**University of Asia Pacific (UAP)**

**Department of Computer Science and Engineering (CSE)**

**Course Outline**

**Program:** B.Sc. inComputer Science and Engineering (CSE)

**Course Title:** Introduction to Computer Science & Programming Methodology Lab

**Course Code:** CSE 102

**Semester:** Spring-2020

**Level:** 1st Semester

**Credit Hour:** 1.5

**Name & Designation of Teacher:** Md. Imran Bin Azad, Assistant Professor

Fahad Ahmed, Lecturer

**Office/Room:** 7th Floor, teacher’s compound

**Class Hours:** Section-wise schedule is available on Class Routine

**Consultation Hours:** Section-wise schedule will be provided separately

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**Rationale:** Required course in the CSE program. This knowledge is essential to build up an introductory practical knowledge in basic computer uses and programming.

**Pre-requisite:** None

**Course Objective:** 1. To gain confidence of using computer for composing documents and communicate with internet.

2. To learn the basic syntaxes and functionalities of C Programming Language

**Course Synopsis:**

This course will provide a basic introduction to computer uses for beginners. Students will be comfortable to operate their computers to avoid paper works by using **Microsoft word, Excel** and **PowerPoint**. Moreover, this course will introduce them with the fundamentals of **Computer Organization, Structure, Number System,** and **Boolean Logic**. Students will learn how to use Internet to familiar with up-to-date knowledge and use different platforms like **Gmail, Google Classroom**, and **Zoom** to maintain online communication. Finally, this course will provide a basic introduction to **computer algorithms, algorithm flowcharts, structured programming** (specifically **C programming**) by covering **Data Types, Variable, Scope of a Variable, Operators, Conditional Operators, Bitwise Operators, Control Flow, Debugging etc.**

**Course Outcomes (CO) and their mapping with Program outcomes (PO) and Teaching-Learning Assessment methods:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CO**  **No.** | **CO Statements:**  Upon successful completion of the course, students should be able to: | **Corresponding**  **POs**  **(Appendix-1)** | **Bloom’s taxonomy domain/level**  **(Appendix-2)** | **Delivery methods and activities** | **Assessment**  **Tools** |
| CO1 | **Demonstrate** the use of popular tools in G-Suite package: Gmail, Drive, Meet, Calendar | 5 | 1/Apply  2/Manipulation | Lecture, Classwork, Assignments | Hands-on work |
| CO2 | **Create** word documents, spreadsheet, presentations using Microsoft/Google tools | 5 | 1/Apply  2/Imitation | Lecture, Practice sessions | Practical tasks |
| CO3 | **Design and develop** computer programs using C Language for solving analytical/mathematical problems | 1 | 1/Apply  2/Manipulation | Problem Solving, Practice sessions | Online Contest, Assignment |

**Weighting COs with Assessment methods:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Assessment Type** | **% weight** | **CO1** | **CO2** | **CO3** |
| Final Examination | **20%** |  |  | 20 |
| Mid Semester Evaluation | **20%** | 5 | 15 |  |
| Continuous Evaluation:  Class performance, Short Quizzes, Problem Solving Sessions, Oral Exams, Presentation | **60%** | 10 | 20 | 30 |
| **Total** | **100%** | 15 | 35 | 50 |

**Teaching-learning and Assessment Strategy:** Lectures, assignments, quizzes, exams, Presentation

**Lecture Schedule**

| **Weeks** | **Topics / Content** | **Course Outcome** | **Delivery methods and activities** | **Additional Materials** |
| --- | --- | --- | --- | --- |
| 1 | Basic computer operations: Turning on/off, How to use OS, application programs, Accessing Internet with a browser.  Google tools: Mail, Drive, Classroom | CO1 | Lecture, multimedia |  |
| 2 | Introducing Microsoft Word and its basic features: Text editing, formatting, Tables | CO2 | Lecture, multimedia, practice problem |  |
| 3 | Intermediate features in Microsoft Word: Composing full documents such as Class Routine, Curriculum Vitae | CO2 | Lecture, multimedia, practice problem |  |
| 4 | Introducing Microsoft Excel and its basic features: Data entry, Arithmetic functions, Sorting, Simple Result Processing spreadsheet | CO2 | Lecture, multimedia, practice problem | [Relevant online course on Coursera](https://www.coursera.org/learn/excel-essentials) |
| 5 | Intermediate functions in Microsoft Excel: Charts, Fetch data from another sheet (vlookup) | CO2 | Lecture, multimedia, practice problem |  |
| 6 | Introducing Microsoft PowerPoint and its basic features: slides, animation | CO2 | Lecture, multimedia, practice problem |  |
| 7 | Advanced features in Microsoft PowerPoint: PowerPoint Programming | CO2 | Lecture, multimedia, practice problem | [A youtube playlist on PowerPoint Programming](https://www.youtube.com/playlist?list=PLZyUuHW0TDFNItvtuS2t9bE50DT2V9h-M) |
| 8 | **Mid Semester Evaluation:** PowerPoint Presentation, Practical on MS Word and Excel | | | |
| 9 | Introducing Text User Interface (Windows Command Prompt): Basic Commands  Introducing Linux (Ubuntu OS) | CO1 | Lecture, multimedia |  |
| 10-11 | Introduction to C Programming: Creating coding environment by installing IDE and working with basic programming syntaxes: declaration and definition of a variable, input/output, arithmetic operations | CO3 | Lecture, multimedia, practice problem | Teach Yourself C  - Herbet Schildt |
| 12 | Basic structure of if-else, switch-case conditions Basic program using if-else, switch-case Nested if-else and nested switch-case  Introduction to contest programming | CO3 | Lecture, multimedia, practice problem | [Blockly Games](https://blockly.games/) to better understand programming concepts and control flow |
| 13 | Basic structure of for, while, do-while Basic program with for, while, do-while | CO3 | Lecture, multimedia, practice problem | Teach Yourself C  - Herbet Schildt |
| 14 | **Final Examination:** Online Programming Contest | | | |

