# Republic of Yemen

Ministry of Higher Education & Scientific Research

Council of Academic Accreditation & Quality Assurance of Higher Education(CAQA)

21 September University for Medical and Applied Sciences

Faculty of Engineering and Computer

**Department of Information Technology**

## Program of Information Technology

# Course Specification of

# Programming 1

# Course Code. (07.01.702)

**2024**

T4: This Template is Developed and Approved by CAQA-Yemen, 2023

| Prepared by: | Reviewed by: | Head of the Department: | Quality Unit: | Dean |
|---|---|---|---|---|
| Dr. --------- | Dr. ----- | | | |

# I. General Information:

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Course Title: | Programming 1 | | | | |
| 2. | Course Code: | 07.01.702 | | | | |
| 3. | Credit Hours: | Credit Hours | Theory Contact Hours | | Practical Contact Hours | |
| | | | Lecture | Tutorial/ Seminar | Lab | Clinical |
| | | 3 | 2 | -- | 2 | -- |
| 4. | Level/ Semester at which this Course is offered: | 1 Level / 2 Semester | | | | |
| 5. | Pre –Requisite (if any): | Introduction to Information Technology | | | | |
| 6. | Co –Requisite (if any): | Non | | | | |
| 7. | Program (s) in which the Course is Offered: | Bachelor of Medical Information Technology | | | | |
| 8. | Language of Teaching the Course: | English/Arabic | | | | |
| 9. | Location of Teaching the Course: | Faculty of Medical Technology | | | | |
| 10. | Prepared by: | Dr. Abdulrahman Mohammed Hussein Obaid | | | | |
| 11 | Date and Number of Approval by Council: | | | | | |

## II. Course Description:

Programming 1 introduces fundamental concepts of software development, focusing on problem-solving techniques and algorithm design in the context of healthcare. Students develop essential programming skills using a high-level language, learning to create efficient, well-structured code for medical information systems. The course covers data types, control structures, functions, and basic data structures, emphasizing their application in healthcare scenarios. Through hands-on coding exercises and projects, students gain practical experience in developing software solutions that address real-world healthcare challenges, laying a strong foundation for advanced health information technology applications.

| III. Course Intended Learning Outcomes (CILOs): Upon successful completion of the course, students will be able to: | | Referenced PILOs | | |
|---|---|---|---|---|
| | **A. Knowledge and Understanding:** | **I, P or M/A** | | |
| a1 | Explain fundamental programming concepts, data types, and control structures in the context of health information technology. | I | A1 | Demonstrate an understanding of appropriate models, theories, mathematical foundations, and techniques related to Health Information Technology discipline. |
| a2 | Identify algorithms to solve basic computational problems relevant to healthcare scenarios. | I,P | A2 | Identify user and Healthcare needs to provide IT based solutions to real-world problem. |
| a3 | Understanding programs using a high-level programming language to address simple healthcare-related challenges. | I,P | A3 | Demonstrate a profound knowledge in utilizing and adapting IT tools, techniques, practices, and methods for solving computing problems in Health environment. |

| | | | | |
|---|---|---|---|---|
| | **B. Cognitive/ Intellectual Skills:** | | | |
| b1 | Analyze and evaluate code for correctness, efficiency, and adherence to programming best practices in a healthcare context. | **P** | **B1** | Critically analyse complex computing problems and propose appropriate information technology based solutions and integrate them effectively into the uses and organization Health. |
| b2 | | | **B2** | |
| | | | **B3** | |
| | **C. Practical and Professional Skills:** | | | |
| c1 | | | **C1** | |
| c2 | Design and implement basic software solutions for medical information systems. | **P** | **C2** | design, implement, and test a computing-based solution to meet a given set of computing requirement in the context of Health Information Technology. |
| | | | **C3** | |
| c4 | Utilize development tools and environments for writing and testing healthcare-related programs. | **P,M** | **C4** | Use current techniques, skills, and tools necessary for computing practices. |
| | **D. General and Transferable Skills:** | | | |
| d1 | | | **D1** | |
| d2 | | | **D2** | |
| | | | **D3** | |
| **I= Introduced, P=Practiced or M/A= Mastered/Advanced** | | | | |

