

Day	Topic	Time Duration
	Identification of Problem Areas	
1	Progammig Basics , Types of Programming Languages ,Common terms used pertaining to Language to be taught (C++/Python/Informatics Practices)	45 min
2	Object Oriented Programming Concepts:Concept of Class,Object,abstraction,Encapsulation,Inheritance,Polu morphism, Advantages and Disadvantages of OOPS. Comparision of Various Programming Languages and different progammig construct.	45 min

3	<p>Before Starting the Programming Session on Third Day Students must be given introduction on the topics mentioned below :</p> <ol style="list-style-type: none"> <li>1) Algorithm</li> <li>2) Flowchart</li> <li>3) Pseudocode</li> <li>4) Dry Run</li> </ol> <p>General Concepts; Modular approach; Clarity and Simplicity of Expressions, Use of proper Names for identifiers, Comments, Indentation; Documentation and Program Maintenance; Running and Debugging programs, Syntax Errors, Run-Time Errors, Logical Errors; Problem Solving Methodology and Techniques: Understanding of the problem, Identifying minimum number of inputs required for output, Step by step solution for the problem, breaking down solution into simple steps, Identification of arithmetic and logical operations required for solution, Using Control</p>	45 min
4	<p>Introduction to Java 's Keywords, Identifiers, Literals, Punctuators.</p>	45 min
5	<p>Operators and Expressions:  Operators: Arithmetic operators (-,+,*,/,%), Unary operator (-), Increment and Decrement Operators (- -,++), Relational operators (&gt;,&gt;=,&lt;,&lt;=,=,!=), Logical operators (!, &amp;&amp;,   ), Conditional operator: &lt;condition&gt;?&lt;if true&gt;:&lt;else&gt;; Precedence of Operators; Expressions; Automatic type conversion in expressions, Type casting; C++ shorthand's (+=, -=, *=, /=, %=);</p> <p>Operators and Expressions:  Operators: Arithmetic operators (-,+,*,/,%), Unary operator (-), Increment and Decrement Operators (- -,++), Relational operators (&gt;,&gt;=,&lt;,&lt;=,=,!=), Logical operators (!, &amp;&amp;,   ), Conditional operator: &lt;condition&gt;?&lt;if true&gt;:&lt;else&gt;; Precedence of Operators; Expressions; Automatic type conversion in expressions, Type casting; Java shorthand's (+=, -=, *=, /=, %=);</p>	45 min

6	<p>Flow of control:          Conditional statements: if-else, Nested if, switch..case..default, Nested switch..case, break statement (to be used in switch..case only); Loops: while, do - while , for and Nested loops.</p>	45 min
7	<p>Introduction to Java Netbeans IDE , Palette, Inspector Window , Properties Window , Code Editor Window</p>	45 min
8	<p>Text Interaction in GUI          1) getText() Method          2) parse.....() Method          3) setText() method          4) JOptionPane.showMessageDialog() Method</p>	45 min
9	<p>Relational data model: Concept of domain, tuple, relation, key, primary key, alternate key, candidate key;          Relational algebra: Selection, Projection, Union and Cartesian product.</p>	45 min

<b>10</b>	Data Communication , Networks and types , Internet Tools	<b>45 min</b>
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**Minimum Learning Package**  
**Informatics Practices**

MLP (Customized Minimum Learning Package)

<b>Process /Activity</b>
Checking Knowledge acquisition as per the topics taught in class XI . A brief questionnaire will be provided to students. . Question Answer Session
Presentation to students using e-content . Demonstration using real time problems . Emphasizing on use of programming language and applications in real life.
Graphical presentation of Various Objects and classes . Dicussion on Real World Problems and solutions. Co realation of programming language with real world.

Students may be asked to write algorithm for simple day to day activities

e.g:

Preparation of Tea etc.

Addition of two nos .

Calculation of area of geometrical figures.

Further students must be asked to prepare flowchart and write pseudocode for the same.

Students must be given problems and they must be asked to rectify the problem areas .

Students must be asked use of various keywords .

Use of Literals .

Use of Punctuators.

Students must be given expressions to solve and use all types of operators.

Must be given presentation using e-contents.

Students can be given situations to use this programming constructs.  
They must be given the problem to devise the solution.  
For ex:  
Use of Counters , Placing of Counters etc.