**Minimum attendance:** 70% class attendance is mandatory for a student in order to appear at the final examination.

**Required References:** # Introduction to Computers

- Peter Norton

# Teach Yourself C

- Herbet Schildt

**Recommended References:** # Online Course for Excel on Coursera

* <https://www.coursera.org/learn/excel-essentials>

# Youtube Playlist on PowerPoint Programming

* <https://www.youtube.com/playlist?list=PLZyUuHW0TDFNItvtuS2t9bE50DT2V9h-M>

**Grading System:** As per the approved grading scale of University of Asia Pacific (Appendix-3).

**Special Instructions: Late attendance:** Students who will enter the class after the attendance call will be marked as absent.

**Assignment**: **Unfinished** work should be submitted as assignment. **Additional** assignments may be given as needed. Copied home work will be graded as zero. Late submission will result a 50% deduction in score.

**Student’s responsibilities:** Students must come to the class prepared for the course material covered in the previous class (es).

They must submit their assignments on time.

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| --- | --- | --- |
| **Prepared by**  **(**Course Teacher**)** | **Checked by**  **(**Chairman, PSAC committee**)** | **Approved by**  **(**Head of the Department**)** |
|  |  |  |

**Appendix-1:**

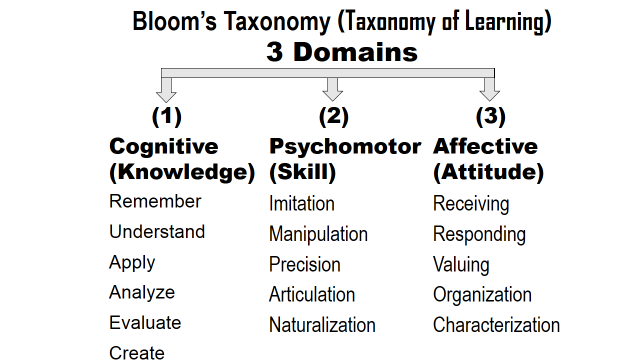
**Washington Accord Program Outcomes (PO) for engineering programs:**

|  |  |  |
| --- | --- | --- |
| **No.** | **PO** | **Differentiating Characteristic** |
| 1 | Engineering Knowledge | Breadth and depth of education and type of knowledge, both theoretical and practical |
| 2 | Problem Analysis | Complexity of analysis |
| 3 | Design/ development of solutions | Breadth and uniqueness of engineering problems i.e. the extent to which problems are original and to which solutions have previously been identified or codified |
| 4 | Investigation | Breadth and depth of investigation and experimentation |
| 5 | Modern Tool Usage | Level of understanding of the appropriateness of the tool |
| 6 | The Engineer and Society | Level of knowledge and responsibility |
| 7 | Environment and Sustainability | Type of solutions. |
| 8 | Ethics | Understanding and level of practice |
| 9 | Individual and Team work | Role in and diversity of team |
| 10 | Communication | Level of communication according to type of activities performed |
| 11 | Project Management and Finance | Level of management required  for differing types of activity |
| 12 | Lifelong learning | Preparation for and depth of Continuing learning. |

**Generic Skills (Detailed):**

1. **Engineering Knowledge (T)** -Apply knowledge of mathematics, sciences, engineering fundamentals and manufacturing engineering to the solution of complex engineering problems;
2. **Problem Analysis (T)** – Identify, formulate, research relevant literature and analyze complex engineering problems, and reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences;
3. **Design/Development of Solutions (A)** –Design solutions, exhibiting innovativeness, for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, economical, ethical, environmental and sustainability issues.
4. **Investigation (D)** Conduct investigation into complex problems, displaying creativeness, using research-based knowledge, and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions;
5. **Modern Tool Usage (A & D)** -Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations;
6. **The Engineer and Society (ESSE)** -Apply reasoning based on contextual knowledge to assess societal, health, safety, legal, cultural, contemporary issues, and the consequent responsibilities relevant to professional engineering practices.
7. **Environment and Sustainability (ESSE)** -Understand the impact of professional engineering solutions in societal, global, and environmental contexts and demonstrate knowledge of and need for sustainable development;
8. **Ethics (ESSE)** –Apply professional ethics with Islamic values and commit to responsibilities and norms of professional engineering code of practices.
9. **Communication (S)** -Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions;
10. **Individual and Team Work (S)** -Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
11. **Life Long Learning (S)** -Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
12. **Project Management and Finance (S)** -Demonstrate knowledge and understanding of engineering management and financial principles and apply these to one’s own work, as a member and/or leader in a team, to manage projects in multidisciplinary settings, and identify opportunities of entrepreneurship.

**Appendix-2**



**Appendix-3**

**UAP Grading Policy:**

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| --- | --- | --- |
| **Numeric Grade** | **Letter Grade** | **Grade Point** |
| 80% and above | A+ | 4.00 |
| 75% to less than 80% | A | 3.75 |
| 70% to less than 75% | A- | 3.50 |
| 65% to less than 70% | B+ | 3.25 |
| 60% to less than 65% | B | 3.00 |
| 55% to less than 60% | B- | 2.75 |
| 50% to less than 55% | C+ | 2.50 |
| 45% to less than 50% | C | 2.25 |
| 40% to less than 45% | D | 2.00 |
| Less than 40% | F | 0.00 |