| | (A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods: | | |
|---|---|---|---|
| | **Course Intended Learning Outcomes** | **Teaching Strategies** | **Assessment Strategies** |

| | | | |
|---|---|---|---|
| a1 | Explain fundamental programming concepts, data types, and control structures in the context of health information technology. | ▪ Lectures<br>▪ Discussion<br>▪ Presentation<br>▪ Self-learning | ▪ Written exam (mid and final terms and quizzes)<br>▪ Final practical exam<br>▪ Assignments |
| a2 | Identify algorithms to solve basic computational problems relevant to healthcare scenarios. | ▪ Lectures<br>▪ Discussion<br>▪ Presentation<br>▪ Self-learning | ▪ Written exam (mid and final terms and quizzes)<br>▪ Final practical exam<br>▪ Assignments |
| a3 | Understanding programs using a high-level programming language to address simple healthcare-related challenges. | ▪ Lectures<br>▪ Discussion<br>▪ Presentation<br>▪ Self-learning | ▪ Written exam (mid and final terms and quizzes)<br>▪ Final practical exam<br>▪ Assignments |
| | | ▪ | ▪ |
| | | ▪ | ▪ |

**(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:**

| | Course Intended Learning Outcomes | Teaching Strategies | Assessment Strategies |
|---|---|---|---|
| b1 | Analyze and evaluate code for correctness, efficiency, and adherence to programming best practices in a healthcare context. | ▪ Lectures<br>▪ Tutorials<br>▪ Discussion<br>▪ Case studies (CBL)<br>▪ Self-Learning<br>▪ Problem Based Learning (PBL) | ▪ Written exam (mid and final terms and quizzes)<br>▪ Final practical exam<br>▪ Assignments |
| b2 | … | ▪ | ▪ |
| | … | ▪ | ▪ |
| | | ▪ | ▪ |
| | | ▪ | ▪ |

**(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:**

| | Course Intended Learning Outcomes | Teaching Strategies | Assessment Strategies |
|---|---|---|---|
| c1 | … | ▪ | ▪ |

| | | | |
|---|---|---|---|
| c2 | Design and implement basic software solutions for medical information systems. | ▪ Tutorials<br>▪ Training<br>▪ Case studies (CBL)<br>▪ Lab work<br>▪ Problem Solving Learning (PSL)<br>▪ Problem Based Learning (PBL) | ▪ Written exam (mid and final terms and quizzes)<br>▪ Final practical exam<br>▪ Assignments |
| | … | ▪ | ▪ |
| c3 | Utilize development tools and environments for writing and testing healthcare-related programs. | ▪ Tutorials<br>▪ Training<br>▪ Case studies (CBL)<br>▪ Lab work<br>▪ Problem Solving Learning (PSL)<br>▪ Problem Based Learning (PBL) | ▪ Written exam (mid and final terms and quizzes)<br>▪ Final practical exam<br>▪ Assignments |

**(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:**

| | Course Intended Learning Outcomes | Teaching Strategies | Assessment Strategies |
|---|---|---|---|
| d1 | … | ▪ | ▪ |
| d2 | … | ▪ | ▪ |
| | … | ▪ | ▪ |

## IV. Course Contents:

### A. Theoretical Aspect:

| No. | Units/Topics List | Sub Topics List | Number of Weeks | Contact Hours | Learning Outcomes (CILOs) |
|---|---|---|---|---|---|
| 1 | Introduction to C++ | • Overview of C++ programming | 1 | 2 | a1 |
| 2 | C++ Basics | •Programming and Problem Solving<br>•Testing and Debugging<br>• Variables and data types in C++<br>• C++ operators and expressions<br>• Input/output in C++ (cin, cout) | 3 | 6 | a1, a2 |

