Syllabus

COMPUTER LITERACY

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Year/semester
Year 1, semester 2

Duration (hours)
16 weeks/48 hours (excluding out-of-class laboratory time)

Credit value
3 credits

Prerequisites
F.A./F.Sc.

Course description

This course will prepare teachers to understand, use, and apply technologies (computers, digital cameras, mobile phones) in effective, efficient, and ethical ways. Advanced technologies are more pervasive today than they have ever been, and their uses are expanding continually. Information and Communications Technology (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 lifelong learners in the twenty-first century.

Course outcomes

Student Teachers will:

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

Learning and teaching approaches

This is a course about developing the skills required to use a computer, and it is expected that all of the sessions be implemented practically in the computer lab. The course is based on an interactive exploration approach using a lecture-demonstration method with various teaching techniques, including K-W-H-L charts, brainstorming, thought-provoking questions, think pair-shares, reflections, discussions, etc. The instructional strategies recommended focus the development of knowledge, skills, and attitude.

Each planned session is 60 minutes long.

Allocate two hours of practice for Student Teachers for each hour of teacher-facilitated instruction. For a three-credit-hours course, it takes three hours of teacher-facilitated instruction with six hours of Student Teacher practice per week.

Semester outline

1 UNIT 1:		Introduction to computers (1.5 weeks/4 hours)
Week #	Topics	Sub-topics
1	**Session 1:** History and classification of computers	Introduction to computers Examples of computers: personal computers (desktops, laptops, pocket PCs/handheld computers) and mainframe computer systems Brief history of computers with timeline
	Session 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.): knowing the mouse and keyboard • The computer, using the mouse and keyboard: practicing to input data using a mouse (left-click, right-click, move, drag, track ball, double-click, etc.)
	Session 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?
2	**Session 1:** Computer software	Operating/system software introduction Application software: Usage and types (word processing, spreadsheets, multimedia, etc.)

2 UNIT 2:		Learning computer basics and Internet (3.5 weeks/11 hours)
Week #	Topics	Sub-topics
2 (cont.)	**Session 2:** Interfacing with computer	Hands-on activities regarding user window (minimizing, maximizing, and closing a window; menu; status and other bars; etc.) Working with the operating system • Start/shut down (menu, purpose, etc.) • User window (minimizing, maximizing, and closing a window; menu; status and other bars; etc.) • Basic concepts of desktop, icons, shortcuts, etc.
	Session 3: Interfacing with computer (cont.)	Working with the operating system (cont.) • Control panel • Using 'Help' • Selecting a printer, changing a default printer, checking the status of a printer
3	**Session 1:** Interfacing with computer (cont.)	Concept of files and folders (types of files and extensions) File and folder properties: renaming a folder, etc. (practicing to input data using a keyboard)
	Session 2: Interfacing with computer (cont.)	Types of storage devices Practically knowing and accessing storage devices/drives
	Session 3: Interfacing with computer (cont.)	Data transfer between different storage devices (example: to/from USB flash disk to hard disk etc.)

UNIT 2:		Learning computer basics and Internet (3.5 weeks/11 hours)
4	**Session 1:** Internet basics	Introduction to the 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 (cont.)	Interfacing with the Internet-browser window (browser menu bar, buttons, scrolling, clicking on links, etc.) Search engines
	Session 3: Internet basics (cont.	Using specialized websites (see reference Web links) Searching for information (search tips etc.)
5	**Session 1:** Introduction to different types of networks (LAN/WAN, wireless)	Brief introduction to: • Local area networks (LAN), sharing on a LAN, wide area networks (WAN), wireless networks • Sharing on networks and network-related security issues • Firewalls
	Session 2: Security (identity and virus protection)	Security (identity and virus protection) • Protection against virus and spam emails • Defining 'hacking' and protecting against it
	Session 3: Troubleshooting, software installation, and protection	Software installation (example: installing an electronic dictionary) Utilities • What is file compression, and why is it needed? • File-compression applications (WinZip, other programs) • Learning to compress files and folders using Windows default options (zip, rar)

