Format for syllabus Development of skill Development Course

Title of Course	Computer Application
Nodal Department of HEI To run course	
Board area/ sector	~~E.S.~~ I.T. Sect
Sub Sector-	I.T. & C.S.
Nature of course- Independent/ Progressive	Progressive
Name of suggestive sector Skill Council	Vocational Course (U.G.C.)
Expected fees of the course- Fee/Paid	N/A
Stipend to Student expected from industry	2000 ₹
Number of Seats..... 60	
Course Code.....	Credits- 03(1 Theory, 2 Practical)
Max Marks.....100....Minimum Marks....48	
Name of proposed skill Partner(Please specify, Name of industry, company etc for Practical/ training/ internship/OJT	Hardware & Software Companies M.O.U. (Signed)
Job prospects-Expected Fields of Occupation where student will be able to get job after completing this course in (Please specify name/type of industry, company etc.)	Computer oprator - Post in office section of Some company (mou. Signed

Syllabus

Unit	Topics	General/Skill component	Theory/Practical/OJT/Internship/training	No of theory hours(Total-15 Hours+= 1 credit)	No of skill Hours (Total-60 Hours=2 credits)
I			~~Syllabus~~ Enel.		
II					
III					
IV					
V					
VI					

Format for syllabus Development of skill Development Course

Suggested Readings:	Ref. Syll.
Suggested Digital platforms/web links for reading-	Google & other Edu. Sites.
Suggested OJT/ Internship? Training/ Skill partner -	Sudhi & Shree Computers, Etawah
Suggested Continuous Evolution Methods:	—

Course Pre-requisites:

- No pre-requisite required, open to all
- To study this course, a student must have the subject..... In class/12th/ certificate/ diploma
- If progressive, to study this course a student must have passed previous courses of this series.

Suggested equivalent online courses:

Any remarks/suggestions:

Notes:

- Number of units in Theory/Practical may vary as per need
- Total credits/semester-3(it can be more credits, but students will get only 3 credit/ semester or 6 credits/ Year
- Credits for Theory =01 (Teaching Hours =15)
- Credits for Internship/OJT/Training/Practical=02(Training Hours=60)

Detailed Syllabus

Computer Appreciation

Characteristics of Computers, Input, Output, Storage units, CPU, Computer System, Binarynumber system, Binary to Decimal Conversion, Decimal to Binary

Computer Organization

Central Processing Unit - Processor Speed, Cache, Memory, RAM, ROM, Booting, Memory- Secondary Storage Devices: Floppy and Hard Disks, Optical Disks CD-ROM, DVD, Mass Storage Devices: USB thumb drive. Managing disk Partitions, File System Input Devices - Keyboard, Mouse, joystick, Scanner, web cam, Output Devices- Monitors, Printers – Dot matrix, inkjet, laser, Multimedia- What is Multimedia, Text, Graphics, Animation, Audio, Images, Video; Multimedia Application in Education, Entertainment, Marketing. Names of common multimedia file formats, Computer Software- Relationship between Hardware and Software; System Software, Application Software, Compiler, names of some high level languages, free domain software.

Operating System

Microsoft Windows- An overview of different versions of Windows, Basic Windows elements, File management through Windows. Using essential accessories: System tools – Disk cleanup, Disk defragmenter, Entertainment, Games, Calculator, Imaging – Fax, Notepad, Paint, WordPad. Command Prompt- Directory navigation, path setting, creating and using batch files. Drives, files, directories, directory structure. Application Management: Installing, uninstalling, Running applications. Linux- An overview of Linux, Basic Linux elements: System Features, Software Features, File Structure, File handling in Linux: H/W, S/W requirements, Preliminary steps before installation, specifics on Hard drive repartitioning and booting a Linux system.

Word Processing

Word processing concepts: saving, closing, Opening an existing document, Selecting text, Editing text, Finding and replacing text, printing documents, Creating and Printing Merged Documents, Character and Paragraph Formatting, Page Design and Layout.

