

COMPUTER SCIENCE (CLASS XI)

MONTH: APRIL

Content / Topic	1 st & 2 nd Week	3 rd Week	4 th Week	5 th Week
Unit 1 : Chapter : 1. Computer System Overview 2. Data Representation 3. Boolean Logic		Chapter 1: Computer System Overview: ➤ Basic Computer organization ➤ Mobile System Organization ➤ Types of Software (System, Application and Software Libraries)	Chapter 2: Data Representation ➤ Digital number system ➤ Number conversion ➤ Representing unsigned integer in binary ➤ Binary addition ➤ Character/ String Representation	Chapter 3: Boolean Logic: ➤ Development of Boolean Logic, Binary Values Quantities ➤ Logical Operations ➤ Basic Logic Gates ➤ Basic Postulates of Boolean Algebra /Logic ➤ Principals of Duality ➤ Basic theorem of Boolean Algebra/ Logic ➤ (properties of 0 and 1 and laws) ➤ DeMorgan’s Theorem ➤ Simplifying Boolean Expression ➤ More About Logic Gates
Learning Objectives	☑ To enable Students to: <ul style="list-style-type: none"> • Learn the basic functioning of computer system. • Understand the digital number system used in computer and also able to convert one number system into another Solve the various Boolean expressions using the basic theorems of Boolean algebra and K-maps. 			
Learning Outcomes	☑ Students would be able to: <ul style="list-style-type: none"> • Understands the functioning of computer or architecture of computer system. • Solve various type of digital number system conversion • Understand the logic gates and Boolean expression • Implements the various theorems of Boolean algebra to resolve and simplifying the Boolean Expressions. 			
Assessment / Activity	➤ Theory assignments from chapter 1 Revision test after completion of chapter 2 and 3			
Teaching Aids/ Resources	➤ Demonstration of Computer Organisation in form of presentations and videos using digital / Smart Board Demonstration of Boolean laws and number conversions in the classroom using LCD projector			

MONTH: MAY

Content / Topic	1 st Week	2 nd Week	3 rd Week	4 th Week
<p>Unit 2 : Programming and Computational Thinking</p> <p>Chapter :</p> <p>4. Insight in to Program Execution</p> <p>5. Computational Thinking and getting started with Python</p> <p>6. PYTHON Fundamentals</p>	<p>Chapter 4 : Insight into program Execution:</p> <ul style="list-style-type: none"> ➤ Understanding Translation Process ➤ Role of an Operating System in running a program ➤ Introduction to a parallel computing Cloud computing 	<p>Chapter 5: Computational Thinking and Getting started with PYTHON:</p> <ul style="list-style-type: none"> ➤ Decomposition ➤ Pattern Recognition ➤ Abstraction ➤ Algorithm design ➤ Introduction ➤ Python – Pluses ➤ Python – Some Minuses ➤ working with Python ➤ Understanding first program / Script 	<p>Chapter 6: Python Fundamentals :</p> <ul style="list-style-type: none"> ➤ Python Character Set ➤ Tokens ➤ Barebones of a Python Programs ➤ Variables and Assignments ➤ Simple Input and Output 	<p>SUMMER BREAK</p>
<p>Learning Objectives</p>	<p>To enable Students to:</p> <ul style="list-style-type: none"> • Understand the process of compilation and working interpreter in python. • Understand the role of Operating System in running of program • Learn the concept of parallel computing and cloud computing. • Learn the basic concepts of Python such as a character set, Tokens, variable, Data Types, Operator and Expressions. • Learn and control the flow of control in programming 			
<p>Learning Outcomes</p>	<p>Students would be able to :</p> <ul style="list-style-type: none"> • Implement the various concepts of Python language to write statements and expressions during programming. • Control the sequence of execution of statements in a program. 			
<p>Assessment / Activity</p>	<p>Theory assignments from each chapter</p> <p>Class test after completion of chapters</p> <p>Practical assignments on Chapter 5 and 6.</p>			
<p>Teaching Aids / Resources</p>	<ul style="list-style-type: none"> ➤ Coverage of Computer overview, basics of computer, History of computers, Operating system concepts etc. using modules ➤ Demonstration of Windows O.S. operations and Python program development steps in the lab session using LCD projector 			

