

| Title of Course | | | | | | Computer Application | |
|--|--------|-------------------------|--|--|--|--|--|
| Nodal Department of HEI To run course | | | | | | | |
| Board area/ sector | | | | | | | |
| Sub Sector- | | | | | | E.S. I.T. Sect | |
| | | | | | | 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 operator - 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 Encl. | | | | |
| II | | | | | | | |
| III | | | | | | | |
| IV | | | | | | | |
| V | | | | | | | |
| VI | | | | | | | |

Format for syllabus Development of skill Development Course

Suggested Readings:

Encl. Syll.

Suggested Digital platforms/web links for reading-

Google & other Edu. sites.

Suggested OJT/ Internship? Training/ Skill partner

Sudhi & Shree Computers, Etamud,

Suggested Continuous Evolution Methods:

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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, Binary number 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

Dr. Rishi Bhatnagar
Principal, St. Xavier's College, Palwal

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

Recommnded 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.

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

[Signature]

VOCATIONAL COURSE
ON
COMPUTER APPLICATION
(SEM-2)

[Signature] *[Signature]* *[Signature]* *[Signature]*
[Signature] *[Signature]*
20/12/22

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|---------------------------------------|---|---|
| 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 <ul style="list-style-type: none"> ➤ 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? <ul style="list-style-type: none"> ➤ Introduction of Writer | General | Theory | 1 | |
| | <ul style="list-style-type: none"> ➤ 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 <ul style="list-style-type: none"> ➤ 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 | |

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|---|--|-------------------|-----------|---|---|
| | <ul style="list-style-type: none"> ➤ 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 <ul style="list-style-type: none"> ➤ Quick export to PDF ➤ Page setup & Print Preview ➤ Controlling Printing | Skill Development | Practical | | 2 |
| 6 | What is Mail Merge | General | Theory | 1 | |
| | <ul style="list-style-type: none"> ➤ Creating a form letter ➤ How to Prepare data ➤ How to create documents ➤ Editing merged documents | Skill Development | Practical | | 2 |
| 7 | Introduction to Tables <ul style="list-style-type: none"> ➤ Create simple & complex table ➤ Editing & deleting table contents ➤ Merging of two Tables ➤ Updating of Tables | Skill Development | Practical | | 4 |

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| 8 | Images & Graphics <ul style="list-style-type: none"> ➤ Creating & Editing of Images ➤ Adding Images to documents ➤ Cropping & Resizing Images ➤ Rotating & Drawing Images | Skill Development | Practical | | 2 |
| 9 | Introduction to Libre Office Calc <ul style="list-style-type: none"> ➤ 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 <ul style="list-style-type: none"> ➤ 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 |

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| | <ul style="list-style-type: none"> ➤ How to Navigate between cells and in between sheets. ➤ How to select items in rows, columns and sheets. | | | | |
| 11 | Working with Sheets <ul style="list-style-type: none"> ➤ 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 | |
| | <ul style="list-style-type: none"> ➤ 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 | |
| | <ul style="list-style-type: none"> ➤ Speed up using Fill tools and Selection lists | Skill Development | Practical | - | 8 |

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|-----------|--|-------------------|-----------|---|---|
| | <ul style="list-style-type: none"> ➤ 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 | |
| | <ul style="list-style-type: none"> ➤ 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 | | | | |
| | <ul style="list-style-type: none"> ➤ Creating a presentation document ➤ Basic formatting ➤ Inserting Slides ➤ Copying Slides Using Tabs Font size and Color, ➤ Viewing Presentation document ➤ Views options – Normal, | Skill Development | Practical | - | 8 |

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| | <ul style="list-style-type: none"> ➤ 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 | |
| | <ul style="list-style-type: none"> ➤ 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 HEI 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 <ul style="list-style-type: none"> ➤ Introduction to the Web Development ➤ What is HTML ➤ How to Write HTML Code | General | Theory | 1 | - |
| 2 | HTML Tags <ul style="list-style-type: none"> ➤ HTML Tags ➤ Head Tags ➤ Title Tags ➤ Body Tags ➤ Saving an HTML Page | General | Theory | 1 | - |
| | | Skill Development | Practical | | 4 |
| 3 | Formatting Tags <ul style="list-style-type: none"> ➤ Adding a New Paragraph ➤ Adding a Line Break ➤ Inserting Blank Space ➤ Preformatted Text ➤ Changing a Page's Background Color ➤ Headings ➤ Horizontal Lines | General | Theory | 1 | |
| | | Skill Development | Practical | | 2 |

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| 4 | Lists Tag | General | Theory | 1 | - |
| | <ul style="list-style-type: none"> ➤ Numbered (Ordered) Lists ➤ Bulleted (Unordered) Lists ➤ Definition Lists, Nested Lists | Skill Development | Practical | - | 2 |
| 5 | Links & Images Tags | General | Theory | 1 | |
| | <ul style="list-style-type: none"> ➤ 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 | |
| | <ul style="list-style-type: none"> ➤ Inserting a Table ➤ Table Borders ➤ Table Headers ➤ Complex Table | Skill Development | Practical | - | 2 |
| 7 | Creating Forms | General | Theory | 1 | |