| No. | Units/Topics List | Sub Topics List | Number of Weeks | Contact Hours | Learning Outcomes (CILOs) |
|---|---|---|---|---|---|
| 3 | Control Structures in C++ | • If, else, switch statements<br>• For, while, do-while loops<br>• Break and continue statements | 2 | 4 | a1,a,2c4 |
| 4 | Functions in C++ | • Function declaration and definition<br>• Parameter passing (by value, by reference)<br>• Function overloading | 2 | 4 | a1,a,2c4 |
| 5 | Midterm Exam | Review and assessment | 1 | 2 | a1,a2,c4 |
| 6 | Arrays and Strings in C++ | • One-dimensional and multi-dimensional arrays<br>• C-style strings and string class<br>• Array manipulation for patient data | 2 | 4 | a1,a2,a3,c4 |
| 7 | Pointers and References | • Pointer declaration and initialization<br>• Dynamic memory allocation (new, delete)<br>• References and their uses | 2 | 4 | a1,a2,a3,c4 |
| 8 | File Handling in C++ | • File streams (ifstream, ofstream)<br>• Reading and writing text files<br>• Error handling in file operations | 1 | 2 | a1,a2,a3,c4 |
| 9 | Final Project Discussion | • Project requirements and guidelines<br>• C++ implementation strategies<br>• Code organization and best practices | 1 | 2 | a1,a2,a3,b1,c2,c4 |
| 10 | Final Exam | Comprehensive assessment | 1 | 2 | a1,a2,a3,b1,c2 |
| Number of Weeks /and Units Per Semester | | | 16 | 32 | |

B. Practical Aspect (Lab(/Clinical) (if any):

| No. | Tasks/ Experiments | Number of Weeks | Contact Hours | Learning Outcomes (CILOs) |
|---|---|---|---|---|
| 1 | Setting up C++ development environment | 1 | 2 | c4 |
| 2 | Basic C++ programming exercises | 2 | 4 | a1, a3 |
| 3 | Implementing control structures in C++ | 2 | 4 | a1,a2,a3 |
| 4 | Function implementation and usage | 2 | 4 | a2,a3, c4 |
| 5 | Midterm Exam | 1 | 2 | a1,a2,a3,c4 |
| 6 | Array and string manipulation | 2 | 4 | a2,a3, c4 |
| 7 | Pointer and dynamic memory exercises | 2 | 4 | a2,a3, c4 |
| 8 | File handling for medical data | 1 | 2 | a2,a3, c4 |
| 9 | Final project implementation in C++ | 2 | 4 | a1,a2,a3,b1,c2,c4 |
| Number of Weeks /and Units Per Semester | | 15 | 30 | |

C. Tutorial Aspect (if any):

| No. | Tutorial | Number of Weeks | Contact Hours | Learning Outcomes (CILOs) |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |

| No. | Tutorial | Number of Weeks | Contact Hours | Learning Outcomes (CILOs) |
|---|---|---|---|---|
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| Number of Weeks /and Units Per Semester | | | | |

## VII. Assignments:

| No. | Assignments | Week Due | Mark | Aligned CILOs (symbols) |
|---|---|---|---|---|
| 1 | Exercises and Home Works, Problem Solving (I) | 3 | 3 | a1,a2,a3 |
| 2 | Exercises and Home Works, Problem Solving (II) | 9 | 3 | a3,b1,c2 |
| 3 | Technical Report and Presentation. | 11 | 4 | a1,a2,a3,b1,c2,c4 |
| Total | | | 10 | |

## VIII. Schedule of Assessment Tasks for Students During the Semester:

| No. | Assessment Method | Week Due | Mark | Proportion of Final Assessment | Aligned Course Learning Outcomes |
|---|---|---|---|---|---|
| 1 | Assignments | 3,8,11 | 10 | 10 % | a1,a2,a3,b1,c2,c4 |
| 2 | Quizzes 1 & 2 | 6,12 | 5 | 5 % | a1,a2,a3,b1,c2 |
| 3 | Mid-Term Theoretical Exam | 9 | 10 | 10 % | a1,a2,c4 |
| 4 | Mid-Term Practical Exam | 7 | 5 | 5 % | a1,a2,a3,c4 |
| 5 | Final Practical Exam including | 15 | 10 | 10 % | a1,a2,a3,b1,c2,c |

| No. | Assessment Method | Week Due | Mark | Proportion of Final Assessment | Aligned Course Learning Outcomes |
|---|---|---|---|---|---|
| | Project Presentation & Evaluation | | | | 4 |
| 6 | Final Theoretical Exam | 16 | 60 | 60 % | a1,a2,a3,b1,c2 |
| Total | | | 100 | 100% | |

## IX. Learning Resources:

- *Written in the following order:* Author, Year of publication, Title, Edition, Place of publication, Publisher.

