

YEAR PLAN 2018 – 2019
GRADE XI COMPUTERS SCIENCE

The academic year is divided into three sessions.

Session One: June to August 2018.

Session Two: September 2018 to December 2018.

Session Three: January 2019 to March 2019

Continuous Assessment (End of the month): June, July, October, January

Summative Assessment I – August 2018

Summative Assessment II – December 2018

Summative Assessment III – March 2019

AIM: To understand algorithmic problem solving using data abstractions, functional and procedural abstractions, and object based and object oriented abstractions.

To understand: how computers represent, store and process data by studying the architecture and machine language of a simple microprocessor and the different levels of abstraction that mediate between the machine and the algorithmic problem solving level. how they communicate with the outside world.

GENERAL OBJECTIVES: To gain the ability to logically analyse problems and derive the most optimum solution.

ENDURING UNDERSTANDING: Computers have become an indispensable tool, but they cannot replace man.

Duration	Topics/Units	Specific Learning Objectives	Activities	Resources
June	<p>Data Representation</p> <p>General OOP concept and Introducing Java</p> <p>Monthly Test</p>	<p>Understand the representation of numbers in different bases and interconversion between them (e.g. binary, octal, decimal, hexadecimal). Perform addition and subtraction operations for numbers in different bases.</p> <p>Create objects as data (attributes) + behaviour (methods or functions); object as an instance of a class. Constructors. Analysis real world programming examples in terms of objects and classes.</p>	<ul style="list-style-type: none"> • Notes. • Problem solving. • Text book exercises • Self study and recap of Java topics done in Grade X. • Assignments • Class Tests 	<ul style="list-style-type: none"> • Teacher's notes • Teacher's Question Bank • Past examination papers. • ISC Computer Science by Sumita Arora • Additional Reference Textbooks – by Dheeraj Malhotra, APC by Pandey and Dey • Guides – Oswal and Vatsal Question Series • Websites: icsguess.com, guideforschool.com.
July	<p>Data Representation (continued)</p> <p>Java Fundamentals</p> <p>Monthly Test</p>	<p>Learn characters and their encodings (e.g. ASCII, Unicode). Learn binary encodings for integers and real numbers using a finite number of bits (sign-magnitude, twos complement, mantissa-exponent notation). Perform basic operations on integers and floating point numbers. Identify the limitations of finite representations.</p> <p>Recap of Java character set, Tokens, Concept of Data types, variables, constants, operators, expressions, significance of classes and objects.</p>	<ul style="list-style-type: none"> • Notes. • Problem solving. • Text book exercises • Self study and recap of topics done in Grade X. • Assignments • Class Tests 	
August	<p>Propositional logic and Hardware</p> <p>Revise for Exams</p> <p>Summative Assessment I</p>	<p>Introduce propositional logic, well formed formulae, truth values and interpretation of well formed formulae, truth tables.</p>	<ul style="list-style-type: none"> • Notes. • Problem solving. • Text book exercises • Self study and recap of Java topics. 	

	Onam Holidays		<ul style="list-style-type: none"> • Presentation by Students on Flow of Control statements. • Assignments • Programming • Class Tests 	<ul style="list-style-type: none"> • Teacher's notes • Teacher's Question Bank • Past examination papers. • Additional Reference Textbooks – by DheerajMalhotra, APC by Pandey and Dey • Guides – Oswal and Vatsal Question Series • Websites : icseguess.com , guideforschool.com
September	<p>Flow of Control – Java</p> <p>Functions in Java</p> <p>Arrays in Java</p>	<p>Recap of Programming Constructs, Selection statements, iteration statements, nested loops, jump statements and other loop control elements.</p> <p>Understand the need for functions, definition, call by value and reference, pure and impure function, function overloading, constructors, this keyword, temporary instances.</p> <p>Understand the need for arrays, types of arrays, searching in 1-D arrays, sorting, arrays vs. objects, 2-D arrays and programs using arrays. Learn to code complex programs using two – dimension arrays.</p>	<ul style="list-style-type: none"> • Seminars • Programming • Assignments 	
October	<p>Propositional logic and Hardware</p> <p>Recursion</p> <p>Monthly Test</p>	<p>Correlate the concept of logic and hardware, learn about basic gates (AND, NOT, OR) and draw circuit diagrams using the basic gates.</p> <p>Simple recursive methods like GCD, factorial, binary search, number conversions</p>	<ul style="list-style-type: none"> • Notes. • Problem solving. • Drawing circuit diagrams • Text book exercises • Class Tests 	
November	<p>Propositional logic and Hardware</p> <p>Classes In Java</p> <p>Basic input/output Data file handling</p>	<p>Understand combinational gates - NAND, NOR, XOR, XNOR and designing circuits using these gates.</p> <p>Understand class as a composite data type, creating and using objects, encapsulation, visibility modifiers, scope and visibility rules</p> <p>String Tokenizer class, concept of delimiters, whitespace, extracting tokens from input stream.</p>	<ul style="list-style-type: none"> • Notes • Drawing circuit diagrams • Problem solving • Text book exercises • Worksheets • Programming • Class Tests 	
December	<p>Revise the topics</p> <p>Summative Assessment II</p> <p>Xmas Holidays</p>		<ul style="list-style-type: none"> • Notes • Drawing circuit diagrams • Problem solving • Text book exercises • Worksheets • Programming • Class Tests 	

January	<p>Propositional logic and Hardware</p> <p>Strings</p> <p>Packages</p> <p>Monthly Test</p>	<p>Learn the design and application of the following combinational circuits: inverter, half adder, full adder,encoder,decoder and multiplexer.</p> <p>Write programs to manipulate characters using String class</p> <p>Definition, creation of packages, Java API</p> <p>Weekly worksheets on Propositional logic and hardware</p>	<ul style="list-style-type: none"> • Notes • Drawing circuit diagrams • Problem solving • Text book exercises • Worksheets • Programming • Class Tests • 	
February	<p>Trends in Computing and Ethical issues</p> <p>Revision & tests</p> <p>Monthly Test</p>	<p>Artificial Intelligence, Virtual reality, Cyber security, Privacy, email, netiquette, spam, phishing.Intellectual property and corresponding laws and rights.</p> <p>Revise and perfect the topics</p>	<ul style="list-style-type: none"> • Demo Practical Exam • Worksheets • Tests 	
March	<p>Revision , Practical and Theory Exams</p> <p>Summative Assessment III</p>	<p>Revise and perfect the topic</p>	<p>Revision and Examinations</p>	
<p>Projects/ Field trips: (As per the guidelines given by ISC) February 2019. Facilitator name:Ms.Kavitha M S and Mr.Jills TextBook: Grade XI Computer Science by SumitaArora Checked</p>				