

Programme Name/s

: Architecture Assistantship/ Architecture and Interior Design/ Automobile Engineering./ Artificial Intelligence/ Agricultural Engineering/ Artificial Intelligence and Machine Learning/ Automation and Robotics/ Architecture/ Cloud Computing and Big Data/ Civil Engineering/ Chemical Engineering/ Computer Technology/ Computer Engineering/ Civil & Rural Engineering/ Construction Technology/ Computer Software Technology/ Computer Science & Engineering/ Fashion & Clothing Technology/ Digital Electronics/ Data Sciences/ Electrical Engineering/ Electronics & Tele-communication Engg./ Electrical and Electronics Engineering/ Electrical Power System/ Electronics & Communication Engg./ Electronics Engineering/ Food Technology/ Computer Hardware & Maintenance/ Hotel Management & Catering Technology/ Instrumentation & Control/ Industrial Electronics/ Information Technology/ Computer Science & Information Technology/ Instrumentation/ Interior Design & Decoration/ Interior Design/ Civil & Environmental Engineering/ Mechanical Engineering/ Mechatronics/ Medical Laboratory Technology/ Manufacturing Technology/ Medical Electronics/ Metallurgical Engineering/ Production Engineering/ Printing Technology/ Polymer Technology/ Surface Coating Technology/ Computer Science/ Textile Technology/ Electronics & Computer Engg./ Travel and Tourism/ Textile Manufactures/

Programme Code

: AA/ AD/ AE/ AI/ AL/ AN/ AO/ AT/ BD/ CE/ CH/ CM/ CO/ CR/ CS/ CST/ CW/ DC/ DE/ DS/ EE/ EJ/ EK/ EP/ ET/ EX/ FC/ HA/ HM/ IC/ IE/ IF/ IH/ IS/ IX/ IZ/ LE/ ME/ MK/ ML/ MRT/ MU/ MY/ PG/ PN/ PO/ SC/ SE/ TC/ TE/ TR/ TX

Semester

: First

Course Title

: FUNDAMENTALS OF ICT

Course Code

: 311001

I. RATIONALE

In any typical business setup in order to carry out routine tasks related to create business documents, perform data analysis and its graphical representations and making electronic slide show presentations, the student need to learn various software as office automation tools like word processing applications, spreadsheets and presentation tools. They also need to use these tools for making their project reports and presentations. The objective of this course is to develop the basic competency in students for using these office automation tools to accomplish the job. This course also presents an overview of emerging technologies so that students of different discipline can appraise the applications of these technologies in their respective domain.

II. INDUSTRY / EMPLOYER EXPECTED OUTCOME

The aim of this course is to help the student to attain the following industry identified outcome through various teaching learning experiences: 1) Use computers for Internet services, Electronics Documentation, Data Analysis and Slide Presentation. 2) Appraise Application of ICT based Emerging Technologies.in different domain.

III. COURSE LEVEL LEARNING OUTCOMES (COS)

Students will be able to achieve & demonstrate the following COs on completion of course based learning

FUNDAMENTALS OF ICT**Course Code : 311001**

- CO1 - Use computer system and its peripherals for given purpose
- CO2 - Prepare Business document using Word Processing Tool
- CO3 - Analyze Data and represent it graphically using Spreadsheet
- CO4 - Prepare professional Slide Show presentations
- CO5 - Use different types of Web Browsers and Apps
- CO6 - Explain concept and applications of Emerging Technologies

IV. TEACHING-LEARNING & ASSESSMENT SCHEME

| Course Code | Course Title | Abbr | Course Category/s | Learning Scheme | | | | Credits | Paper Duration | Assessment Scheme | | | | | | | | Total Marks | | |
|-------------|---------------------|------|-------------------|--------------------------|-----|-----|-----|---------|----------------|-------------------|-------|-------|------------------|-------|-------------|-----|----|-------------|----|----|
| | | | | Actual Contact Hrs./Week | | | SLH | NLH | | Theory | | | Based on LL & TL | | Based on SL | | | | | |
| | | | | CL | TL | LL | | | | FA-TH | SA-TH | Total | FA-PR | SA-PR | SLA | | | | | |
| | | | | Max | Max | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | | | | | |
| 311001 | FUNDAMENTALS OF ICT | ICT | SEC | 1 | - | 2 | 1 | 4 | 2 | - | - | - | - | 25 | 10 | 25@ | 10 | 25 | 10 | 75 |

Total IKS Hrs for Sem. : 0 Hrs

Abbreviations: CL- ClassRoom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment

Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @\\$ Internal Online Examination

Note :

1. FA-TH represents average of two class tests of 30 marks each conducted during the semester.
2. If candidate is not securing minimum passing marks in FA-PR of any course then the candidate shall be declared as "Detained" in that semester.
3. If candidate is not securing minimum passing marks in SLA of any course then the candidate shall be declared as fail and will have to repeat and resubmit SLA work.
4. Notional Learning hours for the semester are $(CL+LL+TL+SL)$ hrs.* 15 Weeks
5. 1 credit is equivalent to 30 Notional hrs.
6. * Self learning hours shall not be reflected in the Time Table.
7. * Self learning includes micro project / assignment / other activities.

V. THEORY LEARNING OUTCOMES AND ALIGNED COURSE CONTENT

| Sr.No | Theory Learning Outcomes (TLO's)aligned to CO's. | Learning content mapped with Theory Learning Outcomes (TLO's) and CO's. | Suggested Learning Pedagogies. |
|-------|--|---|--------------------------------|
| | | | |

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| Sr.No | Theory Learning Outcomes (TLO's)aligned to CO's. | Learning content mapped with Theory Learning Outcomes (TLO's) and CO's. | Suggested Learning Pedagogies. |
|-------|--|--|--------------------------------------|
| 1 | <p>TLO 1.1 Explain the functions of components in the block diagram of computer system.</p> <p>TLO 1.2 Classify the given type of software</p> <p>TLO 1.3 Explain characteristics of the given type of network</p> <p>TLO 1.4 Describe application of the given type of network connecting device</p> <p>TLO 1.5 Describe procedure to manage a file /folder in the given way.</p> | <p>Unit - I Introduction to Computer System</p> <p>1.1 Basics of Computer System: Overview of Hardware and Software: block diagram of Computer System, Input/Output unit CPU, Control Unit, Arithmetic logic Unit (ALU), Memory Unit</p> <p>1.2 Internal components: processor, motherboards, random access memory (RAM), read-only memory (ROM), video cards, sound cards and internal hard disk drives)</p> <p>1.3 External Devices: Types of input/output devices, types of monitors, keyboards, mouse, printers: Dot matrix, Inkjet and LaserJet, plotter and scanner, external storage devices CD/DVD, Hard disk and pen drive</p> <p>1.4 Application Software: word processing, spreadsheet, database management systems, control software, measuring software, photo-editing software, video-editing software, graphics manipulation software System Software compilers, linkers, device drivers, oper</p> <p>1.5 Network environments: network interface cards, hubs, switches, routers and modems, concept of LAN, MAN, WAN, WLAN, Wi-Fi and Bluetooth</p> <p>1.6 Working with Operating Systems: Create and manage file and folders, Copy a file, renaming and deleting of files and folders, Searching files and folders, application installation, creating shortcut of application on the desktop.</p> | Hands-on Demonstration Presentations |

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| Sr.No | Theory Learning Outcomes (TLO's)aligned to CO's. | Learning content mapped with Theory Learning Outcomes (TLO's) and CO's. | Suggested Learning Pedagogies. |
|-------|---|--|---|
| 2 | <p>TLO 2.1 Write steps to create the given text document.</p> <p>TLO 2.2 Explain the given feature for document editing.</p> <p>TLO 2.3 Explain the given page setup features of a document.</p> <p>TLO 2.4 Write the given table formatting feature.</p> <p>TLO 2.5 Write the steps to set the given type of document layout</p> | <p>Unit - II Word Processing</p> <p>2.1 Word Processing: Overview of Word processor Basics of Font type, size, colour, Effects like Bold, italic, underline, Subscript and superscript, Case changing options, Previewing a document, Saving a document, Closing a document and exiting application.</p> <p>2.2 Editing a Document: Navigate through a document, Scroll through text, Insert and delete text, Select text, Undo and redo commands, Use drag and drop to move text, Copy, cut and paste, Use the clipboard, Clear formatting, Format and align text, Formatting</p> <p>2.3 Changing the Layout of a Document: Adjust page margins, Change page orientation, Create headers and footers, Set and change indentations, Insert and clear tabs</p> <p>2.4 Inserting Elements to Word Documents: Insert and delete a page break, Insert page numbers, Insert the date and time, Insert special characters (symbols), Insert a picture from a file, Resize and reposition a picture</p> <p>2.5 Working with Tables: Insert a table, Convert a table to text, Navigate and select text in a table, Resize table cells, Align text in a table, Format a table, Insert and delete columns and rows, Borders and shading, Repeat table headings on subsequent page</p> <p>2.6 Working with Columned Layouts and Section Breaks: a Columns, Section breaks, Creating columns, Newsletter style columns, Changing part of a document layout or formatting, Remove section break, Add columns to remainder of a document, Column widths, Adjust</p> | <p>Hands-on Demonstration Presentations</p> |

