content:

Module	Topics	Weightage (%)
1	Introduction to Digital Marketing -Concept and importance of Digital Marketing, need for Digital Marketing in the modern business environment, digital marketing platforms, organic and paid digital marketing, difference between traditional marketing and digital marketing, advantages of digital marketing. Role and functions of a Digital Marketing Manager and significance of digital marketing management in modern organizations.	25
2	Website & Search Engine introduction -Introduction to websites, concept of domain and web hosting, platforms for website creation, overview of website development tools.	25

	Introduction to search engines, working of search engines, overview of popular search engines such as Google, Bing and Yahoo.	
3	Lead Management & Digital Marketing -Introduction to digital marketing tools, Google Webmaster tools, site map creators, browser-based analysis tools, page rank tools, pinging and indexing tools, dead link identification tools and domain information tools. Concept of lead management, web-to-lead forms, lead generation techniques, social media based lead generation, CPC reduction in paid advertising and basic IP tracking tools.	25
4	Trending Digital Marketing Skills - Search Engine Optimization (SEO), Search Engine Marketing (SEM), email marketing, content marketing, blogging and copywriting. Overview of PPC advertising, affiliate marketing, mobile marketing, marketing automation, web analytics and growth hacking.	25

Suggested Student Activities

1. Complete Google-Certified Digital Marketing Courses.
2. Perform Keyword Research & Apply Basic SEO Techniques
3. Create AI-generated marketing videos.
4. Develop a Sample Google Ads / PPC Campaign Plan
5. Analyze website traffic using web analytics tools and prepare a performance report.

Text Book(s):

1. Seema Gupta, *Digital Marketing*, McGraw-Hill Education.
2. V. Ahuja, *Digital Marketing*, Oxford University Press.

Reference Book(s):

1. David Meerman Scott, *The New Rules of Marketing and PR*.

Continuous Internal Evaluation (CIE) Components:

- Internal Written Test
- Assignments / Tutorials
- Mini Project
- Quiz / MCQ Test
- Attendance & Class Participation
- Presentation

Mapping with Programme Outcomes (POs):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	1	–	–	2	–	2
CO2	2	2	1	–	2	–	1
CO3	1	2	2	1	3	1	2
CO4	1	2	2	1	3	1	2

SHREYARTH UNIVERSITY



SCHOOL OF ENGINEERING

TEACHING SCHEME AND SYLLABUS

DIPLOMA ENGINEERING IN INFORMATION TECHNOLOGY

(A.Y.2024-2025)

Diploma in Information Technology Teaching Scheme

Diploma IT Semester - 1

Diploma IT Semester - 1												
Sr. No	Semester	Course Code	Course Name	Curricular Components	Teaching Scheme					Exam Scheme		
					L.	T.	P.	Credit	Contact Hours	CCE	SEE	Total
1	I	DITBS101	Mathematics	Basic Sciences	3	1	0	4	4	60	40	100
2	I	DITHS101	Communication Skills in English	Humanities & Social Sciences	2	0	1	3	4	60	40	100
3	I	DITAU101	Environmental Studies and Disaster Management	Audit Course	2	0	0	2	2	60	40	100
4	I	DITES101	Introduction to IT Systems	Engineering Science	1	0	2	3	5	100	0	100
5	I	DITPC101	Fundamental of Computer	Program Core	0	0	2	2	4	60	40	100
6	I	DITPC102	Basic Computer Programming	Program Core	3	0	2	5	7	60	40	100
7	I	DITHS102	Sports and Yoga	Humanities & Social Sciences	1	0	1	2	3	60	40	100
Total					12	1	8	21	29	460	240	700

Diploma IT Semester - 2

Sr. No	Semester	Course Code	Course Name	Curricular Components	Teaching Scheme					Exam Scheme		
					L.	T.	P.	Credit	Contact Hours	CCE	SEE	Total
1	II	DITBS102	Engineering Mathematics	Basic Sciences	3	1	0	4	3	60	40	100
2	II	DITBS103	Physics	Basic Sciences	3	0	1	4	5	60	40	100
3	II	DITPC103	Python Programming	Program Core	3	0	2	5	7	60	40	100
4	II	DITES102	Electronic and Computer Workshop Practice	Engineering Sciences	0	0	1	1	2	60	40	100
5	II	DITPC104	Basic Object-Oriented Programming	Program Core	3	0	2	5	7	60	40	100
6	II	DITAU102	Indian Constitution	Audit	2	0	0	2	2	60	40	100
Total					14	1	6	21	26	360	240	600