MONTH: JULY

Content / Topic	1 st Week	2 nd Week	3 rd Week	4 th & 5 th Week
<p>Unit 2: Programming and Computational Thinking Chapters : 7. Data Handling 8. Conditional and Iterative Statements 10. Debugging Programs 9. String Manipulation</p>	<p>Chapter 7: Data Handling:</p> <ul style="list-style-type: none"> ➤ Data Types ➤ Mutable and Immutable Types ➤ Operators ➤ Expressions <p>Chapter 8: Conditional and Iterative Statements:</p> <ul style="list-style-type: none"> ➤ Types of Statements in Python ➤ Statements Flow Control 	<p>Cond.</p> <ul style="list-style-type: none"> ➤ Program Logic Development Tools -Flowcharts, -pseudocode, -Decision Trees ➤ The If Statements of Python. ➤ Repetition of task –a Necessity ➤ The range () Function 	<p>Cond. Conditional Iterative Statements : Iteration /Looping Statements -The for Loop -The While Loop -Loop else Statements</p> <p>Chapter 10: Debugging Programs :</p> <ul style="list-style-type: none"> ➤ Introduction to debugging ➤ Errors and Exceptions 	<p>Cond.</p> <ul style="list-style-type: none"> ➤ Debugging Techniques ➤ Using Debugger Tools (Integrated Tool of Spyder IDE and Python Debugger pdb) <p>Chapter 9: String Manipulation:</p> <ul style="list-style-type: none"> ➤ Traversing String ➤ String Operation (Basic, Membership and comparison Operation) ➤ String Slices ➤ String Function ➤ Modules
<p>Learning Objectives</p>	<p>To enable Students to:</p> <ul style="list-style-type: none"> • Learn the basic concepts of Python such as a character set, Tokens, variable, Data Types, Operator and Expressions. • Learn and control the flow of control in programing. • Learn the concepts of iteration and Looping. • Learn and implement the concepts of String manipulation • Understand the concepts of debugging in python program. Misbehaved 			
<p>Learning Outcomes</p>	<p>Student would be able to :</p> <ul style="list-style-type: none"> • Implement the various concepts of Python language to write statements and expressions during programing. • Control the sequence of execution of statements in a program. • Implements the concepts of iteration in repeated task. • Take strings input from user and future able to manipulate the same. • Debug he python program from syntax and logical errors. 			
<p>Assessment / Activity</p>	<ul style="list-style-type: none"> • Theory assignments from each chapter • Class test after completion of chapters • Practical assignments on Chapter 7, 8, 9 &10 			
<p>Teaching Aids / Resources</p>	<p>Demonstration of basics of Python program development steps in the classroom using digitally and in lab session using LCD projector</p>			

MONTH: AUGUST

Content / Topic	1 st Week	2 nd Week	3 rd Week	4 th Week
<p>Unit 2: Programming and Computational Thinking</p> <p>Chapters :</p> <p>11. List Manipulation 12. Tuples 13. Dictionaries 14. Understanding Sorting</p>	<p>PT- 1</p> <p>Chapter 11: List Manipulation:</p> <ul style="list-style-type: none"> ➤ Creating and Accessing Lists ➤ Lists Operations (Joining Lists, repeating Lists, and Slicing The Lists,) 	<p>PT- 1</p> <ul style="list-style-type: none"> ➤ Working With Lists ➤ List Function and Method (index (), append(), Insert(),Pop(), Clear(), count(),and reverse()) 	<p>Chapter 12: Tuples</p> <ul style="list-style-type: none"> ➤ Creating and Accessing Tuples ➤ Tuple Operations (Joining and Slicing the Tuples) ➤ Tuples Functions and Methods (len(), max(), count(), and tuple()) <p>Chapter 13: Dictionaries</p> <ul style="list-style-type: none"> ➤ Dictionary Key value pairs (creating Accessing elements and characteristics of Dictionaries) ➤ working with Dictionaries: (Multiple way of creating Dictionaries) ➤ Adding ,Updating Deleting/ checking Elements in Dictionary ☑ Counting Frequently of Elements in a Lists using Dictionary , Dictionary Function and Method (len(), clear(), get(), items(), keys(), values(), and update()) 	<p>Chapter 14: Understanding the Sorting</p> <ul style="list-style-type: none"> ➤ Bubble short ➤ Insertion short <p>Application of bubble short and insertion Short</p>
<p>Learning Objectives</p>	<ul style="list-style-type: none"> ➤ To enable Students to: <ul style="list-style-type: none"> • Learn and organize the Data items in Python using Tuples. • Learn and implements the concepts of list such as index, append, extend, remove, count. • Learn to arrange keys and its associate values in the dictionaries in python. • Learn the Shorting of Values using bubble and insertion short. 			
<p>Learning Outcomes</p>	<ul style="list-style-type: none"> ➤ Students would be able to: <ul style="list-style-type: none"> • Implements the concept of tuple and to find the require data using the various function of types. • Add, Delete, Modify, Update, and the List Elements in Python program. • Use Dictionaries to store data and also able to manipulate and traverse trough the values using associate keys 			
<p>Assessment / Activity</p>	<ul style="list-style-type: none"> ➤ Theory assignments from chapter 14 ➤ Revision test after completion of chapter 11, 12 and 13 			
<p>Teaching Aids / Resources</p>	<ul style="list-style-type: none"> ➤ Demonstration of Python using digitally / Smart Board ➤ Demonstration of program development using functions in the classroom using digitally and in lab session using LCD projector 			