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|-------|--|---|--------------------------------------|
| 3 | <p>TLO 3.1 Write steps to create the given spreadsheet.</p> <p>TLO 3.2 Explain the given formatting feature of a worksheet.</p> <p>TLO 3.3 Write steps to insert formula and functions in the given worksheet.</p> <p>TLO 3.4 Write steps to create charts for the given data set.</p> <p>TLO 3.5 Explain steps to perform data filter, sort and validation operations on the given data set.</p> <p>TLO 3.6 Write steps to setup and print a spreadsheet.</p> | <p>Unit - III Spreadsheets</p> <p>3.1 Working with Spreadsheets: Overview of workbook and worksheet, Create Worksheet Entering sample data, Save, Copy Worksheet, Delete Worksheet, Close and open Workbook.</p> <p>3.2 Editing Worksheet: Insert and select data, adjust row height and column width, delete, move data, insert rows and columns, Copy and Paste, Find and Replace, Spell Check, Zoom In-Out, Special Symbols, Insert Comments, Add Text Box, Undo Changes, - Freeze</p> <p>3.3 Formatting Cells and sheet: Setting Cell Type, Setting Fonts, Text options, Rotate Cells, Setting Colors, Text Alignments, Merge and Wrap, apply Borders and Shades, Sheet Options, Adjust Margins, Page Orientation, Header and Footer, Insert Page Breaks, S</p> <p>3.4 Working with Formula: Creating Formulas, Copying Formulas, Common spreadsheet Functions such as sum, average, min, max, date, In, And, or, mathematical functions such as sqrt, power, applying conditions using IF.</p> <p>3.5 Working with Charts: Introduction to charts, overview of different types of charts, Bar, Pie, Line charts, creating and editing charts. Using chart options: chart title, axis title, legend, data labels, Axes, grid lines, moving chart in a separate sheet.</p> <p>3.6 Advanced Operations: Conditional Formatting, Data Filtering, Data Sorting, Using Ranges, Data Validation, Adding Graphics, Printing Worksheets, print area, margins, header, footer and other page setup options.</p> | Hands-on Demonstration Presentations |
| 4 | <p>TLO 4.1 Write the steps to create the given slide presentation.</p> <p>TLO 4.2 Write the steps to insert multiple media in the given presentation.</p> <p>TLO 4.3 Explain the method of including animation, transition effects in slide show.</p> <p>TLO 4.4 Write steps to apply table features in the given presentation</p> <p>TLO 4.5 Write steps to manage charts in the given presentation</p> | <p>Unit - IV Presentation Tool</p> <p>4.1 Creating a Presentation: Outline of an effective presentation, Identify the elements of the User Interface, Starting a New Presentation Files, Creating a Basic Presentation, Working with textboxes, Apply Character Formats, Format Paragraphs, View a Prese</p> <p>4.2 Inserting Media elements: Adding and Modifying Graphical Objects to a Presentation - Insert Images into a Presentation, insert audio clips, video/animation, Add Shapes, Add Visual Styles to Text in a Presentation, Edit Graphical Objects on a Slide, Format</p> <p>4.3 Working with Tables: Insert a Table in a Slide, Format Tables, and Import Tables from Other Office Applications.</p> <p>4.4 Working with Charts: Insert Charts in a Slide, Modify a Chart, Import Charts from Other Office Applications.</p> | Hands-on Demonstration Presentations |

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|-------|--|--|--------------------------------------|
| 5 | <p>TLO 5.1 Explain use of the given setting option in browsers.</p> <p>TLO 5.2 Explain the given option used for effective searching in search engine</p> <p>TLO 5.3 Explain features of the given web service.</p> <p>TLO 5.4 Explain concepts and applications of emerging technologies</p> <p>TLO 5.5 Use various elementary cloud-based tools.</p> | <p>Unit - V Basics of Internet and Emerging Technologies</p> <p>5.1 World Wide Web: Introduction, Internet, Intranet, Cloud, Web Sites, web pages, URL, web servers, basic settings of web browsers- history, extension, default page, default search engine, creating and retrieving bookmarks, use search engines effectively for</p> <p>5.2 Web Services: e-Mail, Chat, Video Conferencing, e-learning, e-shopping, e-Reservation, e-Groups, Social Networking</p> <p>5.3 Emerging Technologies: IOT, AI and ML, Drone Technologies, 3D Printing.</p> <p>5.4 Tools: Docs, Drive, forms, quiz, Translate and other Apps</p> | Hands-on Demonstration Presentations |

