

IT-C02: CERTIFICATE COURSE IN INFORMATION AND COMMUNICATION TECHNOLOGIES & RESEARCH METHODOLOGIES

Objective of the Course:

Prepares students for scientific research by providing practical and theoretical training in planning, undertaking and documenting research work. It also covers an appreciation of the methodologies, key issues in the scientific workplace, including safety, ethics and intellectual property, and it develops teamwork and communication skills.

Eligibility: Post Graduate in any discipline with 55% Marks

Reservation: SC/ST/OBC as per university rules.

Duration: One Year part time, 80 hrs of teaching

Fee: Rs 2000/- (For regular Ph.D students from University Departments), Rs 3000/- for others

Seats: Thirty. The course will be offered only against admission of a minimum of 15 candidates

Examination: Examination will be conducted by a board consisting of an internal examiner and an external examiner on the basis of a MCQ on-line /off-line test of 1 hr duration (50 questions, 100 marks) and practical test of 3hrs (100 Marks). Total marks of the examination will be 200. Rs 200/- per candidate will be collected by the computer center towards the MCQ based OMR/Online test in addition to the university examination fee.

In order to eligible for the Certificate, candidate is required to score 50% of the total marks. Those who fail to get 50% marks will be required to reappear in the examination as and when conducted by the university.

SYLLABUS

INFORMATION AND COMMUNICATION TECHNOLOGIES & RESEARCH METHODOLOGIES

Computer & Internet: Desktop computers, Block diagram of a computer, Input and output devices, memory and storage devices, Client server, Desktop, Workstation, Parallel and Super computing. Different ports of PC's and its uses, Different type of printers. Scanners. Software: OS, Windows OS, Application software. Networking, different LAN and WAN connections, connecting to a network, testing connection, Internet, IP address, Hypertext, Uniform Resource Locator, Web Browsers, IP Address, Domain Name, Internet Services Providers, Internet Security, Internet Requirements, Web Search Engine, Net Surfing, Internet Services.

Windows XP/VISTA: Windows concepts, Features, Windows Structure, Desktop, Taskbar, Start Menu, My Computer, Recycle Bin, Windows Accessories- Calculator, Notepad, Paint, Wordpad, Character Map, Windows Explorer, Entertainment, Managing Hardware & Software- Installation of Hardware & Software, Using Scanner, System Tools, Communication, Sharing Information between programs.

Word Processing; MS Word: Features, Creating, Saving and Opening Documents in Word, Interface, Toolbars, Ruler, Menus, Keyboard

Shortcut, Editing, Previewing, Printing,& Formatting a Document, Advanced Features of MS Word, Find & Replace, Using Thesaurus, Using Auto- Multiple Functions, Mail Merge, Handling Graphics, Tables & Charts, Coverting a word document into various formats like- Text, Rich Text format, Word perfect, HTML,PDF etc.

Worksheet- MS-Excel: Worksheet basics, creating worksheet, entering into worksheet, heading information, data, text, dates, alphanumeric values, saving & quitting worksheet, Opening and moving around in an existing worksheet, Toolbars and Menus, Keyboard shortcuts, Working with single and multiple workbook, working with formulae & cell referencing, Auto sum, Coping formulae, Absolute & relative addressing, Worksheet with ranges, formatting of worksheet, Previewing & Printing worksheet, Graphs and charts, Database, Creating and Using macros, Multiple worksheets- concepts, creating and using.

Presentation: MS Power Point: Creating slide show with animations. Autocentnt Wizard,creating a lank presentation, autolayout, Power point screen:screen layout and Views, insert a newslide,applying design template, changing slide layout,reordering and hiding slides, slide show and editing custom slide. Resizing a text box ,Text box properties,Delete a text bo,Bulleted lists,Numbered lists,Adding notes,Video and Audio, Adding text Editing options,Formatting text,Replace fonts,Line spacing ,Change case Spelling check, Color schemes , Adding clip art,Adding an image from a file Editing graphic,AutoShapes,WordArt,Backgrounds, Action buttons Slide animation Animation preview Slide transitions Slide show options Slide master Header and footer Slide numbers Date and time

Data Analysis and Display: Facilities in MS Excel for Data analysis and display, Other data display softwares, case study: Origin . Software for Scientific and Statistical Analysis: Case studies : SPSS and MATLAB, Mathematica. Database: Creating a Database and simple querying

Graphics and Drawing: Adobe Photoshop: Basics (only introductory level), Image compression (GIF,JPEG,PNG formats), Multimedia, Digital Arts, Audio and Video formats, Multimedia Projections.

Internet and Intranet: HTML, Web pages, Creating a web page using MS Front page, adding graphics and images, Current web technologies. Hosting a web site. Advance search techniques, case studies: Google & Yahoo and Google Scholar. Building an Intranet

Educational and Research resources on Net: Encyclopedia Case study: Wikipedia, On line Tutorials and Lectures, Java Applets, Educational Applets, Virtual Labs, Electronic Journals, E-books, digital libraries. Searching research information using J-gate and Scopus.

Written Communication: Students prepare E-mails, letters, memos, proposals, formal and informal reports, work plans, and progress reports.

Oral Communication: Impromptu and extemporaneous methods of delivery. Oral presentations using visual aids such as handouts, overhead transparencies, and presentation software such as PowerPoint.

Research: Definition, applications, characteristics, types of research, objectives, paradigms of research, different steps in research process

Formulation of research problem: Review of literature, reasons for review, procedure for review, writing of literature reviewed. Research

problem and its importance, sources, consideration and formulation of research problems, formulation of objectives

Identifying variables and constructing hypothesis, Research design and Method of data collection, display of data, writing research proposals , writing reports and research communications

Work place, issues related to safety, ethical issues, Intellectual property, team work, Research groups and research collaborations.

Reference Books:

- 1.Information Communication Technology by Tim Shortis.
- 2.Handbook of Communication and Social Interaction Skills By John O. Greene, Brant Raney Burleson
3. Research Methodology: A Step-by-Step Guide for Beginners (Paperback) by Ranjit Kumar, SAGE Publications