Editing and Profiling Tools: Checking and correcting spellings, Handling Graphics, Creating Tables and Charts, Document Templates and Wizards.

Spreadsheet Package

Spreadsheet Concepts, Creating, Saving and Editing a Workbook, Inserting, Deleting Work Sheets, entering data in a cell / formula Copying and Moving from selected cells, handling operators in Formulae, Functions: Mathematical, Logical, statistical, text, financial, Date and Time functions,

Director

Using Function Wizard.

Formatting a Worksheet: Formatting Cells – changing data alignment, changing date, number, character or currency format, changing font, adding borders and colors, Printing worksheets, Charts and Graphs – Creating, Previewing, Modifying Charts.

Integrating word processor, spread sheets, web pages.

Presentation Package

Creating, Opening and Saving Presentations, Creating the Look of Your Presentation, Working in Different Views, Working with Slides, Adding and Formatting Text, Formatting Paragraphs, Checking Spelling and Correcting Typing Mistakes, Making Notes Pages and Handouts, Drawing and Working with Objects, Adding Clip Art and other pictures, Designing Slide Shows, Running and Controlling a Slide Show, Printing Presentations.

Data Base Operations

Data Manipulation-Concept: Database, Relational Database, Integrity. Operations: Creating, dropping, manipulating table structure. Manipulation of Data: Query, Data Entry Form, Reports.

Information Technology and Society

Indian IT Act, Intellectual Property Rights – issues. Application of information Technology in Railways, Airlines, Banking, Insurance, Inventory Control, Financial systems, Hotel management, Education, Video games, Telephone exchanges, Mobile phones, Information kiosks, special effects in Movies.

Practical

Recommded books

P.K. Sinha and P. Sinha, " Foundations of Computing" , BPB Publication, 2008.
Sagman S, "MS Office for Windows XP", Pearson Education, 2007.
ITL Educational Society, "Introduction to IT", Pearson Education, 2009.
Miller M, "Absolute Beginners Guide to Computer Basics", Pearson Education, 2009.

(15)

To be added with
already approved Voc. Course
titled Computer Application for sem. I

VOCATIONAL COURSE

ON

COMPUTER APPLICATION

(SEM-2)

28/4/22

Title of the Course	:	Computer Application
Duration	:	6 Months
Nodal Department of HE1 to run course	:	Christ Church College, Kanpur
Broad Area/Sector	:	Computer Application
Sub Sector	:	Libre Office
Nature of the Course	:	Independent
Aligend NSQF Level	:	Foundation
Name of Proposed Skill Partner	:	UPTEC Computer Consultancy Ltd.
Job Prospectus	:	Office Executive/Assistant,Call Center Executive/ Compulsory to Maximum state level clerical Jobs.

UNIT	TOPIC	GENRAL/SKILL DEVELOPMENT	THEORY/ PRACTICAL/ INTERNSHIP /TRAINING	NO. OF THEORY HOURS	NO. OF SKILLS HOURS
1	**Promo of LibreOffice Suite** ➢ LibreOffice promo ➢ Features of LibreOffice ➢ Uses of LibreOffice ➢ LibreOffice formats ➢ LibreOffice tutorials in Spoken Tutorial ➢ Applications of LibreOffice	General	Theory	2	
2	**What is Writer?** ➢ Introduction of Writer	General	Theory	1	
	➢ Parts of the main Writer window ➢ Title bar, Menu bar, Sidebar, Toolbars, Rulers & Status Bar ➢ How to create new document	Skill Development	Practical		2
3	**Working with Text Basics** ➢ Introduction ➢ Selecting, cutting, copying & pasting the text ➢ Finding & Replacing the Text ➢ Checking Spelling & Grammar ➢ Using Auto Correct & Auto Text	Skill Development	Practical		4
4	**Formatting Text & Pages**	General	Theory	1	

