ADE/B.Ed. (Hons) Elementary
Syllabus
Computer Literacy
Semester 2

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Technical Support: Education Development Centre (EDC); Teachers College, Columbia University

Syllabus: Computer Literacy

Year/Semester: Year 1/Semester 2
Credit Value: 3 credits
Pre-requisites: F.A. /F. Sc.

Course Description

This course will prepare teachers to understand, use and apply technologies (computer, digital camera, mobile phones) in an effective, efficient and ethical ways. Advanced technologies are more pervasive today than they have ever been, and their uses are expanding continually. ICT is significantly enhancing and altering human activity, and enabling us to live, work and think in ways that most of us never thought possible. Prospective teachers will actively explore the fundamental concepts, knowledge, skills, and attitudes for applying technology in educational settings. They will also learn to develop skills like collaboration, higher-order thinking, problem solving, and self-direction through effective use of technology tools and resources thus, enabling them to be a lifelong learner in 21st century.

Course outcomes:

Trainee-teachers develop confidence and an aptitude for using computers and will be able to:

- use computer technology as a tool for communication & collaboration, problem solving
- create productivity materials related to teaching profession (lesson plans, result sheets etc)
- use computers technology for personal & professional growth, for research and generating new knowledge
- explore new technologies/knowledge for career growth as lifelong learners

Learning & Teaching Approaches:

This is a skills-focused/practical course and it is expected that all the sessions would be implemented practically in the computer lab. The course is based on interactive exploration approach using lecture demonstration method with various teaching techniques including K-W-H-L, brain storming, thought provoking questions, think pair-share, reflections, discussions, etc. The instructional strategies recommended focus the development of knowledge, skills and attitude.

Each planned session is of 60 minutes

Allocate 2 hours of trainee-practice with each hour of teacher-facilitated instruction. For a 3 credit hours course, it takes 3 hours of teacher-facilitated instruction with 6 hours of traine teacher practice a week.

Content Outline

Unit 1 Introduction to Computer (1.5 weeks/ 4 hours)		
Week #	**Session/Main topics**	**Details of sub-topics**
Week 1	**Session-1:** History and classification of computers	▪ Introduction to computer ▪ Examples of computer o personal computers (desk-top, laptops, pocket PCs/hand-held computers) o main-frame computer systems ▪ Brief history of computers with timeline
	Sessions 2: Introduction to computers - Learning about Input devices	Knowledge about and interfacing with: ▪ Input devices (Examples: mouse, keyboard, scanner, joystick, webcam, digital camera, bar-code reader, digital voice recorder, etc.) o Knowing the mouse and keyboard ▪ Interfacing with the computer using mouse and keyboard o Practicing to input data using a mouse (left-click, right-click, move, drag, trackball, double-click), etc.
	Sessions 3: Learning about different parts (hardware) of computer and accessories	▪ Output devices (Examples: printer, speaker, projector, etc.) ▪ Storage devices (hard disk, USB-flash disk, CDs/DVDs, memory card, etc.) ▪ Understanding of Central Processing Unit (CPU) ▪ How do computers work?
Week 2	**Session 1:** Computer Software	▪ Operating/System software introduction ▪ Application software- usage & types (word processing, spreadsheets, multimedia, etc.)

Unit 2 Learning Computer Basics and Internet (3.5 weeks/ 11 hours)		
Week #	**Main topics**	**Sub-topics**
Week 2 (contd.)	**Session 2:** Interfacing with computer	Hands-on activities on: o User window (Minimizing, maximizing and closing a window, menu, status and other bars, etc.) ▪ Working with the Operating System o Start/Shut down (menu, purpose, etc.) o User window (Minimizing, maximizing and closing a window, menu, status and other bars, etc.) o Basic concepts of Desktop, Icons, shortcuts, etc.
	Session 3: Interfacing with computer (Contd.)	▪ Working with the Operating System (Continued) o Control Panel o Using Help o Selecting a Printer, Changing a Default Printer, Checking the Status of a Printer
Week 3	**Session 1:** Interfacing with computer (Contd.)	▪ Concept of files and folders (types of files and extension) ▪ File and folder properties o Renaming a folder, etc. (Practicing to input data using a keyboard)
	Session 2: Interfacing with computer (Contd.)	▪ Types of storage devices ▪ Practically knowing and accessing storage devices/drives
	Session 3: Interfacing with computer (Contd.)	▪ Data transfer between different storage devices (Example: to/from USB-flash disk to hard disk, etc.)
Week 4	**Session 1**: Internet basics	▪ Introduction to Internet and the World Wide Web (www) ▪ Internet browsing applications (Examples: Internet Explorer, Mozilla Firefox, Apple Safari, etc.) ▪ Web addresses and links
	Session 2: Internet basics (Contd.)	▪ Interfacing with the Internet browser window (browser menu-bar, buttons, scrolling, clicking on links, etc.)