Diploma IT Semester - 3

Sr. No	Semester	Course Code	Course Name	Curricular Components	Teaching Scheme					Exam Scheme		
					L.	T.	P.	Credit	Contact Hours	CCE	SEE	Total
1	III	DITPC201	Data Structure with Python	Program Core	3	0	2	5	7	60	40	100
2	III	DITPC202	Operating System	Program Core	3	0	1	4	5	60	40	100
3	III	DITPC203	Database Management System	Program Core	3	0	2	5	7	60	40	100
4	III	DITPC204	Software Engineering	Program Core	3	0	1	4	5	60	40	100
5	III	DITBS201	Chemistry	Program Core	0	0	2	2	4	60	40	100
Total					12	0	8	20	28	300	200	500

Diploma IT Semester - 4

Sr. No	Semester	Course Code	Course Name	Curricular Components	Teaching Scheme					Exam Scheme		
					L.	T.	P.	Credit	Contact Hours	CCE	SEE	Total
1	IV		Essentials of Digital Marketing	Program Core	3	0	2	5	7	60	40	100
2	IV		Advanced Object-Oriented Programming-Java	Program Core	3	0	1	4	5	60	40	100
3	IV		Cyber Security	Program Core	3	0	1	4	5	60	40	100
4	IV		Introduction to Web Development-PHP	Program Core	3	0	1	4	5	60	40	100
5	IV		Essence of Indian Knowledge and Tradition	Elective (Any one)	2	0	0	2	2	60	40	100
6	IV		Contributor Personality Development	Elective (Any one)	2	0	0	2	2			
7	IV		Integrated Personality Development Course	Elective (Any one)	2	0	0	2	2			
Total					18	0	5	23	28	300	200	500

Diploma IT Semester - 5

Sr. No	Semester	Course Code	Course Name	Curricular Components	Teaching Scheme					Exam Scheme		
					L.	T.	P.	Credit	Contact Hours	CCE	SEE	Total
1	V		Advanced Java Programming	Program Core	3	0	1	4	5	60	40	100
2	V		Introduction to Machine Learning	Program Core	4	0	1	5	6	60	40	100
3	V		Mobile Application Development using Android	Program Core	2	0	2	4	6	60	40	100
4	V		Project-	Program Core	0	0	3	3	6	60	40	100
5	V		Fundamentals of Artificial Intelligence	Elective-1 (Any one)	3	0	1	4	5	60	40	100
6	V		Advance Computer Network	Elective-1 (Any one)								
7	V		Multimedia Technologies	Elective-2 (Any one)								
Total					12	0	8	20	28	300	200	500

Course: Advanced Java Programming								
Course Code: -				Credit: 4	Semester: V		Programme: Diploma IT	
Teaching Scheme				Evaluation Scheme				
				CCE		SEE		Total
Lecture	Tutorial	Practical	Contact Hours	CIE Theory	CIE Practical	SEE Theory	SEE Practical	
3	0	1	5	12/30	12/30	16/40	-	40/100

Course Objectives:

- To enable students to design and develop interactive graphical user interface (GUI) applications using Java Swing by understanding its components, containers, layouts, and event handling mechanism
- To understand event handling and graphics programming using the Abstract Window Toolkit.
- To provide knowledge of JDBC for connecting Java applications with databases and performing database operations.
- To familiarize students with Servlets and JSP for creating dynamic and server-side web applications.

Course Outcomes (COs):

CO1: Students will be able to design and develop interactive GUI applications using Java Swing components, layouts, and event handling..

CO2: Implement event handling and graphics using AWT controls and listener interfaces.

CO3: Develop database applications using JDBC connectivity.

CO4: Develop dynamic web applications using Servlets and JSP.

Course Content:

Module	Topics	Weightage (%)
1	Java Swing: Java Swing and its importance in GUI development, Swing components, containers, and layouts , Event handling in Swing,	25
2	Abstract Window Toolkit (AWT): Describe the classes in the AWT package that relate to the applet class, Describe the AWT graphics explain controls and how to apply them in the container, develop simple programs using event class and event listener interface	25
3	Java Data Base Connectivity (JDBC): Describe the basics of JDBC and its connectivity, explain different types of JDBC drivers and their	20

	advantages and disadvantages, develop a program using JDBC to query a database and modify it.	
4	Servlets and Java Server Pages (JSP): Describe life cycle of servlet, develop program using, javax.servlet package, Explain the architecture of JSP and its life cycle, develop simple programs using Java Server Pages tags	30

Practical List:

1. Create a JFrame window with title, size, and close operation.
2. Add JLabel and JTextField to accept user input.
3. Add a JButton and handle click events using ActionListener.
4. Use JTextArea to display multi-line input from the user.
5. Organize components using FlowLayout, BorderLayout, GridLayout, or BoxLayout.
6. Create a JOptionPane dialog to display messages, take input, or confirm actions.
7. Create a Frame with AWT components: Button, Label, TextField, and TextArea.
8. Implement ActionListener to respond to Button clicks.
9. Draw shapes and text on a Canvas using AWT Graphics.
10. Connect to a database using JDBC and retrieve all records from a table.
11. Insert, update, and delete records in a database table using JDBC.
12. Use PreparedStatement and ResultSet to display filtered data.
13. Create a basic servlet with doGet() and display a simple message.
14. Read parameters from an HTML form in a servlet and display them.
15. Create a JSP page to display user input from an HTML form and show dynamic content.