### 1- Required Textbook(s) (maximum two ):

1. Stroustrup, B. (2022). Programming: Principles and Practice Using C++, 3rd Edition. Boston, Addison-Wesley.
2. Malik, D.S. (2023). C++ Programming: From Problem Analysis to Program Design, 9th Edition. Boston, Cengage Learning.

### 2- Essential References:

1. Deitel, P. & Deitel, H. (2021). C++ How to Program, 11th Edition. London, Pearson.
2. Lippman, S.B., Lajoie, J. & Moo, B.E. (2022). C++ Primer, 6th Edition. Boston, Addison-Wesley.
3. Gaddis, T. (2023). Starting Out with C++: From Control Structures through Objects, 10th Edition. London, Pearson.

### 3- Electronic Materials and Web Sites etc.:

**Websites:**

1. cplusplus.com - C++ Language Tutorial
2. learncpp.com - Learn C++
3. isocpp.org - Standard C++

**Journals:**

1. Journal of Object Technology (JOT)
2. ACM Transactions on Programming Languages and Systems (TOPLAS)

**Other Web Sources:**

1. GitHub - C++ repositories and projects

2. Stack Overflow - C++ tagged questions and answers

## X. Course Policies: (Based on the Uniform Students' By law (2007)

| | |
|---|---|
| 1 | **Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes. |
| 2 | **Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class. |
| 3 | **Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed. |
| 4 | **Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same. |
| 5 | **Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply. |
| 6 | **Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply. |
| 7 | **Other policies:** The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration. |

Republic of Yemen
Ministry of Higher Education & Scientific Research
University: 21 September University for Medical & Applied Sciences

الجمهورية اليمنية
وزارة التعليم العالي والبحث العلمي
جامعة: جامعة 21سبتمبر للعلوم الطبية والتطبيقية

Faculty of Medical Technology

## Department of Medical Information Technology

## Program of Medical Information Technology

# Course Plan (Syllabus) of Programming 1

Course Code. 07.01.702

| I. Information about Faculty Member Responsible for the Course: | | | | | | | |
|---|---|---|---|---|---|---|---|
| Name of Faculty Member: | Dr. Abdulrahman Mohammed Obaid | Office Hours | | | | | |
| Location& Telephone No.: | 00967773574322 | | | | | | |
| E-mail: | Obaid.eng@gmail.com | SAT | SUN | MON | TUE | WED | THU |

**2024**

## II. Course Identification and General Information:

| | | | | | |
|---|---|---|---|---|---|
| 1 | Course Title: | Programming 1 | | | |
| 2 | Course Code & Number: | 07.01.702 | | | |
| 3 | Credit Hours: | Credit Hours | Theory Hours | | Lab. Hours |
| | | | Lecture | Exercise | |
| | | 3 | 2 | -- | 2 |
| 4 | Study Level/ Semester at which this Course is offered: | 1 Level / 2 Semester | | | |
| 5 | Pre –Requisite (if any): | Introduction to Information Technology | | | |
| 6 | Co –Requisite (if any): | Non | | | |
| 7 | Program (s) in which the Course is Offered: | Bachelor of Medical Information Technology | | | |
| 8 | Language of Teaching the Course: | English/Arabic | | | |
| 9 | Study System: | Semester Based System | | | |
| 10 | Mode of Delivery: | Full Time | | | |
| 11 | Location of Teaching the Course: | Faculty of Medical Technology | | | |
| 12 | Prepared by: | Dr. Abdulrahman Mohammed Hussein Obaid | | | |
| 13 | Date of Approval: | | | | |

## III. Course Description:

Programming 1 introduces fundamental concepts of software development, focusing on problem-solving techniques and algorithm design in the context of healthcare. Students develop essential programming skills using a high-level language, learning to create efficient, well-structured code for medical information systems. The course covers data types, control structures, functions, and basic data structures, emphasizing their application in healthcare scenarios. Through hands-on coding exercises and projects,

| | |
|---|---|
| students gain practical experience in developing software solutions that address real-world healthcare challenges, laying a strong foundation for advanced health information technology applications. | |