MONTH: SEPTEMBER

Content / Topic	1st Week	2nd Week	3rd Week	4th Week
Revision and Exams	<ul style="list-style-type: none">• Revision• Class Test• Doubt Session• Practice of programming	Term End I	Term End I	Term End I
Learning Objectives	To enable Students to: Learn and understand the studied topics well			
Learning Outcomes	☑ Students would be able to: <ul style="list-style-type: none">• Understand the way compilation process takes place in computer system.• Implements the concepts of cloud and parallel computing and cloud computing by understanding its advantage over traditional computing.			
Assessment / Activity	☑ Theory and Practical assignments, Revision test after completion of chapter			
Teaching Aids / Resources	☑ Illustrations on the Smart board, Lecture presentation of concepts using LCD projector, Demonstration of algorithms in lab session			

MONTH: OCTOBER

Content / Topic	1 st Week	2 nd Week	3 rd Week	4 th Week
<p>Unit 3 : Data Management:</p> <p>Sub Topic:</p> <p>15. Relational Database 16. Simple Queries in SQL 17. Table Creation and Data Manipulation Commands</p>	<p>Distribution of Half Yearly Examination Answer Sheet and Solving of Queries / Doubts related to the same Revision if any topic, if required</p> <p>Chapter 15 : Relational Database:</p> <ul style="list-style-type: none"> ➤ Purpose of DBMS ➤ Relational database model ➤ The relational Model Terminology MySQL Database System 	<p>Cond.</p> <ul style="list-style-type: none"> ➤ Starting MySQL ➤ MySQL and SQL <p>Chapter 16: Simple Queries in SQL</p> <ul style="list-style-type: none"> ➤ MySQL SQL Elements (Literals Data Types and Comments) ➤ SQL commands Syntax Making Simple Queries ➤ MySQL Function 	<p>Chapter 17 : Table Creation and Data Manipulation Commands</p> <ul style="list-style-type: none"> ➤ Database in MySQL ➤ (Creating Opening and Removing) ➤ Creating Table 	<p>Contd..</p> <ul style="list-style-type: none"> ➤ Changing Data with DML Commands (Inserting Modifying and Deleting Data) More DDL Commands (Alter and Drop Tables)
Learning Objectives	<p>To enable Students to:</p> <ul style="list-style-type: none"> • Learn the concepts of Database and associate terms of database. • Learn about the various Data models and its use. 			
Learning Outcomes	<p>Students would be able to:</p> <ul style="list-style-type: none"> • Use various function of MySQL in Storing, retrieving, modification deletion and updation of data. • Implement the various constraints on data using MYSQL 			
Assessment / Activity	<p>Theory and Practical assignments, Revision test after completion of the chapter</p>			
Teaching Aids	<p>Lecture presentation of concepts using LCD projector, Demonstration of algorithms in lab session</p>			