Text Book(s):

1. Herbert Schildt, *Java: The Complete Reference*, McGraw-Hill.
2. Sachin Malhotra & Saurabh Choudhary, *Java Programming*, Oxford University Press.

Reference Book(s):

1. Marty Hall & Larry Brown, *Core Servlets and JavaServer Pages*, Pearson.
2. Herbert Schildt, *Swing: A Beginner's Guide*, McGraw-Hill.

Continuous Internal Evaluation (CIE) Components:

- Internal Written Test
- Assignments / Tutorials
- Practical / Lab Performance
- Quiz / MCQ Test
- Attendance & Class Participation
- Group Presentation

Mapping with Programme Outcomes (POs):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	2	2	3	–	3	1	1
CO2	2	2	2	1	3	–	1
CO3	2	3	3	1	3	1	1
CO4	2	2	3	1	3	1	1

Course: Introduction to Machine Learning								
Course Code: Click here to enter text.				Credit: 4	Semester: V		Programme: Diploma IT	
Teaching Scheme				Evaluation Scheme				
				CCE		SEE		Total
Lecture	Tutorial	Practical	Contact Hours	CIE Theory	CIE Practical	SEE Theory	SEE Practical	
3	0	1	5	12/ 30	12/30	16 / 40		40/ 100

Course Objectives:

- To introduce the fundamentals of Machine Learning and its relation with Artificial Intelligence and Deep Learning.
- To familiarize students with types of Machine Learning and their real-world applications.
- To develop skills in using Python libraries such as NumPy and Pandas for data handling and preprocessing.
- To understand model preparation, evaluation, and supervised learning classification techniques.

Course Outcomes (COs):

- CO1.** Explain basic Machine Learning concepts, workflow and types of learning.
- CO2.** Perform data preprocessing and manipulation using NumPy and Pandas.
- CO3.** Apply data partitioning, model selection and performance evaluation techniques.
- CO4.** Implement supervised Machine Learning classification models using Python.

Course Content:

Module	Topics	Weightage (%)
1	Introduction to Machine Learning: What is Machine Learning?, Difference between AI, ML, and Deep Learning, Types of ML, Applications of ML, ML workflow, Tools and Technology for Machine Learning	25
2	Python libraries suitable for Machine Learning: Numpy , Creating Array, Stacking & Splitting, Maths Functions , Statistics Functions, Pandas, Series, Dataframes.	25

3	Preparing to Model and Preprocessing: Machine Learning activities , Preparing to Model , Learning: Data Partition-k fold cross validation, Model Selection , Performance Evaluation: confusion matrix , Performance Improvement: Ensemble.	25
4	Supervised and unsupervised Machine Learning Models: Introduction of Supervised Learning, Basic concept of Supervised Learning, Working of Supervised Learning, Types of Supervised Learning, Common Supervised Learning Algorithms, Introduction of Unsupervised Learning, Basic concept of Unsupervised Learning, Working of Unsupervised Learning, Types of Unsupervised, Basic idea of Clustering, Common Unsupervised Learning Algorithms.	25

Practical List:

1. Study of Machine Learning fundamentals, types, applications, workflow, tools and technologies.
2. Creation of NumPy arrays using `array()` and study of array properties.
3. Stacking and splitting of NumPy arrays using `stack()` and `array_split()`.
4. Implementation of mathematical operations on NumPy arrays using `add()`, `subtract()`, `multiply()`, `divide()`, `power()`, and `mod()`.
5. Application of statistical functions on NumPy arrays using `amin()`, `amax()`, `mean()`, `median()`, `std()`, `var()`, `average()`, and `ptp()`.
6. Creation and manipulation of Pandas Series using `Series()`.
7. Creation and analysis of Pandas DataFrames using `DataFrame()`.
8. Data preprocessing using Pandas (handling missing values and cleaning data).
9. Performing basic Machine Learning activities such as data collection, cleaning, and feature selection.
10. Data preparation for modeling using data partition techniques.
11. Implementation of K-Fold Cross Validation.
12. Model performance evaluation using confusion matrix.
13. Model selection based on performance evaluation.
14. Performance improvement using ensemble learning techniques.
15. Implementation of supervised machine learning classification model.