## IV. Course Intended Learning Outcomes (CILOs) :

**Upon successful completion of the Course, student will be able to:**

| | |
|---|---|
| | A. **Knowledge and Understanding:** |
| a1 | Explain fundamental programming concepts, data types, and control structures in the context of health information technology. |
| a2 | Identify algorithms to solve basic computational problems relevant to healthcare scenarios. |
| a3 | Understanding programs using a high-level programming language to address simple healthcare-related challenges. |
| | |
| | **B. Cognitive/ Intellectual Skills:** |
| b1 | Analyze and evaluate code for correctness, efficiency, and adherence to programming best practices in a healthcare context. |
| b2 | |
| | |
| | |
| | **C. Practical and Professional Skills:** |
| c1 | |
| c2 | Design and implement basic software solutions for medical information systems. |
| | |
| c4 | Utilize development tools and environments for writing and testing healthcare-related programs. |
| | **D. Transferable Skills:** |
| d1 | |
| d2 | |

| | |
|---|---|
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| | |
| | |

## V. Course Contents:

### A. Theoretical Aspect:

| No. | Units/Topics List | Sub Topics List | Number of Weeks | Contact Hours | Learning Outcomes (CILOs) |
|---|---|---|---|---|---|
| 1 | Introduction to C++ | • Overview of C++ programming | 1 | 2 | a1 |
| 2 | C++ Basics | •Programming and Problem Solving<br>•Testing and Debugging<br>• Variables and data types in C++<br>• C++ operators and expressions<br>• Input/output in C++ (cin, cout) | 3 | 6 | a1, a2 |
| 3 | Control Structures in C++ | • If, else, switch statements<br>• For, while, do-while loops<br>• Break and continue statements | 2 | 4 | a1,a,2c4 |
| 4 | Functions in C++ | • Function declaration and definition<br>• Parameter passing (by value, by reference)<br>• Function overloading | 2 | 4 | a1,a,2c4 |
| 5 | Midterm Exam | Review and assessment | 1 | 2 | a1,a2,c4 |
| 6 | Arrays and Strings in C++ | • One-dimensional and multi-dimensional arrays<br>• C-style strings and string class<br>• Array manipulation for patient data | 2 | 4 | a1,a2,a3,c4 |
| 7 | Pointers and References | • Pointer declaration and initialization<br>• Dynamic memory allocation (new, delete)<br>• References and their uses | 2 | 4 | a1,a2,a3,c4 |

| | | | | | |
|---|---|---|---|---|---|
| 8 | File Handling in C++ | • File streams (ifstream, ofstream)<br>• Reading and writing text files<br>• Error handling in file operations | 1 | 2 | a1,a2,a3 ,c4 |
| 9 | Final Project Discussion | • Project requirements and guidelines<br>• C++ implementation strategies<br>• Code organization and best practices | 1 | 2 | a1,a2,a3 ,b1,c2,c 4 |
| 10 | Final Exam | Comprehensive assessment | 1 | 2 | a1,a2,a3 ,b1,c2 |
| Number of Weeks /and Units Per Semester | | | 16 | 32 | |

B. Case Studies and Practical Aspect:

| No. | Tasks/ Experiments | Number of Weeks | Contact Hours | Learning Outcomes (CILOs) |
|---|---|---|---|---|
| 1 | Setting up C++ development environment | 1 | 2 | c4 |
| 2 | Basic C++ programming exercises | 2 | 4 | a1, a3 |
| 3 | Implementing control structures in C++ | 2 | 4 | a1,a2,a3 |
| 4 | Function implementation and usage | 2 | 4 | a2,a3, c4 |
| 5 | Midterm Exam | 1 | 2 | a1,a2,a3,c4 |
| 6 | Array and string manipulation | 2 | 4 | a2,a3, c4 |
| 7 | Pointer and dynamic memory exercises | 2 | 4 | a2,a3, c4 |
| 8 | File handling for medical data | 1 | 2 | a2,a3, c4 |
| 9 | Final project implementation in C++ | 2 | 4 | a1,a2,a3,b1,c2,c4 |
| Number of Weeks /and Units Per Semester | | 15 | 30 | |

