

SPLIT UP SYLLABUS CLASS XI
SUBJECT: - INFORMATICS PRACTICES (Code-065)

Unit	Topic	Period		Marks	
		Theory	Practical	Theory	Practical
1	INTRODUCTION TO COMPUTER SYSTEMS	20	04	10	02
2	INTRODUCTION TO PROGRAMMING	40	40	25	16
3	RELATIONAL DATABASE MANAGEMENT SYSTEM	45	36	30	6
4	IT APPLICATION	5	20	5	6
		110	100	70	30

I.P.(Theory)

S N o	Month	Topic Details	Required No. of Periods		No. Of Tentative Working days
			Theory/ Computer Aided teaching	Practicals	
1	June	<p>UNIT 1: INTRODUCTION TO COMPUTER SYSTEMS</p> <p>Hardware Concepts: Computer organization (basic concepts): CPU, Memory (RAM and ROM), I/O devices, communication bus, ports (serial, parallel, network, phone); Input devices: Keyboard, Mouse, Light pen, Touch Screens, Graphics Tablets, Joystick, Microphone, OCR, Scanner, Smart Card reader, Barcode reader, Biometric sensor, web camera;</p> <p>Output Devices: Monitor/Visual Display Unit (VDU), LCD screen, Television, Printer (Dot Matrix Printer, Desk jet/ Inkjet/ Bubble jet Printer, Laser Printer), Plotter, Speaker;</p> <p>Secondary Storage Devices: Floppy Disk, Hard Disk, Compact Disk, Magnetic Tape, Digital Versatile Disk (DVD) USB Drive, Memory cards; Comparative properties of storage devices;</p> <p>Memory Units: Bit (Binary Digit)/Byte (Kilobyte, Megabyte, Gigabyte, Terabyte, Petabyte)</p>	6	03	6
2	July	<p>Software Concepts: Operating systems, Need for operating system, major functions of Operating System, Memory Management</p>	30	07	25

		<p>Security of system: sources of attack and possible damages, virus and related entities - worms, propagation of these entities, virus detection using a tool, digital certificates, digital signature, cookies, firewall, password, file access permissions</p> <p>Types of Software: System Software, Utility Software, Application Software and Developer Tools</p> <p>System Software</p> <p>Productivity Tools</p> <p>General Purpose Application Software: Word Processor, Presentation Tool, Spreadsheet Package, Database Management System</p> <p>Specific Purpose Application software (for example: Inventory Management System, Purchasing System, Human Resource Management System, Payroll System, Financial Accounting, Hotel Management and Reservation System)</p> <p>Developer Tools: Compilers and Interpreters, Integrated Development Environment (IDE)</p> <p>General features of Desktop: To be taught through practical. Refer to the practical section.</p> <p>Word Processing To be taught through practical. Refer to the practical section.</p> <p>Spreadsheet To be taught through practical. Refer to the Practical section.</p> <p>UnitNIT 2: INTRODUCTION TO PROGRAMMING</p> <p>Getting started with Programming using IDE (Refer to Appendix A for sample guidelines of GUI Programming, and Appendix B for Swing Control Methods & Properties)</p> <p>Introduction, Rapid Application Development using IDE (Integrated Development Environment); Familiarization of IDE using basic Interface components- Label, TextField, TextArea, Button, Check Box, Radio Button, Creation of a simple Swing Application ("Hello World")</p>			
3	August	<p>Programming Fundamentals</p> <p>Data Types: Concept of data types; Built-in data types - byte, short, int, long, float, double, char, String, Boolean</p> <p>Variables: Need to use variable, Declaring Variables, Variable Naming Convention, Assigning value to Variables;</p>	25	11	23