Text Book(s):

1. Machine Learning Saikat Dull, S. Chjandramouli
2. Machine Learning Using Python Das, Pearson Pradhan Manaranjan, U Dinesh Kumar

Reference Book(s):

1. Jeeva Jose, *Introduction to Machine Learning*, Wiley India.
2. Peter Harrington, *Machine Learning in Action*, Manning Publications.

Continuous Internal Evaluation (CIE) Components:

- Internal Written Test
- Assignments / Tutorials
- Practical / Lab Performance
- Quiz / MCQ Test
- Attendance & Class Participation
- Group Presentation

Mapping with Programme Outcomes (POs):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	–	–	1	–	1
CO2	2	2	2	–	3	1	1
CO3	2	3	2	1	3	–	1
CO4	2	2	3	1	3	1	2

Course: Mobile Application Development using Android								
Course Code: Insert here			Credit:4	Semester: III		Programme: Diploma IT		
Teaching Scheme				Evaluation Scheme				
				CCE		SEE		Total
Lecture	Tutorial	Practical	Contact Hours	CIE Theory	CIE Practical	ESE Theory	ESE Practical	
2	0	2	6	12 /30	12/30	16 / 40	-	40 / 100

Course Objectives:

- To introduce Android as an open platform and provide understanding of its architecture, SDK, and development environment.
- To develop skills for designing user interfaces using layouts, views, and standard UI components.
- To enable handling of user interactions and application flow, including events, activities, and navigation.
- To build functional Android applications with knowledge of data storage, services, permissions, and database concepts.

Course Outcomes (COs):

- CO1.** Explain Android architecture and development environment setup.
- CO2.** Design user interfaces using layouts, views and UI components.
- CO3.** Implement event handling, activity navigation, intents and data storage in Android applications.
- CO4.** Develop database-driven Android applications using SQLite and advanced UI components.

Course Content:

Module	Topics	Weightage (%)
1	Introduction to Android and Development Environment Android: An Open Platform for Mobile Development, Android SDK Features, Open Handset Alliance, Android Development Framework, Setting up Android Development Environment, Downloading and Installing Android Studio, Downloading and Installing Android SDK, Creating Android Virtual Device (AVD), Installing USB Drivers and Enabling Developer Mode in Android Device, Developing “Hello	25

	World” Android Application, Components of Android Application and Activity Life Cycle	
2	Android User Interface Design: Understanding Views and ViewGroups,Layouts in Android,LinearLayout, RelativeLayout,GridView,FrameLayout,ConstraintLayout,ScrollView and HorizontalScrollView,Units of Measurement: dp, sp, pt, px, in,All Types of Basic Views and Advanced Views	25
3	Event Handling and Application Components: Handling User Events, OnClickListener, OnLongClickListener, TextWatcher for EditText, Event Handling for CheckBox and RadioButton, Item Selection Event Handling in ListView and Spinner, Navigating Between Activities Using Intent, Passing Data Between Activities Using Intent, SharedPreferences for Data Storage, Android Services, Permission Manager, Toggling Bluetooth and Wi-Fi State	25
4	Advanced Android UI and Data Management Menus in Android Application,Options Menu,Context Menu,Popup Menu,Dialogs in Android,Types of Dialogs:Custom Dialog Design,Databases in Android,Introduction to SQLite,Cursors and ContentValues,Working with Android Databases,SQLiteDatabase and SQLiteOpenHelper	25

Practical List:

1. Install and configure Android Studio and Android SDK on the system.
2. Create and configure Android Virtual Device (AVD) and run emulator.
3. Develop a “Hello World” Android application and understand project structure.
4. Design UI using LinearLayout, RelativeLayout, FrameLayout, and ConstraintLayout.
5. Create UI using TextView, Button, EditText, ImageView, CheckBox, RadioButton, and ToggleButton.
6. Implement ScrollView and HorizontalScrollView in an Android application.
7. Develop an application using ListView and Spinner with custom adapter.
8. Handle user events using OnClickListener and OnLongClickListener.
9. Implement TextWatcher to handle EditText text change events.
10. Develop an application for navigation between activities using Intent and pass data between activities.
11. Store and retrieve data using SharedPreferences.
12. Create application using Options Menu, Context Menu, and Popup Menu.
13. Design and implement Alert Dialog and Custom Dialog in Android application.
14. Perform SQLite database operations (Insert, Update, Delete, View data).
15. Develop application using RecyclerView and CardView.
16. Demonstrate use of Service in Android application.
17. Implement Permission Manager to toggle Bluetooth and Wi-Fi state.

Text Book(s):

1. Bill Phillips, Chris Stewart, Kristin Marsicano, *Android Programming: The Big Nerd Ranch Guide*, Pearson.
2. Reto Meier, *Professional Android Application Development*, Wiley.