Give presentation on NetBeans JAVA IDE environment. Presentation should be in such a manner that all the components of the NetBeans IDE should be seen by each and every students. Give brief introduction.

Presentation of IDE and Explanation of various IDE tools along with attributes and methods.

Students will be explained about data by illustrating example there by giving students an investigatory project to collect data from various sources.  
Project will given to students to represent data in various forms such as tabular form, using graphs etc. and will be asked them to solve various queries based on data collected by the students.  
The concept of three layer architecture of Data Base Management system will be introduced and concept of schema and instance will be explained.

To explain about Network and its importance.

To make them understand about different topologies of network and their advantages and disadvantages both.

Seven layers of Network which helps in data communication and role of each of these layers.

Outcome	Feedback
Identification of Problem Areas.	Identifiacion of topics.
Students are expected to know about C++/Python/IP their interfaces.	Q/A Session (Objective Type) C++ is Object Oriented Language ? (Y/N) Compiler converts LLL to HLL ? (Y/N) ## Teachers can prepare the Q/A as mentioned .
<p>Students must be able to differentiate between Class , Object , Methods , Data Members</p> <p>Students must be familiar with OOPS concepts</p> <ol style="list-style-type: none"> <li>1) Data abstraction</li> <li>2) Polymorphism</li> <li>3) Encapsulation</li> <li>4) Inheritance</li> </ol>	<p>Demonstration using example -</p>  <p>Students differentiate between For If Yes wh objects of this Class ? Mention various attributes of this Class "BUS" Mention various Funtions pertaining to this class "BUS"</p>

<p>Students are expected to learn programming concepts , implementation of program , programming constructs and error debugging techniques.</p>	<p>Students must be introduced to a problem and a solution must be seeked .  For Ex:  A) Is A+B=C a correct syntax ?  B) Is A+B+C; a correct syntax?  Students must be asked to rectify the errors .  (Most of the students face the problem of debugging the programs)  This exercise will help them to improve their concepts .</p>
<p>Students are expected to use keywords and identify various keywords .  Identification of Literals.</p>	<p>Identification:  A) is Break a keyword ?  B) "Hello" - Identify the type of Literal?</p>
<p>Must be able to differentiate between opearator and operands .  Must be able to use opearators in computer based expressions.  Effective use of arithmetic , relational and logical operators.  Use of Conditioanl Expressions.  Must be able to solve expression using opearator precedence .  For eg: <math>x=4*5-2+(2-6)</math></p>	<p>Students must be given logical problems such as:  A) Result of <math>5&gt;9</math> ?  B) Result of <math>a++</math> ?  C) Result of <math>++a</math>?  D) Result of <math>5+4-3+(6/2)</math></p>

<p>Flow of Controls .          Must be able to differentiate between different type of controls.          Must be able to identify the situation for placing various kinds of constructs.          Must be able to interchange among different type of looping constructs.          Must be able to nest the constructs .</p>	<p>1) What are loops?          2) What are conditional statement.</p>
<p>Students must be able to know the functional area of NetBeans IDE environment.          * Able to design front end of their project or Class problems.</p>	<p>*Design frontend of an enterprise using NetBeans IDE          *Design an application using maximum different control of Java NetBeans IDE          * Explore properties of different controls</p>
<p>Students are able to interact with the front end and backend of the application .</p>	<p>Student must be able to design IDE on the basis of given problem</p>
<p>Students must have a concept of 3 Schema Architecture of DBMS.          Constraints (Entity Integrity, Referential Integrity, Table Level , Column Level )          Implementation of Constraint.          Use of simple SQL Commands and Aggregate Operators.</p>	<p>Students will complete the project and thereby they will know how to collect data using various methods, various sources of data i.e. Primary and Secondary, also they will have better understanding about data.          Project will help students to understand the collection, storage and data representation mechanism. They will be able to solve queries and thus they will understand about queries and will be able to differentiate between data and information.          Students will be able to understand concept of Data Abstraction through three schema architecture of DBMS.</p>

Students must be able to design a network architecture .

Use of communication devices .

Various topologies and protocols.

Use of e-content , IT applications , Networking

Websites , Blog , E commerce websites .

Student must be asked to design network

Use of Communication devices

They must asked to differentiate among different types of wire and other devices.