VI. LABORATORY LEARNING OUTCOME AND ALIGNED PRACTICAL / TUTORIAL EXPERIENCES.

| Practical / Tutorial / Laboratory Learning Outcome (LLO) | Sr No | Laboratory Experiment / Practical Titles / Tutorial Titles | Number of hrs. | Relevant COs |
|---|-------|--|----------------|--------------|
| LLO 1.1 Identify various Input/output devices, connections and peripherals of computer system LLO 1.2 Work with Computer System, Input/output devices, and peripherals for manages files and folders for data storage. | 1 | * a) Work with Computer System, Input/output devices, and peripherals. b) Work with files and folders | 2 | CO1 |
| LLO 2.1 Create and manage word document. LLO 2.2 Apply formatting features on text at line, paragraph and page level. | 2 | *Work with document files: a) Create, edit and save document in Word Processing. b) Text, lines and paragraph level formatting | 2 | CO2 |
| LLO 3.1 Insert and edit images, shapes in a document file | 3 | Work with Images and Shapes in Word Processing. | 2 | CO2 |
| LLO 4.1 Insert table and apply various table formatting features on it. | 4 | *Work with tables in Word Processing. | 2 | CO2 |
| LLO 5.1 Apply page layout features in word processing. LLO 5.2 Print a document by applying various print options LLO 5.3 Use mail merge in word processing | 5 | *Working with layout and printing a) Document page layout, Themes, and printing. b) Use of mail merge with options. | 2 | CO2 |
| LLO 6.1 Enter and format data in a worksheet. LLO 6.2 Insert and delete cells, rows and columns LLO 6.3 Apply alignment feature on cell | 6 | *Create, open and edit Worksheet. | 2 | CO3 |
| LLO 7.1 Create formula and "If" condition on cell data LLO 7.2 Apply various functions and named ranges in worksheet. | 7 | *Formulas and functions in Worksheet. | 2 | CO3 |

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| Practical / Tutorial / Laboratory Learning Outcome (LLO) | Sr No | Laboratory Experiment / Practical Titles / Tutorial Titles | Number of hrs. | Relevant COs |
|---|--------------|--|-----------------------|---------------------|
| LLO 8.1 Implement data Sorting, Filtering and Data validation features in a worksheet. | 8 | *Sort, Filter and validate data in Spreadsheet. | 2 | CO3 |
| LLO 9.1 Create charts using various chart options in spreadsheet. | 9 | *Charts for Visual Presentation in Spreadsheet. | 2 | CO3 |
| LLO 10.1 Print the worksheet by applying various print options for worksheet | 10 | Worksheet Printing. | 2 | CO3 |
| LLO 11.1 Apply design themes to the given presentation LLO 11.2 Insert pictures text/images/shapes in slide LLO 11.3 Use pictures text/images/shapes editing options. | 11 | *Make Slide Show Presentation. | 2 | CO4 |
| LLO 12.1 Add tables and charts in the slides. LLO 12.2 Run slide presentation in different modes LLO 12.3 Print slide presentation as handouts/notes | 12 | *Use Tables and Charts in Slide | 2 | CO4 |
| LLO 13.1 Apply animation effects to the text and slides LLO 13.2 Add/set audio and video files in the presentation. | 13 | *a) Insert Animation effects to Text and Slides. b) Insert Audio and Video files in presentation | 2 | CO4 |
| LLO 14.1 Configure internet connection on a computer system LLO 14.2 Use different web services on internet | 14 | a) Internet connection configuration b) Use Internet and Web Services. | 1 | CO5 |
| LLO 15.1 Configure different browser settings LLO 15.2 Use browsers for the given purpose | 15 | Working with Browsers. | 1 | CO5 |
| LLO 16.1 Create web forms for survey using different options. | 16 | *Prepare Web Forms for Survey. | 1 | CO5 |
| LLO 17.1 Create web forms for Quiz using different options | 17 | *Prepare Web Forms for Quiz | 1 | CO5 |

Note : Out of above suggestive LLOs -

- '*' Marked Practicals (LLOs) Are mandatory.
- Minimum 80% of above list of lab experiment are to be performed.
- Judicial mix of LLOs are to be performed to achieve desired outcomes.