Reference Book(s):

- Wei-Meng Lee, *Beginning Android Application Development*, Wiley.
- Official Android Developers Documentation (developer.android.com)

Continuous Internal Evaluation (CIE) Components

- Mid-Semester Examination
- Class Tests / Unit Tests
- Practical Performance and Lab Work
- Assignments (Theory / Practical)
- Quiz / MCQ Test
- Mini Project / Case Study
- Attendance and Classroom Participation

Mapping with Programme Outcomes (POs):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	–	–	1	–	1
CO2	2	2	3	–	3	1	1
CO3	2	3	2	1	3	1	1
CO4	2	2	3	1	3	1	1

Course: Fundamental of Artificial Intelligence								
Course Code: Click here to enter text.				Credit: 4	Semester: V		Programme: Diploma IT	
Teaching Scheme				Evaluation Scheme				
				CCE		SEE		Total
Lecture	Tutorial	Practical	Contact Hours	CIE Theory	CIE Practical	SEE Theory	SEE Practical	
3	0	1	5	12/30	12/30	16 / 40	-	40/ 100

Course Objectives:

- Understand the fundamental concepts, assumptions, and techniques of Artificial Intelligence.
- Apply state space search and heuristic techniques to solve AI problems.
- Represent knowledge using appropriate knowledge representation methods and basic logic.
- Analyze real-world AI applications and case studies such as Chatbots, recommendation systems, and digital assistants.

Course Outcomes (COs):

- CO1.** Explain fundamental concepts, techniques and applications of Artificial Intelligence.
- CO2.** Solve problems using state space search and heuristic search techniques.
- CO3.** Represent knowledge using semantic networks, production rules, frames and propositional logic.
- CO4.** Analyze real-world AI applications such as chatbots and recommendation systems.

Course Content:

Module	Topics	Weightage (%)
1	Introduction to artificial intelligence: The AI Problem, The Underlying Assumption, AI Techniques, The level of model, Criteria for success, Application of AI	25
2	State Space Search and Heuristic Technique: Solving problems as state space search, Production system, Problem characteristics, Depth First Search, Breadth-First Search, Heuristic function, Hill climbing, Best First Search	25

3	Knowledge Representation: Concept of Knowledge, Types of Knowledge, Knowledge Representation Techniques, Semantic Networks, Production Rules, Frames, Introduction to Logic (Propositional Logic basics)	25
4	AI Case Studies: Chatbots, ChatGPT, Recommendation Algorithm, Digital (Voice) Assistant , Virtual Face Filters	25

Practical List:

1. Identify AI components in real-world applications.
2. Formulate a problem using state space representation.
3. Implement Depth First Search (DFS).
4. Implement Breadth First Search (BFS).
5. Implement Hill Climbing algorithm.
6. Implement Best First Search / A* search algorithm.
7. Design a simple production rule system (IF–THEN rules).
8. Develop a semantic network for a real-world problem.
9. Represent knowledge using frames.
10. Implement simple propositional logic inference.
11. Case study analysis of chatbot systems.
12. Case study analysis of recommendation systems.

Text Book(s):

1. Elaine Rich, Kevin Knight, Shivashankar B. Nair, *Artificial Intelligence*, Tata McGraw-Hill.
2. Deepak Khemani, *A First Course in Artificial Intelligence*, Tata McGraw-Hill.

Reference Book(s):

1. Stuart Russell & Peter Norvig, *Artificial Intelligence: A Modern Approach*, Pearson.
2. Dan W. Patterson, *Introduction to Artificial Intelligence and Expert Systems*, PHI.

Web Resources

- NPTEL AI Course
- Scikit-Learn documentation
- Britannica AI resources

Continuous Internal Evaluation (CIE) Components:

- Internal Written Test
- Assignments / Tutorials
- Practical / Lab Performance
- Quiz / MCQ Test
- Attendance & Class Participation
- Group Presentation

Mapping with Programme Outcomes (POs):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	–	–	1	–	1
CO2	2	3	2	1	2	–	1
CO3	2	3	2	1	2	–	1
CO4	2	2	2	–	2	1	2

Course: Advance Computer Network								
Course Code: Insert here			Credit:4	Semester: V			Programme: Diploma IT	
Teaching Scheme				Evaluation Scheme				
				CCE		SEE		Total
Lecture	Tutorial	Practical	Contact Hours	CIE Theory	CIE Practical	SEE Theory	SEE Practical	
3	0	1	5	12 / 30	12/30	16 / 40	-	40 /100

Course Objectives:

- Introduce fundamental concepts of data communication and computer networking including network types, topologies, and devices.
- Provide understanding of standard network models and protocols such as OSI and TCP/IP.
- Develop the ability to apply network layer concepts such as IP addressing and subnetting.
- Familiarize students with transport layer protocols, application services, and basic network security concepts.

