Riphah International Colleges

A Project of Riphah International University

Course Outline

Course Information	**Course Title**	**Applications of Information and Communication Technologies**		
	Course ID	SS1453	**Course Type**	GENERAL
	Credit hours	3 (2-1)	**Hours per week (C-L)**	2-3 (5)
	Program(s)	ADP (Computing) in CS/AI/DS	**Preferred Semester**	1st Semester
	Date		**Version**	Version 3.0
Course Description	This is an introductory course in Computer Science designed for beginners. Apart from leading the participants through a whirlwind history of computing, the course also develops a feel for web programming through a series of lectures that help the students develop their own web page. Main objective of the course is to build an appreciation for the fundamental concepts in computing and to become familiar with popular PC productivity software.			
Course Objectives (CO)	*The objective of this course is to enable students to understand;*			
	No.	**Objective**		
	CO1.	An understanding of the basic components, use of different ICT systems and networks in differentareas/domains		
	CO2.	An understanding the impact of current and new technologies on methods of working in the dailylife		
	CO3.	An understanding of pros and cons of different ICT components		
	CO4.	Life-long learner		
	CO5.	Know the different ICT professional roles and future possibilities		
Lecture type	**Class room Lectures, Lab Sessions, Presentation**			
Prerequisites	NIL			
Follow up Courses				

Text Book and Reference Books

	Title	Edition	Authors	Publisher	Year	ISBN
Textbook	Understanding Computers: Today and Tomorrow, Comprehensive,	16th edition	Deborah Morley, Charles S. Parker,	Cengage Learning	2017	
Reference Books	Information and Communication Technology,	3rd edition	Graham Brown, David Watson,		2021	
Reference Material	Any reference material required will be provided by Teacher					
Course Software or Tool						

Grade Distribution:

Evaluation Type	Percentage (%)	Activities
Assignments & & Presentations	10%	Min. 4 in the semester
Quiz & Project	10%	Min. 4 in the semester
Lab	15%	All Lab Activities are necessary
Mid Term	25%	Contents from Week 1 to Week 8 will be included
Final Term	40%	Contents from Week 8 to Week 17
Total Points	100	
Methods of Evaluation	Quizzes, Assignments, Mid/Final exam, Lab, Project	
Notes	Labs are managed and evaluated separately	

General Classroom Norms:

- Class attendance is mandatory. You may miss up to 25% (8 out of 32 sessions) class sessions but save it for emergency only.
- In case you exceed this level, you will be withdrawn from the course.
- As a courtesy to the instructor and other students, be prepared to arrive at class and be in your seat on time.
- In addition, please note that each class lasts for 90 minutes (1.5 Hours).
- Also keep in mind some general rules as given below:
- Cell phones should be powered off or kept on silent mode.
- Eatables should be avoided in the class.
- Disruptive behaviors are not acceptable in the class.
- The Dress Code has to be observed, no warnings will be given, and violators will be asked politely to leave the class and consequently will be marked absent or referred to the discipline committee for further actions.

Course Contents:

Week	Lecture No	Lecture Contents	Activities
Week 1	**Lect. 1**	**The Role of ICT in daily life** ♦ Exploring the Computer Based Systems: Example includes: ♦ School management systems, ♦ Booking systems, ♦ Banking applications, ♦ Computers in medicine (Information systems in medicine, 3D printers), ♦ Expert systems, ♦ Computers in the retail industry, ♦ Recognition systems, ♦ Satellite systems	
	Lect. 2	♦ The main components of computer systems ♦ Physical Component ♦ Computer Based Systems ♦ Software and Programs ♦ Communication Technologies	
Week 2	**Lect. 3**	**Physical Component of Computer Systems** ♦ Types of Computers ♦ Desktop Computers, Mobile Computers, Mainframes	Assignment No 1
	Lect. 4	♦ Central Processing Unit (CPU) ♦ The role of the CPU in processing instructions entered into the computer in order to produce an output ♦ Internal memory ♦ Cache, Characteristics of ROM and RAM	
Week 3	**Lect. 5**	**Input and output devices** ♦ Input devices ♦ keyboard, numeric keypad, pointing devices, remote control, joystick/driving wheel, touch screen (as an input device), scanners, camera, microphone, sensors, ♦ Direct data entry ♦ Magnetic stripe reader, chip and PIN reader, Radio Frequency Identification (RFID) reader, Optical Mark Recognition/Reader (OMR), Optical Character Recognition/Reader (OCR), bar code reader, QR scanner ♦ Output devices ♦ monitors, touch screen (as an output device), multimedia projector, laser printer, inkjet printer, dot matrix printer, plotter, 3D printers, speaker, actuator	Quiz/Test 1
	Lect. 6	♦ Storage devices ♦ Characteristics, uses, media, advantages and disadvantages of storage devices including magnetic, optical and solid-state Magnetic drives including fixed and portable magnetic hard drives, magnetic	