		<p>Integer object method: parseInt Double object method: parseDouble Control Structures: Decision Structure - if, if-else, switch; Looping Structure- while, do-while, for;</p>			
4	September	<p>Developing General Application - Getting Familiar with Java Swing User Interface components- Frame, Dialog, OptionPane, Panel, ScrollPane, Label, TextField, PasswordField, TextArea, Button, CheckBox, RadioButton, ComboBox, List, Table, FileChooser, ColorChooser, ToolBar, Menu. Basic component handling methods/attributes setText, getText, add, isSelected, setSelected, getX, getY, addActionListener.</p>	20	14	20
5	October	<p>Programming Guidelines: General Concepts; Modular approach; Stylistic Guidelines: Clarity and Simplicity of Expressions, Names, 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 Structure: Conditional control and looping (finite and infinite);</p> <p>UNIT 3: RELATIONAL DATABASE MANAGEMENT SYSTEM Database Management System Introduction to database concepts: Relation/Table, attribute/fields, Tuple / Rows; Data Types - Number, Character and Date Key - Primary Key, Candidate key, Alternate key; Examples of common Database Management System - MySQL, INGRES, POSTGRES, ORACLE, DB2, MS SQL, Sybase.</p>	20	7	17
6	November	<p>Introduction to MySQL (ANSI SQL 99 standard commands) Classification of SQL Statements: DML - SELECT, INSERT, UPDATE, DELETE DDL - CREATE, DROP, ALTER SQL SELECT Statement (working with demo/already existing tables): SELECT statement, Selecting All the Columns, Selecting Specific</p>	20	10	20

		Column, Using Arithmetic Operators, Operator Precedence, Defining and using Column Alias, Duplicate rows and their Elimination (DISTINCT keyword), Displaying Table Structure (DESC command); SELECT Statement Continued: Limiting Rows during selection (using WHERE clause), Working with Character Strings and Dates, Working with NULL values;			
7	December	Using Comparison operators - =, <, >, <=, >=, <>, BETWEEN, IN, LIKE(%,_), Logical Operators -AND, OR, NOT; Operator Precedence; ORDER BY Clause, Sorting in Ascending / Descending Order, Sorting By Column Alias Name, Sorting On Multiple Columns; Functions in MySQL: String Function - CHAR(), CONCAT(), INSTR(), LCASE(), LEFT(), LOWER(), LENGTH(), LTRIM(), MID(), RIGHT(), RTRIM(), SUBSTR(), TRIM(), UCASE(), UPPER(). Mathematical Functions - POWER(), ROUND(), TRUNCATE().	16	11	18
8	January	Date and Time Functions - CURDATE() , DATE(), MONTH(), YEAR(), DAYNAME(), DAYOFMONTH(), DAYOFWEEK(), DAYOFYEAR(), NOW(), SYSDATE(). Manipulating Data of a Table/Relation: Inserting New Rows, Inserting New Rows with Null Values, Inserting NUMBER, CHAR and DATE Values, Update Statement to Change Existing Data of a Table, Updating Rows in A Table, Delete statement - removing row/rows from a Table; Creating Table using CREATE TABLE, ALTER TABLE for adding a new column, using naming conventions for column names;	15	9	15
9	February	UNIT 4: IT APPLICATIONS e-Governance - Definition, Benefits to citizens, e - Governance websites and their salient features and societal impacts; e-Governance challenges. e-Business - Definition, Benefits to customers and business, e-Business websites and their salient features and societal impacts; e-Business challenges. e-Learning - Definition; Benefits to students (Learners), Teachers (Trainers) and School (Institution) Management; e-Learning websites and their salient features and societal impacts; e-Business Challenges. Revision, and Project work	9	20	20

Class XI (I.P. Practical)

S. No.	Description	Marks
1	Problem Solving using Java	12
2	SQL Queries	4
3	Practical Record • Familiarization of Computer and its Productivity Tools • Simple Problems using IDE Java • SQL Queries • IT Applications	8
5	Viva Voce	6

Evaluation of Practical Examination

1. Problem solving using Java

Student is required to solve programming problems based on all concepts covered in theory throughout the year and maintain a record of these in the practical file.

Student will be given a problem to be solved using Java during final practical examination to be conducted at the end of the academic session

2. SQL Queries

Students will be trying out SQL queries in MySQL throughout the year along with course coverage in theory.

