**THE UNIVERSITY OF LAHORE**

**Course Outline**

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| **CS-09101 : Introduction to Information & Communication Technologies Fall-2022** | |
| Credit Hours | (3+1) |
| Weekly tuition pattern | 2 session lectures (90 min each)  1 Lab (180 min each) |
| Prerequisites: | -- |
| Course Instructor | samra kanwal, mariya bibi, m Abdullah, naila rafique, bilal Hussain, shahid Iqbal, rabia ranjha, maria nazir, tahseen Fatima, asrar ahmad, asmara akram, nimra shafiq, mishal muneer, hamid sanan |
| Syllabus Designed By | Dr. Muhammad Nadeem Iqbal |

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| **1- Course Description** | | | |
| Information and communication are two giants which are fueling the IT revolution. In this course, the students, having some know-how in general and the ones having no know-how in particular, are given an orientation about the computer system and its components. Particularly, a breadth wise survey is carried out so that the students may understand the necessary nitty gritties of the enterprise of computing. Almost all the major and notable branches of computing are covered to the students so that they may become in a position to select a particular field of their interest. The major components include the hardware, software, operating systems, Boolean algebra, software engineering, artificial intelligence etc. Besides, the main focus has been put on giving the students an orientation of the programming. They are given a feel about the three fundamental structures of programming, i.e., sequential, selection and iteration. Once they get grounding in these structures, it becomes far more easier for them to digest the coming programming courses. | | | |
| **2- Objectives** | | | |
| Upon successful completion of the course, a student should be:   1. To understand the basic components of the computer system. 2. To have a know how about the different generations of the computers. 3. To have an appreciation about the different computer domains and the fields. 4. Have knowledge about the algorithms, flowcharts and the different programming constructs. | | | |
| 3- Course Learning Outcomes (CLOs) |  |  | |
| At the end of the course the students will be able to: | Domain | BT Level\* | Graduating Attributes  (GAs) of PLOs |
| 1. understand the computer systems, how the different components interact with each other. | C | 2, 3 | GA1, GA2 |
| 2. know the different hardwares and software systems, operating systems, systems software, application software, utility programs, device drirvers. | C | 4, 5 | GA2 |
| 3. Design the flowchart diagrams, pseudocode, algorithms | C | 3 | GA4 |
| 4. understand and design the fundamental constructs of programming like sequence, selection, iteration. | C | 6 | GA2, GA3, GA4 |
| \* BT= Bloom’s Taxonomy, C= Cognitive domain, P= Psychomotor domain, A= Affective domain | | | |
| 4- Course Contents | | | |
| Computers, types of computers (digital, analog, hybrid), classification of computers (super, mainframe, mini and microcomputers), history of computers, generation of computers, Input devices, Pointing , scanning, reading devices Output Devices, CPU and its parts functions ( CU,ALU, Registers), CPU Instruction cycle, Memory & its types: RAM (SRAM,DRAM), ROM ( PROM, EPROM, EEROM), Cache types, RAM Cache & its levels, Disk cache, Storage devices & its examples, Number systems, non-positional and positional number system, Decimal, Binary, Octal and Hexadecimal number system. Conversion from one number system to another number system, Boolean Logic Gates  AND, NAND, OR, NOR, XOR, XNOR and Not Gate, Detail discussion on Algorithms, Flowcharts designing, Pseudo Code with examples, Introduction to C++ Programming, Structure and Elements of C++ Program, Phases of a C++ program, Writing a first C++ program, Introduction to IDE, Input and Output, Escape Sequences, Arithmetic Operators, Assignment Operator, Arithmetic Assignment Operators, Relational Operators, Logical Operators, One-Way Selection Using the if-statement, Two-Way Selection Using the if…else statement, Examples, switch cases basics, while loop. | | | |
| 5- Teaching Methodology / Course Structure | | | |
| Lectures, Written Assignments, Practical labs, Semester Project, Presentations | | | |
| 6- Course Assesment | | | |
| Sessional Exam, Home Assignments, Quizzes, Project, Presentations, Final Exam | | | |
| 7- Text | | | |
| 1. BookName : Introduction to Computers, 6th International Edition, Peter, N (Author). McGraw-Hill. 2. BookName : C++ How to Program 5th Ed., Deitel and Deitel (Author) 3. BookName : Starting out with C++ by Tony Gaddis (Author) | | | |
| 8- Reference Materials | | | |
| 1. Using Information Technology: A Practical Introduction to Computer & Communications. 6th Edition. Williams, S. McGraw-Hills. 2. Computers, Communications & information: A user's introduction Sarah, E. Hutchinson | | | |
| **9- Course Duration** | | | |
| This course will be held twice a week of 1.5 hours class duration. | | | |
| **10- Course style** | | | |
| The course will be delivered in a classroom environment. | | | |
| 11- Additional Course Requirement | | | |
| In addition to the objectives of this course, students are expected to gain skills to develop the flowcharts, write the pseudocodes and implement them in programming tools. | | | |
| 12- Course Outline | | | |
| The lecturers are supposed to complete the following topics/sub-topics before the mid/final term examination as prescribed in the course outline below: | | | |