VII. SUGGESTED MICRO PROJECT / ASSIGNMENT/ ACTIVITIES FOR SPECIFIC LEARNING / SKILLS DEVELOPMENT (SELF LEARNING)**Self Learning**

- Following are some suggestive self-learning topics: 1) Use ChatGPT/any other AI tool to explore information. 2) Use Calendar to Schedule and edit activities. 3) Use Translate app to translate the given content from one language to another. 4) Use cloud based storage drive to store and share your files.

Micro project

- The microproject has to be industry application based, internet-based, workshop-based, laboratory-based or field-based as suggested by Teacher. 1) Perform a survey on various input and output devices available in market and make its report. 2) Prepare Time Table, Prepare Notes on Technical Topics, Reports, Biodata with covering letter (Subject teacher shall assign a document to be prepared by each students) 3) Prepare slides with all Presentation features such as: classroom presentation, presentation about department, presentation of Technical Topics. (Subject teacher shall assign a presentation to be prepared by each student). 4) Student Marksheets, Prepare Pay bills, tax statement, student's assessment record using spreadsheet. (Teacher shall assign a spreadsheet to be prepared by each student). 5) Carry-out Survey on different web browsers. 6) Generate resume for different job profile, survey report of any industry using ChatGPT/any other AI tool.

Note :

- Above is just a suggestive list of microprojects and assignments; faculty must prepare their own bank of microprojects, assignments, and activities in a similar way.
- The faculty must allocate judicial mix of tasks, considering the weaknesses and / strengths of the student in acquiring the desired skills.
- If a microproject is assigned, it is expected to be completed as a group activity.
- SLA marks shall be awarded as per the continuous assessment record.
- For courses with no SLA component the list of suggestive microprojects / assignments/ activities are optional, faculty may encourage students to perform these tasks for enhanced learning experiences.
- If the course does not have associated SLA component, above suggestive listings is applicable to Tutorials and maybe considered for FA-PR evaluations.

VIII. LABORATORY EQUIPMENT / INSTRUMENTS / TOOLS / SOFTWARE REQUIRED

| Sr.No | Equipment Name with Broad Specifications | Relevant LLO Number |
|-------|---|---------------------|
| 1 | a) Computer System with all necessary Peripherals and Internet connectivity. b) Any Office Software c) Any Browser (Any General Purpose Computer available in the Institute) | All |

IX. SUGGESTED WEIGHTAGE TO LEARNING EFFORTS & ASSESSMENT PURPOSE (Specification Table)

| Sr.No | Unit | Unit Title | Aligned COs | Learning Hours | R-Level | U-Level | A-Level | Total Marks |
|--------------------|------|--|-------------|----------------|----------|----------|----------|-------------|
| 1 | I | Introduction to Computer System | CO1 | 2 | 0 | 0 | 0 | 0 |
| 2 | II | Word Processing | CO2 | 3 | 0 | 0 | 0 | 0 |
| 3 | III | Spreadsheets | CO3 | 3 | 0 | 0 | 0 | 0 |
| 4 | IV | Presentation Tool | CO4 | 4 | 0 | 0 | 0 | 0 |
| 5 | V | Basics of Internet and Emerging Technologies | CO5,CO6 | 3 | 0 | 0 | 0 | 0 |
| Grand Total | | | | 15 | 0 | 0 | 0 | 0 |

X. ASSESSMENT METHODOLOGIES/TOOLS**Formative assessment (Assessment for Learning)**

- Lab performance, Assignment, Self-learning and Seminar/Presentation

FUNDAMENTALS OF ICT**Course Code : 311001****Summative Assessment (Assessment of Learning)**

- Lab. Performance, viva voce

XI. SUGGESTED COS - POS MATRIX FORM

| Course Outcomes (COs) | Programme Outcomes (POs) | | | | | | | Programme Specific Outcomes* (PSOs) | | |
|-----------------------|--|-----------------------|---------------------------------------|------------------------|--|-------------------------|-------------------------|-------------------------------------|-------|-------|
| | PO-1 Basic and Discipline Specific Knowledge | PO-2 Problem Analysis | PO-3 Design/ Development of Solutions | PO-4 Engineering Tools | PO-5 Engineering Practices for Society, Sustainability and Environment | PO-6 Project Management | PO-7 Life Long Learning | PSO-1 | PSO-2 | PSO-3 |
| CO1 | 1 | - | - | - | - | - | - | 1 | | |
| CO2 | - | - | - | 3 | - | - | - | 1 | | |
| CO3 | - | 2 | 1 | 3 | - | - | - | 1 | | |
| CO4 | - | - | - | 3 | - | - | - | 1 | | |
| CO5 | 1 | - | - | 3 | - | - | - | 3 | | |
| CO6 | 1 | - | - | 3 | - | - | - | 3 | | |