C. Tutorial Aspect:

| No. | Tutorial | Number of Weeks | Contact Hours |
|---|---|---|---|

| No. | Tutorial | Number of Weeks | Contact Hours |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |
| Number of Weeks /and Units Per Semester | | | |

## VI. Teaching Strategies of the Course:

Knowledge and Understanding Skills is developed through:

- Lectures
- Discussion
- Presentation
- Self-learning

Intellectual Skills are developed through:

- Lectures
- Tutorials
- Discussion
- Case studies (CBL)
- Self-Learning
- Problem Based Learning (PBL)

Practical and professional Skills are developed through:

- Tutorials
- Training
- Case studies (CBL)
- Problem Solving Learning (PSL)
- Problem Based Learning (PBL)

General/Transferrable Skills are developed through:

- Discussion
- Case studies (CBL)
- Self-Learning
- Presentation

## VII. Assessment Methods of the Course:

- Written exam (mid and final terms and quizzes),
- Final practical exam

Assignments

## VIII. Assignments:

| No. | Assignments | Week Due | Mark |
|---|---|---|---|
| 1 | Exercises and Home Works, Problem Solving (I) | 3 | 3 |
| 2 | Exercises and Home Works, Problem Solving (II) | 9 | 3 |
| 3 | Technical Report and Presentation. | 11 | 4 |
| Total | | | 10 |

## IX. Schedule of Assessment Tasks for Students During the Semester:

| No. | Assessment Method | Week Due | Mark | Proportion of Final Assessment |
|---|---|---|---|---|

| No. | Assessment Method | Week Due | Mark | Proportion of Final Assessment |
|---|---|---|---|---|
| 1 | Assignments | 3,8,11 | 10 | 10 % |
| 2 | Quizzes 1 & 2 | 6,12 | 5 | 5 % |
| 3 | Mid-Term Theoretical Exam | 9 | 10 | 10 % |
| 4 | Mid-Term Practical Exam | 7 | 5 | 5 % |
| 5 | Final Practical Exam including Project Presentation & Evaluation | 15 | 10 | 10 % |
| 6 | Final Theoretical Exam | 16 | 60 | 60 % |
| Total | | | 100 | 100% |

## X. Learning Resources:

- *Written in the following order:* Author, Year of publication, Title, Edition, Place of publication, Publisher.

### 1- Required Textbook(s) (maximum two ):

3. Stroustrup, B. (2022). Programming: Principles and Practice Using C++, 3rd Edition. Boston, Addison-Wesley.
4. Malik, D.S. (2023). C++ Programming: From Problem Analysis to Program Design, 9th Edition. Boston, Cengage Learning.

### 2- Essential References:

4. Deitel, P. & Deitel, H. (2021). C++ How to Program, 11th Edition. London, Pearson.
5. Lippman, S.B., Lajoie, J. & Moo, B.E. (2022). C++ Primer, 6th Edition. Boston, Addison-Wesley.
6. Gaddis, T. (2023). Starting Out with C++: From Control Structures through Objects, 10th Edition. London, Pearson.

### 3- Electronic Materials and Web Sites etc.:

**Websites:**

4. cplusplus.com - C++ Language Tutorial
5. learncpp.com - Learn C++
6. isocpp.org - Standard C++

**Journals:**

3. Journal of Object Technology (JOT)
4. ACM Transactions on Programming Languages and Systems (TOPLAS)

**Other Web Sources:**

3. GitHub - C++ repositories and projects
4. Stack Overflow - C++ tagged questions and answers

## XI. Course Policies: (Based on the Uniform Students' Bylaw (2007)

| | |
|---|---|
| 1 | **Class Attendance:** Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes. |
| 2 | **Tardiness:** A student will be considered late if he/she is not in class after 10 minutes of the start time of class. |
| 3 | **Exam Attendance/Punctuality:** No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed. |
| 4 | **Assignments & Projects:** Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same. |
| 5 | **Cheating:** Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply. |
| 6 | **Forgery and Impersonation:** Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply. |
| 7 | **Other policies:** The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration. |