Course Outcomes (COs):

- CO1.** Explain basic networking concepts, data communication components and network topologies.
- CO2.** Analyze OSI and TCP/IP models and identify protocol functions at different layers.
- CO3.** Apply IP addressing, subnetting and routing concepts in network configuration.
- CO4.** Evaluate transport, application layer protocols and basic network security mechanisms.

Course Content:

Module	Topics	Weightage (%)
1	Introduction to Basic Networking: Basics of Data Communication, Components of Data Communication System, Modes and Types of Data Transmission, Types of Computer Networks: LAN, MAN, WAN, Network Topologies: Bus, Star, Ring, Mesh	25
2	Network Models and Protocols Need and Importance of Network Models, OSI Reference Model, Functions of Each Layer, TCP/IP Reference Model, Comparison	25

	between OSI and TCP/IP Models, Introduction to Network Protocols and Standards	
3	Network Layer Concepts Functions and Services of Network Layer, Logical Addressing Concepts, IP Addressing: IPv4 and IPv6, Classful and Classless Addressing, Subnetting Concepts and Examples, Routing Concepts and Types, Introduction to Routing Protocols	25
4	Transport Layer, Application Layer & Network Security: Transport Layer Services and Functions, Transport Layer Protocols, TCP: Features, UDP: Features, Comparison between TCP and UDP, Application Layer Protocols, HTTP, FTP, SMTP, POP3, DNS, Basics of Network Security, Firewall, Malware: Virus, Worm, Trojan, Basics of Encryption, Introduction to Wireless Networking	25

Practical List:

1. Identify components of a data communication system using diagram.
2. Study transmission modes (simplex, half duplex, full duplex).
3. Compare LAN, MAN and WAN with examples.
4. Draw and analyze different network topologies.
5. Identify networking devices: hub, switch, router, bridge and repeater.
6. Demonstrate OSI model functions using diagram.
7. Map TCP/IP layers with OSI model.
8. Perform IPv4 address classification and network/host identification.
9. Perform subnetting calculations for given IP addresses.
10. Demonstrate network configuration using commands (ipconfig/ifconfig).
11. Test connectivity using ping and tracert commands.
12. Display active connections using netstat command.
13. Study working of DNS and domain name resolution.
14. Configure simple peer-to-peer network connection.
15. Compare TCP and UDP using real application examples.
16. Demonstrate firewall settings and basic network security measures.
17. Study wireless network configuration and Wi-Fi security.

Text Book(s):

1. Behrouz A. Forouzan, *Data Communications and Networking*, McGraw-Hill.

Reference Book(s):

1. Andrew S. Tanenbaum & David Wetherall, *Computer Networks*, Pearson.
2. James Kurose & Keith Ross, *Computer Networking: A Top-Down Approach*, Pearson.
3. William Stallings, *Data and Computer Communications*, Pearson.

Continuous Internal Evaluation (CIE) Components:

The Continuous Internal Evaluation (CIE) for this course shall be based on the following components:

1. Class Tests / Unit Tests
2. Practical Performance and Lab Work
3. Assignments / Tutorials
4. Attendance and Class Participation
5. Group Presentation

Mapping with Programme Outcomes (POs):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	–	–	1	–	1
CO2	2	3	2	1	2	–	1
CO3	2	3	3	2	2	1	1
CO4	2	2	2	1	2	1	2

Course: Multimedia Technologies								
Course Code: Click here to enter text.				Credit: 4	Semester: V		Programme: Diploma IT	
Teaching Scheme				Evaluation Scheme				
Lecture	Tutorial	Practical	Contact Hours	CIE Theory	CIE Practical	ESE Theory	ESE Practical	Total
3	0	1	5	24 / 60	-	16 / 40	-	40/ 100

Course Objectives:

- To introduce the fundamental concepts of multimedia, its elements, applications, hardware, software, and file formats.
- To develop understanding of text and image processing concepts including typography, font types, alignment, and readability.
- To explain image types, image resolution, and the differences between bitmap and vector graphics used in multimedia.
- To familiarize students with multimedia information sharing through social media platforms, user-generated content, and YouTube as a multimedia service.

Course Outcomes (COs):

CO1.Explain multimedia concepts, elements, applications and file formats.

CO2.Apply typography and text–image processing principles in multimedia design.

CO3.Analyze and use bitmap and vector graphics for suitable multimedia applications.

CO4.Create and evaluate multimedia content for online information sharing platforms.