		tape drives Optical drives including CD, DVD, Blu-ray Fixed and portable solid-state drive (SSD) including SSD, pen drive, flash drive	
Week 4	**Lect. 7**	**The systems life cycle** ♦ Analysis Design ♦ Development ♦ Testing ♦ Implementation ♦ Documentation ♦ Evaluation ♦	
	Lect. 8	**Communication** ♦ Communication media (Characteristics and uses including newsletters, posters, websites, multimedia presentations, audio, video, media streaming and ePublications) ♦ Mobile communication	
Week 5	**Lect. 9**	**Networks and the effects of using them** ♦ Networks (Router, network interface cards, hubs, bridges, switches, wi-fi and Bluetooth, Cloud computing, Network types)	Assignment No 2
	Lect. 10	**Network issues and communication** ♦ Security issues regarding data transfer, Passwords, Other authentication methods, Anti-malware software, Electronic-conferencing	
Week 6	**Lect. 11**	**The Internet** ♦ Characteristics, ♦ uses, ♦ advantages and disadvantages of using the internet.	Quiz/Test 2
	Lect. 12	♦ Differences between the internets, an intranet, an extranet. Blog, forum, wiki, social networking. ISP, HTTP, HTTPS, FTP, SSL	
Week 7	**Lect. 13**	**The Internet** (Cont.) ♦ The Internet Protocol Suite ♦ Link Layer ♦ Internet Layer ♦ Transport Layer ♦ Application Layer Dynamic Host Configuration Protocol	
	Lect. 14	♦ Private IP Addresses and Network Address Translation	
Week 8	**Lect. 15**	♦ **The Domain Name System**	
	Lect. 16	♦ Revision	
Week 9	**Lect. 17**	**Mid Term Examination**	
	Lect. 18		
Week 10	**Lect. 19**	**Safety and security** ♦ Threats to data Protection of data	
	Lect. 20	**Modern Computing** ♦ Virtualization and Emulation Cloud Computing ♦ The Deep Web and Dark Web Bitcoin ♦ Virtual Reality and Augmented Reality **The Internet of Things**	
Week 11	**Lect. 21**	**Computer controlled systems** ♦ Robotics in manufacture, ♦ production line control,	Assignment No 3

		♦ autonomous vehicles,	
	Lect. 22	♦ Advantages and disadvantages of using computer-controlled systems rather than humans	
Week 12	**Lect. 23**	**Digital Economics** ♦ Digital Goods and Services Production of Digital Services ♦ In-House Production ♦ Commons-Based Peer Production Crowdsourcing ♦ Open-Source Software	Quiz/Test 3
	Lect. 24	♦ Value Models ♦ Value Chain ♦ Value Shop ♦ Value Network	
Week 13	**Lect. 25**	**Entertainment Industry** ♦ Animation IndustryGame Industry	
	Lect. 26	**Simulations and their uses**	
nWeek 14	**Lect. 27**	**The World Wide Web** ♦ Overview of the World Wide Web ♦ The Distributed Web ♦ The Addressable Web	Assignment No 4
	Lect. 28	♦ The Linked Web ♦ The Protocols of the Web ♦ The Searchable Web ♦ The Languages of the Web (explain different languages and their characteristics)	
Week 15	**Lect. 29**	**The World Wide Web** (Cont.) ♦ Structuring the Web with HTML	Quiz/Test 4
	Lect. 30	**The World Wide Web** (Cont.) ♦ Styling the Web with CSS	
Week 16	**Lect. 31**	**The World Wide Web** (Cont.) ♦ Scripting the Web with JavaScript	
	Lect. 32	**The World Wide Web** (Cont.) ♦ Structuring the Web's Data with JSON and XML	
Week 17	**Lect. 33**	Web BrowsersWeb Servers	
	Lect. 34	**Revision & Presentations**	
Week 18	**Final Exams**		