		▪ Search engines
	Session 3: Internet basics (Contd.)	▪ Using specialized web-sites (see reference web-links) ▪ Searching for information (search tips, etc.)
Week 5	**Session 1:** Introduction to different types of Networks (LAN/WAN, wireless)	Brief introduction to: ▪ Local Area Network (LAN); sharing on a LAN; Wide Area Network (WAN); Wireless Networks ▪ Sharing on networks; network-related security issues ▪ Firewalls
	Session 2: Security (Identity and virus protection)	▪ Security (Identity and virus protection): o Protection against virus and spam emails o What is Hacking, and protecting against it
	Session 3: Troubleshooting, software installation and protection	▪ Software installation (Example: Installing an electronic Dictionary) ▪ Utilities: o What is file compression and why it is needed o File compression applications (Winzip, other programs) o Learning to compress files and folders using Windows default options (Zip, rar)

Unit 3 Using Productivity Applications (Word Processing) (Microsoft Word, OpenOffice.org Writer) (2 weeks/ 6 hours)		
Week #	**Session/Main topics**	**Details of sub-topics**
Weeks 6 and 7	**(6 Sessions)** Using Productivity Applications (Word Processing) (Microsoft Word, OpenOffice.org Writer)	▪ General introduction to application window ▪ Creating, saving & opening documents ▪ Formatting, editing Pages, text & paragraphs ▪ Adding pictures to pages (Clipart & from file) ▪ Working with tables, charts & graphs ▪ Working with Diagrams (Using "draw" feature) ▪ Print preferences, printer properties and printing a document ▪ Using preset and advance features ▪ Using word processing to create classroom instruction documents (diagrams, lesson plan, worksheets, flash cards, brochures, newsletters) and motivation tool (certificate)

Unit 4: Using Productivity Applications (Spreadsheet) (Microsoft Excel, OpenOffice.org Calc) (2 weeks/ 6 hours)		
Week #	Main topics	Sub-topics
Weeks 8 & 9	**(6 Sessions)** Using Productivity Applications (Spreadsheet) (Microsoft Excel, OpenOffice.org Calc)	▪ General introduction to spreadsheets interface ▪ Creating, saving & opening spreadsheet ▪ Using worksheets (renaming and adding worksheets) ▪ Adding and working with information (formatting cells, adding comments, inserting hyperlinks) ▪ Changing the look of information with spreadsheet (cell alignment, changing font face and size, adding background color to cells and rows, inserting picture) ▪ Doing Mathematics (formulas: addition, subtraction, average, logic formula etc) ▪ Making charts (formatting i.e. background, legend, color of bars, creating pictograph) ▪ Including print properties ▪ Using spread sheets to create class room management documents (seating chart, electronic attendance register, result sheet, student academic performance graph, bio data)

Unit 5: Using Productivity Application (Multimedia) Microsoft PowerPoint, OpenOffice.org Impress		
Week #	Main topics	Sub-topics
Weeks **10 & 11**	**(6 Sessions)** Using Productivity Applications (Multimedia Presentation) (Microsoft PowerPoint, OpenOffice.org Impress)	▪ General introduction to multimedia application ▪ Creating, saving & opening presentation ▪ Viewing and working with slides ▪ Building presentations (adding, moving/sorting and duplicating a slide) ▪ Making slides look good (applying templates, changing color schemes, slide layout, background) ▪ Adding pictures and artistic effects (inserting compressing pictures , applying borders to pictures and other objects, adding 3-D effects, ▪ Adding sounds, movies and links ▪ Adding animations and special effects (applying slide transition, adding & customizing animations, adding action buttons, turning off animations) ▪ Setting up and playing presentation (printing presentations, setting time) ▪ Using multimedia to create presentation (school profile, lesson presentation, action plans, assignment presentation, etc)
Unit 6: Making Connections (3 weeks/ 9 hours)		
Week #	Main topics	Sub-topics
Weeks **12 & 13**	**(3 sessions)** Searching and saving web resources (images, audio, videos)	▪ Searching multimedia resources ▪ Uploading, downloading documents and other files (pictures, audio, etc.) ▪ Saving information from Web pages ▪ Interfacing with online multimedia resources (Example: videos on www.youtube.com about learning computer)
	(3 sessions) Communicating through Internet	▪ Creating and using e-mail to communicate and collaborate o E-mail management (creating, sorting, forwarding, searching, flagging, deleting) o Attaching document (files & folders) ▪ Using Web 2.0, Using chat/talk applications (Skype, GoogleTalk, etc.)
Week 14	**(3 sessions)** Online collaboration applications	▪ Introduction to online collaboration ▪ Working with an online collaboration application (Application: Google docs) ▪ Creating, importing and editing a file – document, spreadsheet & presentation) ▪ Sharing and accessing online files

Unit-7: Using multimedia devices and resources (1 week/ 3 hours)		
Week #	Main topics	Sub-topics
Week 15	**(3 sessions)** Using multimedia digital devices with a computer	▪ Introduction and examples of digital devices (camera, mobile phone, digital voice recorders, etc.) ▪ Using a digital camera and other technologies i.e. mobile phones to down-load images, and videos ▪ Transferring images and videos to computer from mobile devices (mobile phone, camera) ▪ Using multimedia applications (Examples: Real Player, Windows Media Player, Quick Time Player etc.) to play educational audio & video clips

Unit 8: Use of computer in daily life (1 weeks/ 3 hours)		
Week #	Main topics	Sub-topics
Week 16	**Session-1**: Working in the information society	▪ Uses of computer o at workplace, o in community, o for communication, o education & research, literacy o entertainment
	Session-2: Computer ethics	▪ Code of ethics ▪ Computer crime ▪ Copyrights Law and fair-use guidelines and plagiarism
	Session-3: Computer-Assisted Instruction (CAI)	▪ Computer as a teacher ▪ Use of computer-assisted instruction ▪ Online education (Example: Virtual University of Pakistan

Course Grading Policy

The ability to use a computer can only really be judged by having someone complete a task using a computer. A written exam is of almost no use as an assessment method for this course.

Your instructor will give you a series of assignments and tasks to perform throughout the course, with several at the mid-point and end of the course. These will be graded. Your instructor should tell you in advance which courses will be graded.