3 UNIT 3:		Using productivity applications (word processing) Microsoft Word, OpenOffice.org Writer (2 weeks/6 hours)
Week #	Topics	Sub-topics
6 & 7	**(6 sessions)** Using productivity applications (word processing) Microsoft Word, OpenOffice.org Writer	General introduction to application window Creating, saving, and opening documents Formatting and editing pages, text, and paragraphs Adding pictures to pages (clip art and from file) Working with tables, charts, and graphs Working with diagrams (using the '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 plans, worksheets, flash cards, brochures, newsletters) and motivation tools (certificates)

4 UNIT 4:		Using productivity applications (spreadsheets) Microsoft Excel, OpenOffice.org Calc (2 weeks/6 hours)
Week #	Topics	Sub-topics
8 & 9	**(6 sessions)** Using productivity applications (spreadsheets) Microsoft Excel, OpenOffice.org Calc	General introduction to spreadsheets interface Creating, saving, and opening spreadsheets Using worksheets (renaming and adding worksheets) Adding and working with information (formatting cells, adding comments, inserting hyperlinks) Changing the look of information with spreadsheets (cell alignment, changing font face and size, adding background colour to cells and rows, inserting picture) Doing mathematics (formulas: addition, subtraction, average, logic formula, etc.) Making charts (formatting, i.e. background, legend, colour of bars, creating pictograph) Including print properties Using spreadsheets to create classroom-management documents (seating charts, electronic attendance registers, result sheets, student academic-performance graphs, bio data)

5 UNIT 5:		Using productivity application (multimedia) Microsoft PowerPoint, OpenOffice.org Impress
Week #	Topics	Sub-topics
10 & 11	**(6 sessions)** Using productivity applications (spreadsheets) Microsoft PowerPoint, OpenOffice.org Impress	General introduction to multimedia application Creating, saving, and opening presentations Viewing and working with slides Building presentations (adding, moving/sorting, and duplicating slides) Making slides look good (applying templates and changing colour schemes, slide layout, and background) Adding pictures and artistic effects (inserting and compressing pictures, applying borders to pictures and other objects, adding 3D effects) Adding sounds, movies, and links Adding animations and special effects (applying slide transitions, adding and customizing animations, adding action buttons, turning off animations) Setting up and playing presentations (printing presentations, setting time) Using multimedia to create presentations (school profiles, lesson presentations, action plans, assignment presentations, etc.)

6 UNIT 6:		Making connections (3 weeks/9 hours)
Week #	Topics	Sub-topics
12 & 13	**(3 sessions)** Searching and saving Web resources (images, audio, videos)	Searching multimedia resources Uploading and 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 to use a computer)
	(3 sessions) Communicating through the Internet	Creating and using email to communicate and collaborate • Email management (creating, sorting, forwarding, searching, flagging, deleting) • Attaching documents (files and folders) • Using Web 2.0 and chat/talk applications (Skype, Google Talk, etc.)

	(3 sessions) Online collaboration Applications	Introduction to online collaboration Working with an online collaboration application (application: Google Docs) Creating, importing, and editing a file (documents, spreadsheets, and presentations) Sharing and accessing online files

7 UNIT 7:		**Using multimedia devices and resources (1 week/3 hours)**
Week #	Topics	Sub-topics
15	**(3 sessions)** Using multimedia digital Devices with a computer	Introduction to and examples of digital devices (cameras, mobile phones, digital voice recorders, etc.) Using a digital camera and other technologies (i.e. mobile phones to download images and videos) Transferring images and videos to a computer from mobile devices (mobile phones, cameras) Using multimedia applications (examples: RealPlayer, Windows Media Player, QuickTime Player, etc.) to play educational audio and video clips

8 UNIT 8:		**Use of computer in daily life (1 week/3 hours)**
Week #	Topics	Sub-topics
16	**Session 1:** Working in an information society	Uses of the computer • In the workplace • In the community • For communication • For education, research, and literacy • For entertainment
	Session 2: Computer ethics	Code of ethics Computer crime Copyright laws, 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 little value in assessing computer skills.

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