Student will be asked to write 4 queries based on one or two tables during final practical examination to be conducted at the end of the academic session

3. Practical Record File

A practical record file is required to be created during the entire academic session. It should be duly signed by the concerned teacher on regular basis and is to be produced at the time of Final Practical Examination for evaluation. It should include the following:

- Print out of at least 2 documents with use of Different Style, Page Setting/Formatting, Bulleting/Numbering and Tabulation.
- Print out of at least 2 spreadsheets with simple calculations, basic functions, macros and graphs/charts
- At least 6 solutions of simple problems and 2 IT applications using IDE based Java (refer to Appendix 'A' & 'B')
- At least 20 SQL queries based on one table

4. Viva Voce

Students will be asked oral questions during practical Examination to be conducted at the end of the course. The questions will be from the entire course covered in the academic session

General Content to be covered during practical sessions

Familiarization of Computer and its Productivity Tools

Hardware concepts (Demonstration of components of a PC):

Components to be shown through relevant Charts or Animation or Presentation or Video or Internet Sites or real demonstrations:

Microprocessor; Hard Disk, RAM; Mother Board; Boards; USB port; RJ45 LAN port; serial port, parallel port; CD/ DVD drive;

Central Processing Unit (CPU); Arithmetic Logic Unit (ALU), Control Unit, Memory Unit (RAM –Random Access Memory & ROM - Read Only Memory) Input devices: Keyboard,

Mouse, Light pen, Touch Screens, Graphics Tablets, Joystick, Microphone, OCR, Scanner, Smart Card reader, Barcode reader, Biometric sensor, web camera, Thin Clients;
Output Devices: Monitor/Visual Display Unit (VDU), LCD screen, Television, Printer (Dot Matrix Printer, Deskjet/ Ink jet/ Bubble jet Printer, Laser Printer), Plotter, Speaker, Thin Clients;
Secondary Storage Devices: Floppy Disk, Hard Disk, Compact Disk, Magnetic Tape, Digital Versatile Disk (DVD) USD Drive, Memory cards;
General features of Desktop: Panel, Icon, Links, Trash, System File Browser, Folder Panel: Applications menu, Places menu, System menu Applications Menu: Accessories - Calculator, Text Editor, Graphics Image Viewer, Drawing Tool;
Internet- Web Browser, Internet messenger, Mail Client;
Using Office tools;
Sound & Video - CD Player, Sound Recorder, PMovie Player, Music Player,
Universal Access- Orca Screen Reader and Magnifier.

Places Menu: Home Folder, Desktop, Computer, Network, and Search for Files.

System Menu: Preferences- About me, Appearances, Assistive Technologies, Keyboard shortcuts, Main Menu, Mouse, Network Proxy, Preferred Applications, Screen Resolution, Screen Saver, Sound; Administration - Hardware Driver/Device Driver Utility, Package Manager, Printing/Print Manager, Update Manager, Users and Groups, Time and Date, Language Support; Help; Log Out; Shut Down.

Word Processing

Opening a new/existing document, closing a document, typing in a document, saving a document, page preview, printing a document, setting up of page as per the specifications, selecting a portion of document, copying selected text, cutting selected text, pasting selected text; changing font, size, style, color of text; Inserting symbol; Formatting: Alignment - Left, Right, Center; Converting from word processor document to PDF format directly from OpenOffice.org

Spreadsheet

Opening a new/existing spreadsheet, closing a spreadsheet, understanding a cell, row and column, typing in numbers in the cell, saving a spreadsheet, page preview, printing a spreadsheet, setting up of page as per the specifications, selecting a portion of spreadsheet, writing formulas for addition, subtraction and multiplication in cells, writing simple arithmetic formulas in spreadsheet, copying formulas across cells, Converting spreadsheet to PDF format directly from OpenOffice.org Evaluation of this portion will be done on the basis of work done in the Practical Record File and Viva Voce during final practical Examination to be conducted at the end of the academic session

