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**Department of Software Engineering (SWE)**

**Faculty of Science and Information Technology (FSIT)**

**Daffodil International University (DIU)**

**(Version 1.0)**

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| **PART A: INTRODUCTION** | | | | | | | | | | | | | | |
| **1** | **Course Code** | | | | SE 111 | | | | | | | | | |
| **2** | **Course Title** | | | | Computer Fundamental | | | | | | | | | |
| **3** | **Course Type (Core/ Elective)** | | | | Core | | | | | | | | | |
| **4** | **Level/Term** | | | | L1-T1 | | | | | | | | | |
| **5** | **Academic Session** | | | | Spring-2021 | | | | | | | | | |
| **6** | **Course Instructor** | | | | Khalid Been Md. Badruzzaman Biplob (KBB) | | | | | | | | | |
| **7** | **Prerequisite** | | | | None | | | | | | | | | |
| **8** | **Credit Value** | | | | 3.0 | | | | | | | | | |
| **9** | **Contact Hours** | | | | 3 Hours Per week | | | | | | | | | |
| **10** | **Total Marks** | | | | 100 | | | | | | | | | |
| **11** | **Course Summary** | | | | | | | | | | | | | |
|  | Computer Fundamental is the foundation course for Software Engineering students. The Goal of this course is to prepare the foundation of students for subsequent SWE courses, such as Structured Programming, Algorithms, Data Structures, etc. Students should therefore learn the basics of program flow, i.e. how programs are logically put together. In addition, the students should practically feel how instructions work on data and the need for both electronic and permanent storage. They should learn the need for translation. The course would include number systems and highlight the difference between text and numbers for representation and storage. The hardware and software concepts should be taught in relation to how the various parts of a computer work with data and instructions to produce the required output and relate this to the data processing cycle. | | | | | | | | | | | | | |
| **12** | **Course Objectives** | | | | | | | | | | | | | |
|  | The goal of this course is to introduce the students about the concept of modern operating system principles. The main objectives of this course are,  1. To explain and solve problems on conditional statement, loop and flowchart  2. To explain and analyze the data & information, Sequence & repetition and conditional system  3. To learn about computer basic system, codes, number system and operation of logic gate.  4. To explain and learn about on computer devices, Memory and security system | | | | | | | | | | | | | |
| **13** | **Course Learning Outcomes (CLO)** | | | | | | | | | | | | | |
|  | **By the end of semester, students should be able to:**  **CLO1: Know** the variables, Loops, errors in logical flow in the control structures of simple programs as well as correct the logic  **CLO2: Know** the basic computer system, computer codes, convert number systems, logic gates and basic concepts on microprocessors and microcomputers.  **CLO3: Know** the condition, identify errors in logical flow in flowcharts as well as correct the logic of the control structures of simple programs in QBASIC language as well as correct the logic and flowchart.  **CLO4: Know** the purpose of the various parts of a computer system, input/output devices, memory organization, computer networks and security.  **CLO5: Present** and **defend the technical** aspect of computer fundamentals. | | | | | | | | | | | | | |
| **14** | **Mapping/Alignment of CLOs with Program Learning Outcomes (PLO)** | | | | | | | | | | | | | |
|  | **CLO** | **SWE PLOs** | | | | | | | | | | | | |
|  | **1** | **2** | **3** | | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |
| **1** | **X** |  |  | |  |  |  |  |  |  |  |  |  |
| **2** | **X** | **X** | **X** | |  |  |  |  |  |  |  |  |  |
| **3** | **X** | **X** | **X** | |  |  |  |  |  |  |  |  |  |
| **4** | **X** | **X** | **X** | |  |  |  |  |  |  |  |  |  |
| **5** |  |  |  | |  |  |  |  |  |  | **X** |  |  |

