



**COURSE DESCRIPTION FORM: CL-1000 Intro to Info. & Comm. Technologies (CS)**

**COURSE DESCRIPTION FORM**

**INSTITUTION:** FAST School of Computing, National University of Computer and Emerging Sciences, Islamabad

**BS (CS) – Fall 2025**

**PROGRAM TO BE EVALUATED**

**Course Description**

<b>Course Code</b>	CL-1000		
<b>Course Title</b>	Intro to Info. & Comm. Technologies		
<b>Credit Hours</b>	1		
<b>Prerequisites by Course(s) and Topics</b>			
<b>Grading Policy</b>	Absolute grading		
<b>Policy about missed assessment items in the course</b>	Retake of missed assessment items (other than midterm/ final exam) will not be held. For a missed midterm/ final exam, an exam retake/ pretake application along with necessary evidence are required to be submitted to the department secretary. Examination assessment and retake committee decides the exam retake/ pretake cases.		
<b>Course Plagiarism Policy</b>	Plagiarism in lab tasks/ final exam may result in F grade in the course. Plagiarism in an assignment will result in zero marks in the whole assignments category.		
<b>Assessment Instruments with Weights</b> (homework, quizzes, midterms, final, programming assignments, lab work, etc.)	<b>100% Practical</b>		
	Assessment Items	<b>Number</b>	<b>Weight (%)</b>
	Assignments	1	10
	Quiz	5	15
	Lab Task	14	20
	Presentation	1	10
	Class Participation	1	5
	Final Exam	1	40



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<b>Lab Instructors (if any)</b>	Mr. M Hamza, Mr. Zahoor-ul-hassan, Ms. Asma Tufail
<b>Course Coordinator</b>	Mr. M Hamza
<b>URL (if any)</b>	
<b>Current Catalog Description</b>	Basic computer knowledge, and basic introduction to system and application software, Number systems, Data representation, Modes of communication, web development, operating systems, Computer networks, and data management
<b>Textbook (or Laboratory Manual for Laboratory Courses)</b>	<ol style="list-style-type: none"><li>1) Charles S. Parker, Understanding Computers: Today and Tomorrow, Course Technology, 25 Thomson Place, Boston, Massachusetts 02210, USA</li><li>2) Livesley, Robert Kenneth. An introduction to automatic digital computers. Cambridge University Press, 2017.</li></ol>
<b>Reference Material</b>	<ol style="list-style-type: none"><li>1. Sinha, Pradeep K., and Priti Sinha. Computer fundamentals. BPB publications, 2010.</li><li>2. Goel, Anita. Computer fundamentals. Pearson Education India, 2010</li></ol>
<b>Course Learning Outcomes</b>	<div><b>A. Course Learning Outcomes (CLOs)</b>  At the end of the course the students will be able to:  <ol style="list-style-type: none"><li>1. Explain the basics of computer organization, software and communication components.</li><li>2. Describe and explain data representation in terms of number systems, the role of the computer networks for personal and professional uses.</li><li>3. Demonstrate the capabilities related to the main processes involved in ICT.</li><li>4. Demonstrate ethical use of GenAi.</li></ol></div>



	<b>B. Program Learning Outcomes</b>		
	For each attribute below, indicate whether this attribute is covered in this course or not. Leave the cell blank if the enablement is little or non-existent.		
	1. Computing Knowledge	Apply knowledge of mathematics, natural sciences, computing fundamentals, and a computing specialization to the solution of complex computing problems.	✓
	2. Problem Analysis	Identify, formulate, research literature, and analyze complex computing problems, reaching substantiated conclusions using first principles of mathematics, natural sciences, and computing sciences.	✓
	3. Design/Develop Solutions	Design solutions for complex computing problems and design systems, components, and processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.	✓
	4. Investigation & Experimentation	Conduct investigation of complex computing problems using research based knowledge and research based methods.	✓
	5. Modern Tool Usage	Create, select, and apply appropriate techniques, resources and modern computing tools, including prediction and modeling for complex computing problems.	✓
	6. Society Responsibility	Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal, and cultural issues relevant to the context of complex computing problems.	