	➢ Formatting Paragraphs ➢ Formatting Characters ➢ Auto Formatting ➢ Formatting Numbered or bulleted list ➢ Inserting Page Break ➢ Changing Page Break ➢ Creating Headers & Footers ➢ Defining Borders and Backgrounds	Skill Development	Practical		4
5	**Printing, Exporting & Emailing** ➢ Quick export to PDF ➢ Page setup & Print Preview ➢ Controlling Printing	Skill Development	Practical		2
6	**What is Mail Merge**	General	Theory	1	
	➢ Creating a form letter ➢ How to Prepare data ➢ How to create documents ➢ Editing merged documents	Skill Development	Practical		2
7	**Introduction to Tables** ➢ Create simple & complex table ➢ Editing & deleting table contents ➢ Merging of two Tables ➢ Updating of Tables	Skill Development	Practical		4

8	**Images & Graphics** ➢ Creating & Editing of Images ➢ Adding Images to documents ➢ Cropping & Resizing Images ➢ Rotating & Drawing Images	Skill Development	Practical		2
9	**Introduction to Libre Office Calc** ➢ What is Calc, ➢ About spreadsheets, sheets and cells. ➢ Basic features – parts of main Calc window - Title & Menu Bar, Standard Toolbar, Formatting Toolbar, Formula Bar, Status Bar ➢ What is a cell, row, column, ➢ Create new document, enter data in one cell, save in Calc(CSV and other formats),opening/closing document. ➢ Save as ods, csv, xls, xlsx and export to PDF	General	Theory	2	-
10	**Working with Cells** ➢ How to enter numbers, text, numbers as text, date and time in Calc. ➢ How to use the Format Cells dialog box.	Skill Development	Practical		4

	➢ How to Navigate between cells and in between sheets. ➢ How to select items in rows, columns and sheets.				
11	**Working with Sheets** ➢ Inserting and Deleting rows and columns Calc. ➢ Inserting and Deleting Sheets in Calc. ➢ Renaming Sheets	Skill Development	Practical		2
12	**Formatting Data**	General	Theory	1	
	➢ Borders, Color, Formatting Text, Increasing Cell Size ➢ Formatting multiple lines of text, numbers, fonts, cell borders ,cell background ➢ Automatic Wrapping and Using manual breaks ➢ Merging cells, rows and columns, issues with using merge cells. ➢ Shrinking text to fit the cell	Skill Development	Practical	-	4
13	**Working with Data & Basic Data Manipulation**	General	Theory	4	
	➢ Speed up using Fill tools and Selection lists	Skill Development	Practical	-	8

	➢ Paste and paste special (values, transpose) ➢ Pasting a spreadsheet into writer as a table • Introduction to Formulas – Sum, Average, basic formula (=a*b+c) ➢ Subtotal ➢ Different kinds of functions available in spreadsheet ➢ Sorting by Columns ➢ Filtering Data - Basics				
14	**Introduction to Libre Office Impress**	General	Theory	1	
	➢ Basic Features ➢ Different Toolbars ➢ Save as MS PowerPoint and other formats PDF ➢ Export open MS Office Documents ➢ Reopen the file which we saved..	Skill Development	Practical	-	2
15	**Creating & Viewing Presentation**				
	➢ Creating a presentation document ➢ Bbasic formatting ➢ Inserting Slides ➢ Copying Slides Using Tabs Font size and Color, ➢ Viewing Presentation document ➢ Views options – Normal,	Skill Development	Practical	-	8

	Outline, Master Layout ➢ Uses of different view options ➢ Master Pages Task Option under Master Pages Write notes in impress.				
16	**Slide Design & Custom Animation**	General	Theory	2	
	➢ Slide Creation ➢ Slide Show Slide Transition ➢ Automatic Show (with Preset Timings) ➢ Use of Escape button ➢ Adding sound in slides ➢ Sorting of slides Setting speed ➢ Use of Notes ➢ Printing of Notes ➢ Use of Font Effects ➢ Use of drawing toolbar ➢ Filling up the color ➢ Printing of notes ➢ Use of Slide placeholder	Skill Development	Practical	-	12