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| **PART B: CONTENT OF THE COURSE** | | | | | | |
| **Week** | **Syllabus** | **Learning Outcome** | **Complexity Level** | **C L O** | **P L O** | **Assessment** |
| **1** | Data & Information  Class 1: difference between Data & Information Class 2: instructed how to add two numbers | Able to understand about Data and information, able to apply how to add two numbers. | C1 | 1 | 1 | Class Test-1, Assignment-1  Mid Exam |
| **2** | Repetition (both while-wend & for-next) & formulae - Class 1: Trace logical errors while adding two numbers and show the output. Class 2: same program can be used to add multiple numbers either input or read from data statement | able to learn about while-wend & for-next loop, able to trace the logical error while adding two numbers, able to add multiple numbers either input or read from data statements. | C2 | 1 | 1 | Class Test-1, Assignment-1, Mid Exam |
| **3** | Data Set- Class 1: Same program can be used to add multiple numbers READ from data statements and trace logical errors while adding two numbers and show the output. | Identify the use of conditional statement | C3 | 1 | 1 | Class Test-1, Assignment-1, Mid Exam |
| **4** | Introduction to computer, number system, Codes & logic gates  Class 1:  Basics of computer system, Components of computer, Classification of computers Converting from decimal to base r system Class 2:  Data, information and codes, Numeric data representation, BCD Code, ASCII, Unicode Logic gates | Able to understand basic of computer of basic and convert number system, basic data represent of data | C1 | 2 | 1,  2,  3 | Class Test-2, Assignment-1, Mid Exam |
| **5** | Microcomputer Fundamentals, Microcomputer Organization and Bus organizations Class 1: Microcomputer Components, Microprocessor, Memory, Programs. Motherboard and its components. Class 2: Buses, Local Bus and Bus assembly | able to gain knowledge on microcomputer and microprocessor, Buses | C1 | 2 | 1,  2,  3 | Class Test-1, Assignment-1, Mid Exam |
| MID EXAM | | | | | | |
| **6** | Adding vertical columns and conditional statements  Class 1: add figures of a table column and show the output. Class 2: to insert conditional statements and check them using a trace table. | Able to solve using if-condition to add and find average number column wise | C6 | 3 | 1,  2,  3 | Class Test-2, Assignment-2, Final Exam |
| **7** | Class 1: work through a large trace table and find errors and fix errors. | Able to store multiple data in a memory. To solve using trace table | C3 | 3 | 1,  2,  3 | Class Test-2, Assignment-2, Final Exam |
| **8** | Flowcharts  Class 1: flowcharts from QBASIC code & Code from flowchart. Class 2: errors in flowchart using a trace table. | identify the basic components of flowchart, able to draw flowchart from basic code | C6 | 3 | 1,  2,  3 | Class Test-3, Assignment-2, Final Exam |
| **9** | Input Device and Output Device Class 1: Keyboards, reading devices, pointing devices scanning devices, other input devices Class 2: Monitors, Printers, Voice output systems, Other peripheral devices | Able to gain knowledge on different types of computer device | C1 | 4 | 1,  2,  3 | Class Test-3, Assignment-2, Final Exam |
| **10** | Memory Basics, and Primary or Main Memory and ROM Class 1: Classification of Memory, Memory capacity, Memory hierarchies Class 2: RAM, Cache, ROM, Different types of ROM, Solid state storage devices | Able to gain knowledge on different types of computer memory, capacity of computer memory. | C1 | 4 | 1,  2,  3 | Class Test-3, Assignment-2, Final Exam |
| **11** | Secondary or Auxiliary Memory and Programming Languages Class 1: Hard drive, CD, CD Audio, CD-ROM, DVD Class 2: Computer Languages | able to know computer languages, secondary memory | C1 | 4 | 1,  2,  3 | Class Test-3, Assignment-2, Final Exam |
| **12** | Computer Networks Fundamentals Class 1 LAN, WAN, MAN, Class 2: Hub, Switch, Router  Presentation | Able to gain knowledge on computer network | C1 | 4,5 | 1,  2,  3,  10 | Class Test-3, Assignment-2, presentation, Final Exam |
| **13** | Computer Security Class 1: (Computer Virus, Worm, Trojan Horse, Class 2: Anti-Virus  Presentation | Able to gain knowledge on computer security | C1 | 4,5 | 1,  2,  3,  10 | Class Test-3, Assignment-2, presentation, Final Exam |
| **FINAL EXAM** | | | | | | |

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| **PART C: ASSESSMENT AND EVALUATION** | | | | | | | | | | |
| **1** | **Assessment Methods** | | | | | | | | | |
|  | **Methods** | **Weighting** | | **CLO1** | **CLO2** | | **CLO3** | **CLO4** | | **CLO5** |
| Attendance | 7% | | 0% | 0% | | 0% | 0% | | 0% |
| Class Test | 15% | | 2% | 5% | | 3% | 5% | | 0% |
| Presentation | 8% | | 0% | 0% | | 0% | 0% | | 8% |
| Assignment | 5% | | 1.5% | 1% | | 1.5% | 1% | | 0% |
| Mid-Term Exam | 25% | | 15% | 10% | | 0% | 0% | | 0% |
| Final Exam | 40% | | 0% | 0% | | 25% | 15% | | 0% |
| **Total** | **100%** | | **18.5%** | **16%** | | **29.5%** | **21%** | | **8%** |
| **2** | **Grading System** | | | | | | | | | |
|  | **Marks** | | **Grade** | | | **Grade Point** | | | **Remark** | |
| **80-100%** | | A + | | | 4 | | | Outstanding | |
| **75-79%** | | A | | | 3.75 | | | Excellent | |
| **70-74%** | | A- | | | 3.5 | | | Very Good | |
| **65-69%** | | B+ | | | 3.25 | | | Good | |
| **60-64%** | | B | | | 3 | | | Satisfactory | |
| **55-59%** | | B- | | | 2.75 | | | Above Average | |
| **50-54%** | | C+ | | | 2.5 | | | Average | |
| **45-49%** | | C | | | 2.25 | | | Below Average | |
| **40-44%** | | D | | | 2 | | | Pass | |
| **00-39%** | | F | | | 0 | | | Fail | |
| **3** | **Make-up Procedures** | | | | | | | | | |
|  | Improvement Exam (Students who have failed or received unsatisfactory grades (less than or equal to B) in the regular examinations and thus want to improve their grades), and Incomplete (I) Exam. | | | | | | | | | |

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| **PART D: LEARNING RESOURCES** | |
| **1** | **Text Book(s)** |
|  | Computer Fundamentals and ICT. 2nd Edition, 2017, DIU press. by M. Lutfar Rahman,M. Shamim Kaiser, M. Arifur Rahman, M. Alamgir Hossain. |
| **2** | **Reference Books(s)** |
|  | Computer Fundamentals (1st Edition) by Pradeep K. Sinha & Priti Sinh |
| **3** | **Other Resources (Online Resources or others)** |
|  | **NA** |