	7. Environment and Sustainability	Understand and evaluate sustainability and impact of professional computing work in the solution of complex computing problems.	
	8. Ethics	Apply ethical principles and commit to professional ethics and responsibilities and norms of computing practice.	
	9. Individual and Teamwork	Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.	✓
	10. Communication	Communicate effectively on complex computing activities with the computing community and with society at large.	✓
	11. Project Management and Finance	Demonstrate knowledge and understanding of management principles and economic decision making and apply these to one's own work as a member or a team.	
	12. Lifelong Learning	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological changes.	

  

**C. Mapping of CLOs on PLOs**  
(CLO: Course Learning Outcome, PLOs: Program Learning Outcomes)

		PLOs											
		1	2	3	4	5	6	7	8	9	10	11	12
C L O s	1	✓									✓		
	2	✓											
	3	✓				✓					✓		✓
	4	✓				✓							✓



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5	✓				✓					✓	NCEA .FOR .001.D
6	✓				✓						✓
7	✓			✓						✓	

**Topics covered in the course with number of lectures on each topic** (assume 15 weeks of instruction and 1.5 hour lecture duration)

Topics to be covered:			
List of Topics	No. of Weeks	Contact Hours	CLO(s)
<b>Introduction to Computers:</b> <ul style="list-style-type: none"> <li>Advancements in computers</li> <li>Users</li> <li>Information Technology</li> <li>Data vs. Information</li> <li>Hardware vs. software.</li> <li>Application software vs. System Software</li> <li>COTS vs. Custom built software</li> <li>Types and classifications of Computers</li> <li>Modern Technologies</li> </ul>	1	3	1
<b>Personal Information Management and Presentation skills:</b> <ul style="list-style-type: none"> <li>Organize data on personal Computer</li> <li>Files organization for efficient retrieval for reuse</li> <li>Strategies for Effective Presentation</li> <li>Defining the objective, scope, and audience of the presentation</li> <li>Planning Your Presentation</li> <li>Material gathering</li> <li>Material organization strategies</li> <li>The Presentation Sequence</li> <li>Time management</li> <li>Opening and concluding</li> <li>Use of audio-visual aids</li> <li>Delivery and presentation.</li> </ul>	2	6	3



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	<b>Number Systems</b> <ul style="list-style-type: none"> <li>• Common number systems,</li> <li>• Conversions among basis</li> <li>• Common powers</li> <li>• Basic mathematical functions (Binary Addition, Multiplication)</li> <li>• Data Representation               <ul style="list-style-type: none"> <li>o Bits</li> <li>o Bytes</li> <li>o Words</li> <li>o Representation of –vet Numbers in Binary</li> </ul> </li> <li>• Computer Codes               <ul style="list-style-type: none"> <li>o ASCII</li> <li>o BCD</li> <li>o UNICODE</li> </ul> </li> </ul>	2	3	2	
	<b>Introduction to Internet:</b> <ul style="list-style-type: none"> <li>• WWW</li> <li>• Browsers</li> <li>• Domain name</li> <li>• Searching the internet               <ul style="list-style-type: none"> <li>o Google books</li> <li>o Google Scholar</li> </ul> </li> <li>• Computer Virus</li> <li>• Virus detection and prevention using antivirus software</li> </ul>	1	3	1	