MONTH: NOVEMBER

Content / Topic	1 st & 2 nd Week	3 rd Week	4 th Week	5 th Week
<p>Unit 3 : Data Management: Chapters : 18. Basic of NoSQL Database -MongoDB</p> <p>Unit 4 : Society, Law and Ethics – Cyber Safety Chapters : 19. Cyber Safety</p>	<p>Chapter 18: Basic of NoSQL Database - MongoDB</p> <ul style="list-style-type: none"> ➤ Introduction to NoSQL Database ➤ Downloading and Installing MongoDB 	<p>Cond. Working with MongoDB CRUD Operations in MongoDB (Create Read Update and Delete)</p>	<p>Chapter19 : Cyber Safety</p> <ul style="list-style-type: none"> ➤ Introduction to Cyber Safety ➤ Safety Browsing the Web ➤ Identity Protection while using internet ➤ Confidentiality of information 	<p>Cond.</p> <ul style="list-style-type: none"> ➤ Cyber crime ➤ Common Social networking Sites ➤ Appropriate using of Social networking
<p>Learning Objectives</p>	<p>To enable Students to:</p> <ul style="list-style-type: none"> • Understand and learn how to retrieve data for multiple tables through Joins. • Work using MongoDB to Create Read Update and Delete records in Database. 			
<p>Learning Outcomes</p>	<p>Students would be able to: Add or retrieve data from multiple Tables. Implements CRUD operations using MongoDB Database.</p>			
<p>Assessment</p>	<p>Oral questions in the class, Programming assignments and Revision tests on completion of chapter</p>			
<p>Teaching Aids</p>	<p>Demonstration of number system conversions using Smart Board, Display of Sample programs using LCD projector</p>			

MONTH: DECEMBER

Content / Topic	1 st Week	2 nd Week	3 rd Week	4 th Week
<p>Topic : Unit 4 : Society, Law and Ethics – Cyber Safety Chapters : 20. Online Access and Computer Security Revision of Chapter to 1 to 10</p>	<p>Chapter 20: Online Access and Computer Security Threats to computer security (computer Viruses, Spyware Adware Spammig PC Intrusion Eavesdropping, Phishing and Cookies) ➤ Solution to computer Security Threats ➤ Firewall</p>	<p>PT-II Revision: Chapter Wise solving of Assignment/ project work /practical file work and clearing the doubts and queries.</p>	<p>PT-II Revision: ➤ Chapter Wise solving of Assignment/ project work /practical file work and clearing the doubts and queries.</p>	<p>Revision: ➤ Chapter Wise solving of Assignment/ project work /practical file work and clearing the doubts and queries.</p>
Learning Objectives	<p>To enable Students to:</p> <ul style="list-style-type: none"> • Learning Practice of already learned concepts and solving queries & doubts. • Working of practical file and assigned project work. 			
Learning Outcomes	<p>Students would be able to:</p> <ul style="list-style-type: none"> • Students would be through with revised topics and chapter wise question /assignments given to them. • They will be able to focus on projects file and programs given for practical file. 			
Assessment	<p>Oral questions, Practical assignments , Revision assignments and tests</p>			
Teaching Aids	<p>Black board , display of Sample questions of programming using LCD projector</p>			

MONTH: JANUARY

Content / Topic	1st Week	2nd Week	3rd Week	4th Week	5th Week
Topic: Database Concepts Sub topic : Practice on using various DDL and DML commands of MySQL	WINTER BREAK	WINTER BREAK	Revision: Chapter Wise solving of Assignment/ project work /practical file work and clearing the doubts and queries.	Revision: Chapter Wise solving of Assignment/ project work /practical file work and clearing the doubts and queries.	Revision: Chapter Wise solving of Assignment/ project work /practical file work and clearing the doubts and queries.
Learning Objectives	To enable Students to: <ul style="list-style-type: none">• Learning Practice of already learned concepts and solving queries & doubts.• Working of practical file and assigned project work.				
Learning Outcomes	Students would be able to: <ul style="list-style-type: none">• Students would be through with revised topics and chapter wise question /assignments given to them.• They will be able to focus on projects file programs given for practical file.				
Assessment	Oral questions, Practical assignments , Revision assignments and tests				
Teaching Aids	Black board , display of Sample questions of programming using LCD projector				

MONTH: FEBRUARY

Content / Topic	1st Week	2nd & 3rd Week	4th and 5th Week
Topic: Boolean Algebra Sub Topic: Reducing of Boolean Expression	Revision: Chapter Wise solving of Assignment/ project work /practical file work and clearing the doubts and queries.	Term End - II	Term End - II
Learning Objectives	To enable Students to: <ul style="list-style-type: none"> • Learning Practice of already learned concepts and solving queries & doubts. • Working of practical file and assigned project work. 		
Learning Outcomes	Students would be able to: <ul style="list-style-type: none"> • Students would be through with revised topics and chapter wise question /assignments given to them. • They will be able to focus on projects file programs given for practical file. 		
Assessment	Oral question answer sessions, Revision assignments and tests		
Teaching Aids	Black board , display of Sample questions of programming using LCD projector		

MONTH: MARCH

Content/ Topic	1st Week	2nd Week	3rd Week	4th Week
	Term End - II			New session begins