Suggested Readings:

1. Getting Started with LibreOffice 6.0 Paperback – Import, 14 February 2019 by Libreoffice Documentation Team (Author)
2. Getting Started with LibreOffice 5.0 (English, Paperback, Documentation Team Libreoffice)

VOCATIONAL COURSE

ON

COMPUTER APPLICATION

(SEM-3)

Title of the Course	:	Computer Application
Duration	:	6 Months
Nodal Department of HE1 to run course	:	Christ Church College, Kanpur
Broad Area/Sector	:	Computer Application
Sub Sector	:	Web-Page
Nature of the Course	:	Independent
Aligend NSQF Level	:	Foundation
Name of Proposed Skill Partner	:	UPTEC Computer Consultancy Ltd.
Job Prospectus	:	Webpage Designing, Webpage Developer

UNIT	TOPIC	GENRAL/SKILL DEVELOPMENT	THEORY/ PRACTICAL/ INTERNSHIP/ TRAINING	NO. OF THEORY HOURS	NO. OF SKILLS HOURS
1	**Getting Acquainted with HTML** ➢ Introduction to the Web Development ➢ What is HTML ➢ How to Write HTML Code	General	Theory	1	-
2	**HTML Tags**	General	Theory	1	-
	➢ HTML Tags ➢ Head Tags ➢ Title Tags ➢ Body Tags ➢ Saving an HTML Page	Skill Development	Practical		4
3	**Formatting Tags**	General	Theory	1	
	➢ Adding a New Paragraph ➢ Adding a Line Break ➢ Inserting Blank Space ➢ Preformatted Text ➢ Changing a Page's Background Color ➢ Headings ➢ Horizontal Lines	Skill Development	Practical		2

4	**Lists Tag**	General	Theory	1	-
	➢ Numbered (Ordered) Lists ➢ Bulleted (Unordered) Lists ➢ Definition Lists, Nested Lists	Skill Development	Practical	-	2
5	**Links & Images Tags**	General	Theory	1	
	➢ How to create Links ➢ Text Links ➢ Image Links ➢ Opening a Page in a New Window or Tab ➢ Linking to an Area on the Same Page (Bookmarks) ➢ Linking to an E-mail Address ➢ Linking to Other Types of Files. ➢ Introduction to Images for Web pages ➢ Adding Images to Web pages ➢ Resizing an Image ➢ Resizing an Image ➢ Alternative (ALT) Text	Skill Development	Practical		4
6	**Creating Tables**	General	Theory	1	
	➢ Inserting a Table ➢ Table Borders ➢ Table Headers ➢ Complex Table	Skill Development	Practical	-	2
7	**Creating Forms**	General	Theory	1	

	➢ About Forms ➢ Text Boxes ➢ Text Areas ➢ Check Boxes ➢ Menu Lists ➢ Radio Buttons ➢ The Submit Button ➢ The Reset Button	Skill Development	Practical	-	2
6	**Adding Audio and Video**				
	➢ About Video and Audio Files ➢ Adding Audio ➢ Adding Video ➢ Using YouTube to Display Video	Skill Development	Practical		2
9	**Cascading Style Sheets**	General	Theory	1	
	➢ CSS Syntax ➢ Inline CSS ➢ Internal CSS ➢ External CSS ➢ Creating an External CSS ➢ ID and Class	Skill Development	Practical		4
10	**Working With Text in CSS & Borders**	General	Theory	1	
	➢ Text Alignment & Color ➢ Fonts & Font Size ➢ Margin & Padding	Skill Development	Practical		4