	<b>Professional modes of Communication</b> <ul style="list-style-type: none"> <li>• Using Digital Communication Technologies</li> <li>• Modes of online communication</li> <li>• Advantages and Disadvantages</li> <li>• Do's and Don'ts</li> <li>• Email Etiquettes</li> <li>• Generating a professional Email-address</li> <li>• Writing Professional Emails</li> <li>• Scanning through Punctuation and Grammar</li> <li>• Using suitable tone</li> <li>• What is CC, BCC</li> <li>• Adding your signature to email</li> </ul>	1	3	1	
	<b>Operating System, Computer Networks:</b> <ul style="list-style-type: none"> <li>• Tasks OS can perform</li> <li>• Goals of OS</li> <li>• Storage Structure</li> <li>• Types of OS</li> <li>• OS Services</li> <li>• BIOS</li> <li>• Boot loader</li> <li>• Kernel</li> </ul>	1	3	1	
	<b>Operating System, Computer Networks:</b> <ul style="list-style-type: none"> <li>• Tasks OS can perform</li> <li>• Goals of OS</li> <li>• Storage Structure</li> <li>• Types of OS</li> <li>• OS Services</li> <li>• BIOS</li> <li>• Boot loader</li> <li>• Kernel</li> <li>• Introduction to Networks</li> <li>• Types of Networks</li> <li>• Components of Network</li> </ul>	1	3	1	



	<b>Web development</b> Introduction to html and its basic tags <ul style="list-style-type: none"> <li>● Inserting images</li> <li>● Designing Tables</li> <li>● Adding Animation</li> </ul>	2	6	3
	<b>Data Management and its applications</b> <ul style="list-style-type: none"> <li>● Introduction to database system</li> <li>● Types of data(structured , semi-structured, unstructured).</li> <li>● DBMS</li> <li>● Types of SQL</li> <li>● Data Dictionary</li> <li>● File Based Systems</li> </ul>	1	3	3
	<b>Ethical use of Gen-AI</b> <ul style="list-style-type: none"> <li>● Introduction to AI and Generative AI</li> <li>● How Generative AI works</li> <li>● Examples of Generative AI tools (ChatGPT, DALL·E, Copilot, Bard etc.)</li> <li>● Applications of Generative AI in daily life (writing, art, coding, education, entertainment)</li> <li>● Benefits of Generative AI</li> <li>● Limitations of Generative AI (accuracy, dependency, lack of true understanding)</li> <li>● Importance of using AI responsibly</li> <li>● Issues of plagiarism and originality (AI-written vs. human-written work)</li> <li>● Bias in AI systems (how AI may reflect unfair patterns from data)</li> </ul>	2	6	4
	Presentations	2	6	3
	Total	15	45	
<b>Laboratory Projects/Experiments Done in the Course</b>	Lab content provided at the end			





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<b>Programming Assignments Done in the Course</b>				
<b>Class Time Spent</b> (in percentage)	<b>Theory (%)</b>	<b>Problem Analysis (%)</b>	<b>Solution Design (%)</b>	<b>Social and Ethical Issues (%)</b>
	50	25	20	5
<b>Oral and Written Communications</b>	Every student is required to submit at least _2____written reports of typically _5____ pages and to make _1____oral presentation of normally ____10____minutes duration.			



**Lab/ Practical Component of the course**

COURSE CONTENTS (Lab/ Practical):			
Labs	Contents/Topics	<b>**Courseware Events</b>  (IT Lab/Case Study/ Assignment/ Presentation etc.)	Comments (if any)
<i>Lab-01</i>	<b>Keyboard Lessons &amp; Introduction to LMS</b> <ul style="list-style-type: none"> <li>• Introduction to LMS</li> <li>• Typing Essentials</li> <li>• Introduction to Typing Master</li> </ul>	Lab Task 1	
<i>Lab-02</i>	<b>Introduction to MS Word</b> <ul style="list-style-type: none"> <li>• Beginning in MS word</li> <li>• Formatting text</li> <li>• The Insert Tab</li> <li>• Margin Setting</li> <li>• Header/Footer</li> </ul>	Lab Task 2	
<i>Lab-03</i>	<b>Introduction to MS PowerPoint</b> <ul style="list-style-type: none"> <li>• Inserting a New Slide</li> <li>• Views                             <ul style="list-style-type: none"> <li>o Normal View</li> <li>o Slide Sorter View</li> </ul> </li> <li>• Slide Show</li> <li>• Notes Page</li> </ul> <b>Introduction to Adobe Spark</b> <ul style="list-style-type: none"> <li>• Creating PNG images</li> </ul> <b>Introduction to novorésumé</b> Creating Resume header with novoresume	Lab Task 3	
<i>Lab-04</i>	<b>MS PowerPoint- Inserting Objects</b> <ul style="list-style-type: none"> <li>• Inserting Graph &amp; Diagram</li> <li>• Inserting a Picture</li> <li>• Inserting a Sound file</li> <li>• Inserting a Video</li> <li>• Adding Animations</li> <li>• Adding Transitions</li> <li>• Saving Document</li> <li>• Printing Document</li> <li>• Creating Video</li> </ul>	Lab Task 4	



