FUNDAMENTALS OF ICT **Course Code : 311001**

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/ Aeronautical Engineering/ Bamboo Technology/ Fashion & Clothing Technology/ Digital Electronics/ Data Sciences/ Electrical Engineering/ Electronics & Tele-communication Engg./ Electrical and Electronics Engineering/ Electrical Power System/ Electronics & Communication Engg./ Electrical & Electronics (Power System)/ Electronics Engineering/ Food Technology/ Computer Hardware & Maintenance/ Hotel Management & Catering Technology/ Instrumentation & Control/ Instrumentation & Control Engineering/ 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/ DAE/ DBT/ DC/ DE/ DS/ EE/ EJ/ EK/ EP/ ET/ EU/ EX/ FC/ HA/ HM/ IC/ ICE/ 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

- 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	Assessment Scheme												
				Actual Contact Hrs./Week			SLH	NLH		Paper Duration	Theory				Based on LL & TL				Based on SL		Total Marks
															Practical						
				CL	TL	LL					FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
											Max	Max	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	TLO 1.1 Explain the functions of components in the block diagram of computer system. TLO 1.2 Classify the given type of software TLO 1.3 Explain characteristics of the given type of network TLO 1.4 Describe application of the given type of network connecting device TLO 1.5 Describe procedure to manage a file /folder in the given way.	**Unit - I Introduction to Computer System** 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 1.2 Internal components: processor, motherboards, random access memory (RAM), read-only memory (ROM), video cards, sound cards and internal hard disk drives) 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 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 1.5 Network environments: network interface cards, hubs, switches, routers and modems, concept of LAN, MAN, WAN, WLAN, Wi-Fi and Bluetooth 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.	Hands-on Demonstration Presentations
2	TLO 2.1 Write steps to create the given text document. TLO 2.2 Explain the given feature for document editing. TLO 2.3 Explain the given page setup features of a document. TLO 2.4 Write the given table formatting feature. TLO 2.5 Write the steps to set the given type of document layout	**Unit - II Word Processing** 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. 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 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 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 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 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	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.
3	TLO 3.1 Write steps to create the given spreadsheet. TLO 3.2 Explain the given formatting feature of a worksheet. TLO 3.3 Write steps to insert formula and functions in the given worksheet. TLO 3.4 Write steps to create charts for the given data set. TLO 3.5 Explain steps to perform data filter, sort and validation operations on the given data set. TLO 3.6 Write steps to setup and print a spreadsheet.	**Unit - III Spreadsheets** 3.1 Working with Spreadsheets: Overview of workbook and worksheet, Create Worksheet Entering sample data, Save, Copy Worksheet, Delete Worksheet, Close and open Workbook. 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 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 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. 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. 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.	Hands-on Demonstration Presentations
4	TLO 4.1 Write the steps to create the given slide presentation. TLO 4.2 Write the steps to insert multiple media in the given presentation. TLO 4.3 Explain the method of including animation, transition effects in slide show. TLO 4.4 Write steps to apply table features in the given presentation TLO 4.5 Write steps to manage charts in the given presentation	**Unit - IV Presentation Tool** 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 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 4.3 Working with Tables: Insert a Table in a Slide, Format Tables, and Import Tables from Other Office Applications. 4.4 Working with Charts: Insert Charts in a Slide, Modify a Chart, Import Charts from Other Office Applications.	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.
5	TLO 5.1 Explain use of the given setting option in browsers. TLO 5.2 Explain the given option used for effective searching in search engine TLO 5.3 Explain features of the given web service. TLO 5.4 Explain concepts and applications of emerging technologies TLO 5.5 Use various elementary cloud-based tools.	**Unit - V Basics of Internet and Emerging Technologies** 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 5.2 Web Services: e-Mail, Chat, Video Conferencing, e-learning, e-shopping, e-Reservation, e-Groups, Social Networking 5.3 Emerging Technologies: IOT, AI and ML, Drone Technologies,3D Printing. 5.4 Tools: Docs, Drive, forms, quiz, Translate and other Apps	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
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

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Practical / Tutorial / Laboratory Learning Outcome (LLO)	Sr No	Laboratory Experiment / Practical Titles / Tutorial Titles	Number of hrs.	Relevant COs
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 Marksheet, 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

Summative Assessment (Assessment of Learning)

- Lab. Performance, viva voce

XI. SUGGESTED COS - POS MATRIX FORM

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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	CreatevSpace 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
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

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Sr.No	Link / Portal	Description
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

MSBTE Approval Dt. 01/10/2024 **Semester - 1, K Scheme**