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| | <ul style="list-style-type: none"> ➤ 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 | | | | |
| | <ul style="list-style-type: none"> ➤ 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 | |
| | <ul style="list-style-type: none"> ➤ 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 | |
| | <ul style="list-style-type: none"> ➤ Text Alignment & Color ➤ Fonts & Font Size ➤ Margin & Padding | Skill Development | Practical | | 4 |

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| | <ul style="list-style-type: none"> ➤ How to create Text Border ➤ Types of Borders | | | | |
| 11 | Creating Backgrounds in CSS | General | Theory | 2 | |
| | <ul style="list-style-type: none"> ➤ 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 | |
| | <ul style="list-style-type: none"> ➤ 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 | |
| | <ul style="list-style-type: none"> ➤ 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 | |

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| | <ul style="list-style-type: none"> ➤ 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 | |
| | <ul style="list-style-type: none"> ➤ IF & Switch Conditions ➤ JavaScript Loops ➤ For Loop ➤ While Loop ➤ Do while Loop ➤ Break & Continue | Skill Development | Practical | | 6 |
| 16 | JavaScript Operators & Functions | | | 1 | |
| | <ul style="list-style-type: none"> ➤ 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 HEI 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
 Aligned NSQF Level : Foundation
 Name of Proposed Skill Partner : UPTEC Computer Consultancy Ltd.
 Job Prospectus : Data Analytics and Network Structure

| UNIT | TOPIC | GENERAL/S KILL DEVELOPM ENT | THEORY/PRACTI CAL/INTERSHI P/TRAINING | NO. OF THEORY HOURS | NO. OF SKILLS HOURS |
|--------|---|--------------------------------------|---|---------------------------|---------------------------|
| UNIT 1 | INTRODUCTION TO INTELLIGENCE AND ARTIFICIAL INTELLIGENCE | | | | |
| | ➤ Introduction ➤ Objectives | General | Theory | 6 | |

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|--------|--|---------|--------|----|--|
| | <ul style="list-style-type: none"> ➤ Some Simple ➤ Definition of A.I. ➤ Definition by Eliane Rich ➤ Definition by Buchanan and Shortliffe ➤ Another Definition by Elaine Rich ➤ Summary | | | | |
| UNIT 2 | INTELLIGENT AGENTS | | | | |
| | <ul style="list-style-type: none"> ➤ Introduction ➤ Objectives ➤ Definitions <p>Agents and Rationality</p> <ul style="list-style-type: none"> ➤ Example: A boundary following robot ➤ Task Environment of Agents <ul style="list-style-type: none"> ➤ Rationality vs. Omniscience ➤ Autonomy and learning capability of the agent <p>PEAS(Performance, Environment, Actuators, Sensors)</p> <p>Example An Automated Public Road Transport Driver</p> <p>Different Types of Task Environments</p> <ul style="list-style-type: none"> ➤ Fully Observable vs. Partially Observable | General | Theory | 15 | |

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| | <p>Environment</p> <ul style="list-style-type: none"> ➤ Static vs. Dynamic Environment ➤ Deterministic vs. Stochastic Environment ➤ Episodic vs. Sequential Environment ➤ Single agent vs. Multi-agent Environment ➤ Discrete vs. Continuous Environment <p>Some Examples of Task Environments</p> <ul style="list-style-type: none"> ➤ Crossword Puzzle ➤ Medical Diagnosis ➤ Playing Tic-tac-toe ➤ Playing Chess ➤ Automobile Driver Agent <p>The Structure of Agents</p> <ul style="list-style-type: none"> ➤ SR (Simple Reflex) Agents ➤ Model Based reflex Agents ➤ Goal-based Agents ➤ Utility-based Agents ➤ Learning Agents | | | | |
| UNIT 3 | Sensors, Actuators and Microcontrollers | | | | |

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| <p>INTRODUCTION</p> <p>SENSORS</p> <p>CLASSIFICATION OF SENSORS</p> <p>TYPES OF SENSORS</p> <ul style="list-style-type: none"> ➤ 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 <p>ACTUATORS</p> <p>CLASSIFICATION OF ACTUATORS</p> <ul style="list-style-type: none"> ➤ Electrical Actuators ➤ Electromechanical Actuators ➤ Electromagnetic Actuators ➤ Hydraulic Actuators | General | Theory | 8 | |
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| | <ul style="list-style-type: none"> ➤ 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 |
| | <ul style="list-style-type: none"> ➤ Features of Arduino IDE ➤ How to download and Install Arduino IDE? PARTS OF ARDUINO IDE <ul style="list-style-type: none"> ➤ 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 | | | | |
| | <ul style="list-style-type: none"> ➤ Arduino board ➤ Breadboard | General | Theory | 3 | |

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| | ➤ LED | | | | |
| | OPEN YOUR FIRST SKETCH ➤ Void setup() ➤ Void loop() VARIABLES IDENTIFIERS 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 |

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|--------|--|-------------------|-----------|--|---|
| | <ul style="list-style-type: none"> ➤ The condition operator(?:) ➤ Nested if-else Statement ➤ The switch statement <p>LOGICAL CONNECTIVES</p> <p>LOOPS</p> <ul style="list-style-type: none"> ➤ While loop ➤ do- while loop ➤ for loop ➤ nested loops ➤ infinite loops ➤ THE break STATEMENT ➤ THE continue STATEMENT | | | | |
| UNIT 8 | PROJECT USING IOT | | | | |
| | <ul style="list-style-type: none"> ➤ 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 |

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| | 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).