Course Content:

Module	Topics	Weightage (%)
1	Introduction of Multimedia: Definition of Multimedia, Elements: Text, Image, Audio, Video, Animation, Multimedia Applications, Multimedia Hardware & Software,File formats overview	25
2	Text & Image Processing: Typeface vs Font, Font families, Font styles, Font anatomy, Kerning, tracking, and leading, Alignment and spacing, Readability vs legibility, Typography for print vs screen, Common font formats	25
3	Image Types & Resolution: Raster (Bitmap) images in detail, Vector images in detail, Advantages & disadvantages of bitmap images, Advantages &	25

	disadvantages of vector images, Use cases of bitmap vs vector, Converting vector to bitmap and bitmap to vector	
4	Multimedia Information Sharing: Online social media sharing , representatives of social media services : user-generated content (UGC) , online social networking (OSN) , User-generated media content sharing , Case study : YouTube with unique features - video format and meta-data, characteristics of YouTube video, small-world in YouTube videos, YouTube from a partner's view	25

Practical List:

1. Browse the internet and find different webpages and identify the building blocks related to the multimedia.
2. Install and setup any open source tool for image editing like GIMP. Import and open an image file in tool. Practice with different menus or tools supported by image editing tool.
3. Import an image from the browser / picture folder and place it on the workspace. After that straighten, crop, scale, border and frame the given image.
4. Identify common file formats for text, image, audio, and video with their uses.
5. Open any image of you with nature background and assess it for faults like brightness, contrast, sharpness etc.
6. Import any image from the computer and apply various effects on it and save it with new name.
7. Create a simple vector image (logo or shape) using vector graphics software
8. Install and setup any open source tool for video Editing like OpenShot. Create a video of simple slideshow with images and background music.
9. Edit video using trimming, slicing and transitions using any video editing tool.
10. Compare bitmap and vector images based on quality, scalability, and file size.
11. Identify and compare TTF, OTF, and WOFF font formats.
12. Convert vector image to bitmap and bitmap image to vector.
13. Study YouTube features, video formats, metadata, UGC, small-world concept, and YouTube from a partner's view.

Text Book(s):

1. Ranjan Parekh, *Principles of Multimedia*, Tata McGraw-Hill.
2. Jan Smith & Roman Joost, *GIMP for Absolute Beginners*, Apress.

Reference Book(s):

1. Ze-Nian Li, Mark Drew, Jiangchuan Liu, *Fundamentals of Multimedia*, Springer.
2. Tay Vaughan, *Multimedia: Making It Work*, McGraw-Hill.

Continuous Internal Evaluation (CIE) Components:

- Internal Written Test

- Assignments / Tutorials
- Practical / Lab Performance
- Quiz / MCQ Test
- Attendance & Class Participation
- Group Presentation

Mapping with Programme Outcomes (POs):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	–	–	1	–	1
CO2	2	2	2	–	3	–	1
CO3	2	3	2	1	3	–	1
CO4	2	2	3	1	3	1	2

Course: Project-I								
Course Code: Click here to enter text.				Credit: 3	Semester: V		Programme: Diploma IT	
Teaching Scheme				Evaluation Scheme				
Lecture	Tutorial	Practical	Contact Hours	CIE Theory	CIE Practical	ESE Theory	ESE Practical	Total
0	0	3	6	-	24/60	-	16/40	40/ 100

Course Objectives

- To provide students with practical exposure to real-world industry practices and emerging technologies in the field of Computer Science and Information Technology.
- To enable students to apply theoretical knowledge and programming skills to develop practical solutions through internship training or project work.
- To develop problem-solving, analytical, communication, and teamwork skills required in professional and industrial environments.
- To familiarize students with industry-standard tools, technologies, and development methodologies used in application development, system design, and analysis.
- To encourage independent learning, professional ethics, and continuous skill development for successful career growth in the IT industry.

Course Outcomes (COs):

After successful completion of the Internship/Project course, students will be able to:

CO1: Apply theoretical knowledge and technical skills to solve real-world problems in the field of Computer Science / Information Technology.

CO2: Design and develop applications or systems using appropriate tools, technologies, and development methodologies.

CO3: Analyze technical problems and implement effective solutions through practical experimentation, system development, or industry practices.

CO4: Demonstrate professional communication, teamwork, documentation skills, and continuous learning required in academic and industrial environments.

List of Documents to be prepared for Submission:

- Student has to submit Work Report Sheet duly signed by industry resource person and internal guide fortnightly (suggested format given in syllabus).
- Student Attendance Sheet Report (suggested format given in syllabus) duly signed by industry resource person. In the case of the online internship, student has to take screenshot of daily attended session in softcopy and submit to institute resource person by email for every 15 days.
- Detailed report of said work approved and duly signed by the school and/or industry resource person.
- A softcopy of Presentation approved by the school and/or industry resource person.
- A Poster showing overall work carries out during the Internship project approved by school and/or industry resource person.

Note: Faculty should counsel as well as inform students in advance about the internship or project. Students need to finalize training from industry or project at institute before commencement of 5th Semester and report at University.