Legends :- High:03, Medium:02, Low:01, No Mapping: -

*PSOs are to be formulated at institute level

XII. SUGGESTED LEARNING MATERIALS / BOOKS

| Sr.No | Author | Title | Publisher with ISBN Number |
|-------|---|---|--|
| 1 | Goel, Anita | Computer Fundamentals | Pearson Education, New Delhi, 2014, ISBN-13: 978-8131733097 |
| 2 | Miller, Michael | Computer Basics Absolute Beginner's Guide, Windows 10 | QUE Publishing; 8th edition August 2015, ISBN: 978-0789754516 |
| 3 | Alvaro, Felix | Linux: Easy Linux for Beginners | CreateSpace Independent Publishing Platform- 2016, ISBN-13: 978-1533683731 |
| 4 | Johnson, Steve | Microsoft Office 2010: On Demand | Pearson Education, New Delhi India, 2010. ISBN :9788131770641 |
| 5 | Schwartz, Steve | Microsoft Office 2010 for Windows: Visual Quick Start | Pearson Education, New Delhi India, 2012, ISBN : 9788131766613 |
| 6 | Leete, Gurdy, Finkelstein Ellen, Mary Leete | OpenOffice.org for Dummies | Wiley Publishing, New Delhi, 2003 ISBN : 978-0764542220 |

XIII . LEARNING WEBSITES & PORTALS

| Sr.No | Link / Portal | Description |
|-------|---|-------------|
| 1 | https://www.microsoft.com/en-in/learning/office-training.aspx | Office |
| 2 | http://www.tutorialsforopenoffice.org/ | Open Office |
| 3 | https://s3-ap-southeast-1.amazonaws.com/r4ltue295xy0d/Special_Edition_Using_StarOffice_6_0.pdf | Open Office |

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| Sr.No | Link / Portal | Description |
|-------|---|--------------------------|
| 4 | https://ashishmodi.weebly.com/uploads/1/8/9/7/18970467/computer_fundamental.pdf | Computer Fundamental |
| 5 | http://www.tutorialsforopenoffice.org/ | Open Office |
| 6 | https://www.tutorialspoint.com/computer_fundamentals/index.htm | Computer Fundamental |
| 7 | https://www.tutorialspoint.com/word/ | Word Processing |
| 8 | https://www.javatpoint.com/ms-word-tutorial | Word Processing |
| 9 | https://support.microsoft.com/en-au/office/word-for-windows-training-7bcd85e6-2c3d-4c3c-a2a5-5ed8847 | Word Processing |
| 10 | https://www.javatpoint.com/excel-tutorial | Spreadsheet |
| 11 | https://support.microsoft.com/en-au/office/excel-video-training-9bc05390-e94c-46af-a5b3-d7c22f6990bb | Spreadsheet |
| 12 | https://www.javatpoint.com/powerpoint-tutorial | Powerpoint Presentation |
| 13 | https://support.microsoft.com/en-au/office/powerpoint-for-windows-training-40e8c930-cb0b-40d8-82c4-b | Powerpoint Presentation |
| 14 | https://www.geeksforgeeks.org/ms-dos-operating-system/ | Operating System |
| 15 | https://www.javatpoint.com/windows | Windows Operating System |
| 16 | https://www.javatpoint.com/what-is-linux | Linux Operating System |
| 17 | https://www.techtarget.com/iotagenda/definition/Internet-of-Things-IoT | IoT |
| 18 | https://www.geeksforgeeks.org/introduction-to-internet-of-things-iot-set-1/ | IoT |
| 19 | https://www.javatpoint.com/machine-learning | AI & Machine Learning |
| 20 | https://www.skillrary.com/blogs/read/introduction-to-drone-technology | Drone Technology |
| 21 | https://www.cnet.com/tech/computing/what-is-3d-printing/ | 3D Printing |
| 22 | https://support.google.com/a/users/answer/9389764?hl=en | Apps |

Note :

- Teachers are requested to check the creative common license status/financial implications of the suggested online educational resources before use by the students