<p align="center"><b>Lab-05</b></p>	<p><b>Introduction to MS Excel</b></p> <ul style="list-style-type: none"> <li>• Launch Excel</li> <li>• Window Features</li> <li>• Spreadsheet Terms</li> <li>• Mouse Pointer Styles</li> <li>• Spreadsheet Navigation</li> <li>• Basic Steps for Creating a Spreadsheet</li> </ul> <p><b>Enter and Format Data</b></p> <ul style="list-style-type: none"> <li>• Create Spreadsheet</li> <li>• Adjust Columns Width</li> <li>• Type Text and Numbers</li> <li>• Undo and Redo</li> <li>• Insert and Delete Rows and Columns</li> <li>• Text and Number Alignment</li> <li>• Format Fonts</li> <li>• Format Numbers</li> <li>• Cut, Copy, and Paste Text</li> <li>• Print Spreadsheet</li> <li>• Exit Excel</li> </ul> <p><b>Basic Formulas</b></p> <ul style="list-style-type: none"> <li>• Create Formula</li> </ul> <p>Basic Steps for creating formulas</p>	<p align="center">Lab Task 5</p>	
<p align="center"><b>Lab-06</b></p>	<p><b>MS Excel- Formula Functions</b></p> <ul style="list-style-type: none"> <li>• Sum</li> <li>• Insert Function</li> <li>• Average</li> <li>• Maximum</li> <li>• Minimum</li> </ul> <p><b>Charts</b></p> <ul style="list-style-type: none"> <li>• Enter Data</li> <li>• Create a Chart</li> <li>• Change Chart Design</li> <li>• Change Chart Layout</li> <li>• Add Chart Title</li> <li>• Change Data Values</li> </ul>	<p align="center">Lab Task 6</p>	
<p align="center"><b>Lab -07</b></p>	<p><b>MS Access</b></p> <ul style="list-style-type: none"> <li>• Getting started with MS Access</li> <li>• Navigation pane</li> <li>• Example Databases</li> <li>• Creating your own DB</li> <li>• Types of views <ul style="list-style-type: none"> <li>o Design View</li> <li>o Datasheet view</li> </ul> </li> <li>• Creating a table</li> <li>• Inserting fields, setting up their data types</li> <li>• Adding records directly into datasheet view</li> <li>• Saving DB</li> </ul>	<p align="center">Lab Task 7</p>	



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<b>Lab -08</b>	<b>Email Writing</b> <ul style="list-style-type: none"><li>• Understanding Etiquettes of formal email writing</li><li>• Composing emails</li><li>• Appropriate vs. Inappropriate email address</li><li>• Appropriate vs. Inappropriate emails</li><li>• Writing Meaningful Subject</li><li>• Scanning Grammar, Spellings and punctuations</li><li>• Using suitable tone</li><li>• CC Vs.. BCC</li><li>• Adding Signature</li></ul>	Lab Task 8	
<b>Lab -09</b>	<b>Mail Merge</b>		
<b>Lab-09</b>	<b>Web Development</b>	Lab Task 9	
<b>Lab-10</b>	<b>Ethical Use of Gen-AI</b>	Lab Task 10	

**Practical/ Programming Work/ Tools:** MS Office (MS Excel, MS Word, MS PowerPoint, and MS Access), NovoResume and Adobe Spark