Project-1 Registration Form

Note: Students need to submit this registration form after finalize mode of internship and before starting the internship project.

Student Details											
Enrollment Number											
Student Name											
Student Details	Mobile Number:										
	Email Address:										
Branch											
Name of the Programme											
Mentor Details (Programme)	Name:										
	Designation:										
	Mobile No:										
	Email Address:										

Industry Details	Name:
	Address:
	Email:
	Phone:
	Website:

Mentor Details (Industry)	Name:
	Designation:
	Mobile No:
	Email Address
Mode of Internship Carried Out	Internship in industry (offline/online mode) / Project at institute
Title of the Project / Internship Carried Out	
Nature of Work Carried Out	Web Design / Application development (Web / Mobile), Experimental results/ simulations/Analysis of System(s) etc. Other please Specify _____

Student Signature

Faculty Signature

Internship Project -Suggested Letter for Completion

[Company /School/ Department letter head]

No:

Date

**TO WHOM SO EVER IT MAY
CONCERN**

This is to certify that, Mr. / Mrs. _____

Enrollment No. _____ Student of _____

Has successfully completed Internship in the field of _____

From the date: _____ to date: _____

[90% Attendance is mandatory for completion of Internship]

During the period of his/her internship project with us, He / She were exposed to following different processes and were found sincere and hardworking.

1. _____

2. _____

3. _____

4. _____

**Resource Person Signature with
stamp**

SUGGESTED WEEKLY WORK SHEET
REPORT

Student Name :	
Enrollment No:	
Internship/Project Title	
Tools and Technologies	
Company/ Organization Name	

Student's Activity Details:				
Week Number	Start Date to End Date	Tasks to be assigned	Tasks to be completed	Remarks

Signature of Industry Person

[TO BE FILLED BY INTERNAL GUIDE/FACULTY ONLY]

Any Suggestion/Remarks:

Signature of Institute
Resource/Faculty

SUGGESTED STUDENT ATTENDANCE SHEET REPORT

ORGANIZATION INFORMATION

Organization Name	
Organization Address	
Organization Email ID	

STUDENT INFORMATION

Name of Student :	
Enrollment NO :	
Date of Commencement of training:	
Internship/ Project Title	

Student's Attendance Sheet

Week No		COUNT (present day)
Week 1	Date	
	PR/AB	
Week 2	Date	
	PR/AB	
Week 3	Date	
	PR/AB	
Week 4	Date	
	PR/AB	
Week 5	Date	
	PR/AB	
Week 6	Date	
	PR/AB	
Total Count of student's presents during Internship		
Total Working days of company during Internship		
Student's percentage present during Internship		

NOTE :

1. Attendance sheet should be submitted after completion of training to internal guide of institute/department.
2. Holidays should be marked in RED INK.
3. Absent should be marked as "AB" in RED INK.

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Signature of Industry resource person with Industry stamp/seal :
Name of Industry internship person:
Contact No of Industry resource person :

AFFECTIVE DOMAIN OUTCOMES

The following affective Domain Outcomes (ADOs) are embedded in many of the above-mentioned COs. More could be added to fulfill the development of this course competency.

- a) Work as a leader/a team member as role of Engineer.
- b) Practice environmentally friendly methods and processes.
- c) Follow safety precautions and ethical practices.

SUGGESTED STUDENT ACTIVITIES

Following are the suggested student-related curricular, co-curricular activities which can be undertaken to accelerate the attainment of the various outcomes in this course: Students should perform following activities and prepare reports and give presentations in front of students and faculty members. They should also collect/record physical evidences for their (student's) portfolio which may be useful for their placement interviews:

- a) Perform various tasks given by industry resources during internship projects.
- b) Perform various tasks required to complete project work under guidance of faculty members.
- c) Internship project interns are required to give a presentation to the review committee consisting of a group of academic staff members.
- d) The review committee gives feedback and suggests possible improvements in the work.
- e) At the end of the program all the Internship project interns make a poster presentation of the work carried out. The poster presentation is open to the public. It is also evaluated by faculty members.
- f) A completion certificate will be issued to all Internship project interns only after the completion of internship tenure.

REFERENCE/LEARNING WEBSITES

- [AICTE Internship Policy.pdf \(aicte-india.org\)](#)
- <https://internshala.com>
- <https://swayam.gov.in>
- <https://nptel.ac.in>
- <https://neat.aicte-india.org>
- <https://www.edx.org>
- <https://www.coursera.org>
- <https://www.udemy.co>

Mapping with Programme Outcomes (POs):

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3	2	2	–	2	–	1
CO2	3	2	3	2	3	–	1
CO3	2	3	2	2	2	–	1
CO4	1	1	2	–	1	2	3