	➢ How to create Text Border ➢ Types of Borders				
11	**Creating Backgrounds in CSS**	General	Theory	2	
	➢ How to Create Border ➢ Background Colors & Gradients ➢ Linear Gradient ➢ Radial Gradient ➢ Conical Gradient	Skill Development	Practical		4
12	**Adding a Navigation Bar in CSS**	General	Theory	1	
	➢ Colors & Images ➢ Image Opacity ➢ How to Create Navigation Bar ➢ Vertical Navigation Bar ➢ Horizontal Navigation Bar				3
13	**How to create Division of Page**	General	Theory	1	
	➢ Div Tag ➢ Padding ➢ Margin of Div Tag ➢ How to Create Login Page Using Div Tag	Skill Development	Practical		4
14	**Getting Acquainted with JavaScript &The Makeup of JavaScript**	General	Theory	2	

	➢ Introduction to JavaScript ➢ The <SCRIPT>…</SCRIPT> Tag ➢ JavaScript Statements ➢ External JavaScript ➢ What are JavaScript Variables? ➢ Creating (Declaring) Variables ➢ Local Variables and Global Variables ➢ Exploring JavaScript Data Types	Skill Development	Practical		10
15	**JavaScript Conditions, Loops**	General	Theory	2	
	➢ IF & Switch Conditions ➢ JavaScript Loops ➢ For Loop ➢ While Loop ➢ Do while Loop ➢ Break & Continue	Skill Development	Practical		6
16	**JavaScript Operators & Functions**			1	
	➢ JavaScript Function Definition and Syntax ➢ JavaScript Operators				4

Suggested Readings:

1. Creating Web Pages For Dummies by Bud E. Smith,Arthur Bebak
2. Web Designing and Publishing by Prof. Satish Jain and M. Geetha Iyer
3. Mastering Html, Css & Javascript Web Publishing by Laura Lemay (Author), Rafe Colburn (Author), Jennifer Kyrnin

VOCATIONAL COURSE

ON

COMPUTER APPLICATION

(SEM 4)

Title of the Course	:	Computer Application
Duration	:	6 Months
Nodal Department of HE1 to run course	:	Christ Church College, Kanpur
Broad Area/Sector	:	Computer Application
Sub Sector	:	Artificial Intelligence and Internet of Things
Nature of the Course	:	Independent
Aligend NSQF Level	:	Foundation
Name of Proposed Skill Partner	:	UPTEC Computer Consultancy Ltd.
Job Prospectus	:	Data Analytics and Network Structure

UNIT	TOPIC	GENERAL/SKILL DEVELOPMENT	THEORY/PRATICAL/INTERSHIP/TRAINING	NO. OF THEORY HOURS	NO. OF SKILLS HOURS
UNIT 1	**INTRODUCTION TO INTELLIGENCE AND ARTIFICIAL INTELLIGENCE**				
	➢ Introduction ➢ Objectives	General	Theory	6	

	➢ Some Simple ➢ Definition of A.I. ➢ Definition by Eliane Rich ➢ Definition by Buchanin and Shortliffe ➢ Another Definition by Elaine Rich ➢ Summary				
UNIT 2	**INTELLIGENT AGENTS**				
	➢ Introduction ➢ Objectives ➢ Definitions Agents and Rationality ➢ Example: A boundary following robot ➢ Task Environment of Agents ➢ Rationality vs. Omniscience ➢ Autonomy and learning capability of the agent PEAS(Performance, Environment, Actuators, Sensors) Example An Automated Public Road Transport Driver Different Types of Task Environments ➢ Fully Observable vs. Partially Observable	General	Theory	15	

	Environment ➢ Static vs. Dynamic Environment ➢ Deterministic vs. Stochastic Environment ➢ Episodic vs. Sequential Environment ➢ Single agent vs. Multi-agent Environment ➢ Discrete vs. Continuous Environment Some Examples of Task Environments ➢ Crossword Puzzle ➢ Medical Diagnosis ➢ Playing Tic-tac-toe ➢ Playing Chess ➢ Automobile Driver Agent The Structure of Agents ➢ SR (Simple Reflex) Agents ➢ Model Based reflex Agents ➢ Goal-based Agents ➢ Utility-based Agents ➢ Learning Agents				
UNIT 3	**Sensors, Actuators and Microcontrollers**				