Lab Contents (IICT)

Week	Lecture No	Lecture Contents	Activities
Week 1	**Lect. 1 & 2**	**Introduction to Microsoft Office & Word** • Learn about Microsoft Office. • Common applications of MS Office. • Introduction about MS Word. • Major Parts of MS Word. • Shortcut keys of MS Word.	Installation of Microsoft office tool on mobile and pcs
Week 2	**Lect. 3 & 4**	• What are Styles in MS Word? • What is Find and Replace text in MS Word? • How to check Spelling and Grammar in MS Word? • How to add Themes in MS Word Document? • How to add Watermark and how to use in MS Word? • Header & Footer in MS Word? • How to add border in MS Word?	**Lab Assignment** Lab Tasks of creating MS Word Document applying all features
Week 3	**Lect. 5 & 6**	**Introduction to Microsoft PowerPoint** • Introduction about Microsoft Office PowerPoint. • How to create presentation in PowerPoint • How to add new slide in PowerPoint. • How to add text format. • How to add picture, chart, shapes, icon etc. in PowerPoint.	**Lab Assignment** Lab Tasks of creating MS PowerPoint Presentation applying all features,
Week 4	**Lect. 7 & 8**	• Theme in PowerPoint. • PowerPoint Designer. • Transition in PowerPoint. • Animation in PowerPoint. • Adding Audio & video	**Lab Assignment** Lab Tasks of Using of Transitions & Animations in your presentations
Week 5	**Lect. 9 & 10**	**Introduction to Microsoft Excel.** • Introduction about MS Excel. • Major Components of MS Excel. • MS Excel Interface. • Basic Functions. • Charts in Excel	**Lab Assignment** Lab Tasks of Using Functions and Formula in worksheets
Week 6	**Lect. 11 & 12**	• Logical Operators. • Error in Excel. • Formula Tab / Conditional Formulas. • How to write Conditional Formulas. • Conditionals Formatting and Its Working	**Lab Assignment** Lab Tasks of Using Formula in worksheets
Week 7	**Lect. 13 & 14**	**Introduction to Microsoft Access.** • What is MS Access? • Important terms & objects of MS Access? • What are the Datatypes of MS Access? • Difference between MS Excel and MS Access.	**Lab Assignment** Working with MS Access
Week 8	**Lect. 15 & 16**	• How to create Database? • How to create Table? • How to write Queries in MS Access • Introduction about Google Suit	**Lab Assignment** Creating database using Access
Week 9	**Lect. 17 & 18**	**MID TERM**	
Week 10	**Lect. 19 & 20**	**Introduction about Cisco Packet Tracer** • Introduction about Cisco Packet Tracer. • Why we use Cisco Packet Tracer.	

		• What is Network Design. • What is IP Address. • Subnetworks • IP Address Classes.	
Week 11	**Lect. 21 & 22**	• Installation of Cisco Packet Tracer. • Download Link. • Star Topology	Installation and working of Cisco Packet Tracer
Week 12	**Lect. 23 & 24**	**Introduction about Algorithm & Flow Charts.** • Introduction of Algorithm. • Characteristics of Algorithm. • How to write an Algorithm. • Advantages of Algorithm. • Examples of Algorithm.	Assignment
Week 13	**Lect. 25 & 26**	**Introduction of Flow charts.** • History Flow-Charts. • Why we use Flow Charts. • Symbols of Flow Charts. • Tools for Flow Charts. • Examples of Flow Charts. • Control Structure of Algorithm and Flow Charts	Assignment
Week 14	**Lect. 27 & 28**	**Introduction about HTML** • What is HTML, why we use HTML. • HTML Elements and Tags. • How to Write HTML Tags, Explanation of Tags. • Types of HTML Tags, Text Formatting Tags.	
Week 15	**Lect. 29 & 30**	• Font Tag in HTML. • Background & Text Color Tag. • HTML Links	**Assignment** Creating webpages using HTML Tags
Week 16	**Lect. 31 & 32**	• Text Alignment, HTML Table. • Rowspan and Colspan in Table. • List Tags in HTML. • Order list with Code, Unorder list with Code. • Forms in HTML Code and Result	**Assignment** Creating Interactive webpages using HTML Tags
Week 17	**Lect. 33 & 34**	**LAB PAPER AND VIVA**	
Week 18	**Lect. 35 & 36**	**FINAL TERM EXAMINATION**	