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| **WEEK** | **Topics/Sub topics** |  |
| 01 | Introduction  MS Word – Exercise # 1  MS Word – Exercise # 2 |  |
| 02 | MS Word – Exercise # 3  MS Word – Exercise # 4 | **Assignment 1** |
| 03 | MS PowerPoint – Exercise # 1  MS PowerPoint – Exercise # 2 |  |
| 04 | MS PowerPoint – Exercise # 3  MS PowerPoint – Exercise # 4 | **Quiz 1** |
| 05 | MS Excel – Exercise # 1  MS Excel – Exercise # 2 |  |
| 06 | MS Excel – Exercise # 3  MS Excel – Exercise # 4 | **Assignment 2** |
| 07 | MS Excel – Exercise # 5  MS Excel – Exercise # 6 | **Quiz2** |
| 08 | **Mid – Term Examination** |  |
| 09 | Introduction to HTML5.  Basics Tags of HTML5.  Hyper Linking  Heading Tags  Formatting Tags |  |
| 10 | Introduction to C++ programming, structure and elements of C++ program, phases of C++ program, writing a first C++ program. |  |
| 11 | Introduction to IDE, input and output, escape sequences, Variables, data types | **Assignment 3** |
| 12 | Arithmetic operators, assignment operators, arithmetic assignment operator, relational operator, logical operator |  |
| 13 | Precedence and associativity of operators, Postfix and prefix increment operator and decrement operator | **Quiz 3** |
| 14 | One way selection using the if statment, two way selection using the if---else statments, examples. |  |
| 15 | If---else practice problems hand on, if---else if---else hands on practice problems. Switch cases basics |  |
| 16 | **Final Examination** |  |

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| **13- Assessment Criteria** |
| |  |  |  | | --- | --- | --- | | **ASSESSMENT CRITERIA** | | | | **No.** | **Assessment** | **Percentage** | | 1. | Quiz/ Assignment | 10% | | 2. | Midterm | 20% | | 3. | Final | 40% | | 4. | Class (Project + Presentation) | 5% | | 5. | Lab (Task + Project) | 25 % (15+10) % | |  | Total | 100% | |
| **14- Attendance Requirements** |
| You are expected to attend all lectures, seminars, tutorials, and lab sessions or any other classroom activity announced. Where you fail to attend classes, you cannot expect the lecturer to brief you on what you have missed. You are responsible for your attendance, not the academic staff. Attendance at tutorials and lab sessions will be strictly monitored, and failure to attend will be taken into account.  **Note: Minimum of 75% Attendance** in lectures/lab sessions/seminars (if any) are required for a student to sit in the Final-Term examination.  **Etiquette:** Please keep all cell phones turned OFF during class. If your activities during class are deemed disruptive, you will be asked to leave. |
| 15- Submission and Collection of Assignment |
| All assignments should be handed in at the beginning of the class sessions when they are due. All assignments may be handed back during scheduled classes. |
| **16- General Information** |
| Students are required to be familiar with the university code conduct, and to abide by its terms and conditions.  **16.1 Copying of Copyright Material by Student**  A condition of acceptance as a student is the obligation to abide by the University’s policy on the copying of copyright material. This obligation covers photocopying of any material using the University’s photocopying machines, and the recording off air, and making subsequent copies, of radio or television broadcasts, and photocopying textbooks. Students who flagrantly disregard University policy and copyright requirements will be liable to disciplinary action under the Code of Conduct.  **16.2 Academic Misconduct**  Please refer to the Code of Conduct for definitions and penalties for Academic Misconduct, plagiarism, collusion, and other specific acts of academic dishonesty. Academic honesty is crucial to a student's credibility and self-esteem, and ultimately reflects the values and morals of the University as a whole. A student may work together with one or a group of students discussing assignment content, identifying relevant references, and debating issues relevant to the subject. Academic investigation is not limited to the views and opinions of one individual, but is built by forming opinion based on past and present work in the field. It is legitimate and appropriate to synthesize the work of others, provided that such work is clearly and accurately referenced. Plagiarism occurs when the work (including such things as text, figures, ideas, or conceptual structure, whether verbatim or not) created by another person or persons is used and presented as one’s own creation, unless the source of each quotation or piece of borrowed material is acknowledged with an appropriate citation. Encouraging or assisting another person to commit plagiarism is a form of improper collusion and may attract the same penalties. To prevent Academic Misconduct occurring, students are expected to familiarize themselves with the University policy, the Subject Outline statements, and specific assignment guidelines. Students should also seek advice from Subject Leaders on acceptable academic conduct.  **16.3 Guidelines to Avoid Plagiarism**  Whenever you copy more than a few words from any source, you must acknowledge that source by putting the quote in quotation marks and providing the name of the author. Full details must be provided in your bibliography. If you copy a diagram, statistical table, map, etc., you must acknowledge the source. The recommended way is to show this under the diagram. If you quote any statistics in your text, the source should be acknowledged. Again full details must be provided in your bibliography. Whenever you use the ideas of any other author you should acknowledge those, using the APA (American Psychological Association) style of referencing.  Students are encouraged to co-operate, but collusion is a form of cheating. Students may use any sources (acknowledged of course) other than the assignments of fellow students. Unless your Subject Leader informs you otherwise, the following guideline should be used: Students may work together in obtaining references, discussing the content of the references and discussing the assignment, but when they write, they must write alone  **16.4 Referencing For Written Work**  Referencing is necessary to acknowledge others' ideas, avoid plagiarism, and allow readers to access those others’ ideas. Referencing should:  1. Acknowledge others' ideas  2. Allow readers to find the source  3. Be consistent in format and  4. Acknowledge the source of the referencing format  To attain these qualities, the school recommends use of either the Harvard or American Psychological Association style of referencing, both of which use the author/date.  **16.5 Referencing Standards**  APA style referencing |
| **17- Approval** |
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