	INTRODUCTION SENSORS CLASSIFICATION OF SENSORS TYPES OF SENSORS ➢ Position ➢ Occupancy and motion ➢ Velocity and Acceleration ➢ Force ➢ Acoustic ➢ Humidity ➢ Light ➢ Radiation ➢ Temperature ➢ Chemical ➢ Image ➢ Optical ➢ Gas ➢ Ultrasonic ➢ Hall ➢ Infrared sensors(IR) ➢ Biosensors ➢ Micro and Nanosensors **ACTUATORS** CLASSIFICATION OF ACTUATORS ➢ Electrical Actuators ➢ Electromechanical Actuators ➢ Electromagnetic Actuators ➢ Hydraulic Actuators	General	Theory	8	

	➢ Pneumatic Actuators ➢ Smart Materials Actuators ➢ Microactuators				
UNIT 4	**IOT APPLICATIONS**				
	INTRODUCTION TO ARDUINO TYPES OF ARDUINO BOARDS Arduino Uno Arduino Leonardo Arduino 101	General	Theory	5	
UNIT 5	**ARDUINO IDE**	Skill Development	Practical		7
	➢ Features of Arduino IDE ➢ How to download and Install Arduino IDE? **PARTS OF ARDUINO IDE** ➢ Menu Bar ➢ Text Editor ➢ Output Pane **WRITING/EDITING CODE IN SKETCH** **COMPILING-DEBUGGING** **UPLOADING AND RUNNING FILE** **ROLE OF SERIAL MONITOR**				
UNIT 6	**LED PROGRAMMING**				
	➢ Arduino board ➢ Breadboard	General	Theory	3	

	➢ LED				
	OPEN YOUR FIRST SKETCH ➢ Void setup() ➢ Void loop() **VARIABLES** **INDENTIFIERS** **KEYWORDS** **BUILT-IN DATA TYPES** **VARIABLE SCOPE** **PREPROCESSOR DIRECTIVE** ➢ The =include directive ➢ The =define directive	Skill Development	Practical		5
UNIT 7	**BASIC PROGRAMMING CONCEPT**				
	OPERATORS ➢ Arithmetic Operators ➢ Relation and Logical Operation ➢ Assignment Operation ➢ Pointer Operation ➢ Bitwise Operation **CONDITIONAL STATEMENTS AND LOOPS** **DECISION MAKING USING RELATIONAL OPERATORS** ➢ The if statement ➢ The if-else statement	Skill Development	Practical		17

	➢ The condition operator(?:) ➢ Nested if-else Statement ➢ The switch statement **LOGICAL CONNECTIVES** **LOOPS** ➢ While loop ➢ do- while loop ➢ for loop ➢ nested loops ➢ infinite loops ➢ THE break STATEMENT ➢ THE continue STATEMENT				
UNIT 8	**PROJECT USING IOT**				
	➢ **Write a program sequential LED ON-OFF.** ➢ **Write a program to interface bottom and LED so that Led-blink glow one button is press.** ➢ **Write a program to interface keypad with arduino board and display the key press on serial monitor.** ➢ **Write a program to interface LED's on pin number 11, 12, and 13 and**	Skill Development	Practical		9

	blink alternatively at delay of 1 second. ➢ **Automatic Attendance and Classroom Environmental Monitoring** ➢ **Write a program to sense soil moisture using soil moisture sensor.** ➢ **Write a Program to sense water using water sensor.** ➢ **Write a program to interface buzzer with arduino board to buzz ON-OFF with the delay of 1 sec.**				
Total Hours=75				37	38

Recommended Books: -

1. Rich E. & Knight K. (1991). Artificial Intelligence. Tata McGraw-Hill Publishing Company Limited
2. IOT and Publishing by Prof. Satish Jain.
3. Russell S. & Norvig P, Artificial Intelligence: A Modern Approach (Second Edition), (Pearson Education, 2003).