CBSE Curriculum 2012
Appendix 'A'
Sample Guidelines for GUI Programming

1. To display a message using Label, Text Box, Message Dialog using simple GUI applications
2. To concatenate two text entries and display using simple GUI application
3. To perform a simple arithmetic operation (+, -, *, /) and display the result in Message Dialog or Text Box using simple GUI application
4. To perform simple arithmetic operation (+, -, *, /) and display the result in Text Box using simple GUI application
5. To make simple decision making (if statement) solution and display relevant message using GUI application (Example - Problems related to Eligibility for a given value of Age, "Profit" or "Loss" messages for given values of Cost Price and Sale Price, Grade Display for given values of Marks of students etc.)
6. To create a simple GUI application to perform both arithmetic and logical operation together (Example - Total, Average and Grade calculation for given marks, Salary Calculation on different criteria)
7. To create a simple GUI application to perform an operation based on the criteria input by the user in a Check Box or a Radio Button.
(Example 1: Find the Discount of an item on the basis of Category of item [Electrical Appliance/ Electronic Gadget/Stationary specified using a Radio button] and its Cost [Below 1000/Above 1000/Equal to 1000 specified using a Radio button]).
(Example 2: Calculate the incentive of a Sales Person on the basis of his Sales Amount, Customer Feedback, Count of Customer specified using Check Box) [Introduce variable declaration]
8. To create a simple GUI application to change the property of a swing element based on the selection made by the user.
(Example 1: To change the background or Foreground color of any of the Swing elements of the form based on the color selected from a list)
(Example 2: To change the foreground and background color of a label based on the values input/stored in a combo box)
9. To store the data (Admission No., Name, Date of Birth, Class and Section) of 10 students in a table [Table] and find total number of students in each class and section.
10. To create a simple GUI application for repeatedly doing a task based on the user input. (Example: To display the multiplication table of a number input by the user)

Appendix 'B'
Ready Reference for GUI Programming
Swing Control Methods & Properties

Class	Swing Control	Methods / Properties	
Jbutton	jButton	Methods	<ul style="list-style-type: none"> • getText() • setText()
		Properties	<ul style="list-style-type: none"> • Background • Enabled • Font • Foreground • Text have same • Label value (by default)
Jlabel	jLabel	Methods	<ul style="list-style-type: none"> • getText() • setText()
		Properties	<ul style="list-style-type: none"> • Background • Enabled • Font • Foreground • Text
JtextField	jTextField	Methods	<ul style="list-style-type: none"> • getText() • isEditable() • isEnabled() • setText()
		Properties	<ul style="list-style-type: none"> • Background • Editable • Enabled • Font • Foreground • Text
JRadioButton	jRadioButton	Methods	<ul style="list-style-type: none"> • getText() • setText() • isSelected() • setSelected()
		Properties	<ul style="list-style-type: none"> • Background • Button Group • Enabled • Font • Foreground • Label • Selected • Text
JcheckBox	jCheckBox	Methods	<ul style="list-style-type: none"> • getText() • setText() • isSelected() • setSelected()
		Properties	<ul style="list-style-type: none"> • Button Group • Font

			<ul style="list-style-type: none"> • Foreground • Label • Selected • Text
ButtonGroup	jButtonGroup	Properties	• Add
JcomboBox	jComboBox	Methods	<ul style="list-style-type: none"> • getSelectedItem() • getSelectedIndex() • setModel()
		Properties	<ul style="list-style-type: none"> • Background • ButtonGroup • Editable • Enabled • Font • Foreground • Model • SelectedIndex • SelectedItem • Text
Jlist	jList	Methods	• getSelectedValue()
		Properties	<ul style="list-style-type: none"> • Background • Enabled • Font • Foreground • Model • SelectedIndex • SelectedItem • SelectionMode • Text
Jtable	jTable	Methods	<ul style="list-style-type: none"> • addRow() • getModel()
		Properties	• model
JOptionPane		Methods	• showMessageDialog()
DefaultTableModel		Methods	<ul style="list-style-type: none"> • getRowCount() • removeRow() • addRow()

Commonly used Methods

Class	Methods
Integer	<ul style="list-style-type: none"> • parseInt() • toDouble() • toString()
String	<ul style="list-style-type: none"> • concat() • length() • substring() • toDouble() • toLowerCase() • toUpperCase() • trim()
Double	<ul style="list-style-type: none"> • parseDouble () • toString() • toInt()
Math	<ul style="list-style-type: none"> • pow() • round()