The University of Jordan
School of Engineering
Computer Engineering Department
Spring Semester 2019/2020

Course	Computer Skills for Engineers – 0907101 (3 Cr. – Core Course)
Catalog Description	Elementary programming, primitive data types, assignments and expressions, control flow statements, loops, functions, arrays, pointers, strings, libraries, objects, classes, and problem-solving.
Prerequisites by Course	Basics of Computing 1932099
Prerequisites by Topic	Students are assumed to have basic understanding of binary number systems and how computers work.
Textbooks	1. Y. Daniel Liang, **Introduction to Programming with C++,** 3rd Edition, Pearson, 2014 2. Jake VanderPlas, **A Whirlwind Tour of Python**, O'Reilly, 2016, https://www.oreilly.com/programming/free/files/a-whirlwind-tour-of-python.pdf
Additional References	3. D. S. Malik, C++ Programming: From Problem Analysis to Program Design, 8th edition, Cengage Learning, 2017 4. P. Deitel and H. Deitel, C++ How to Program, 10th edition, Pearson, 2017
Course Website	http://cpe-pc.ju.edu.jo/
Facebook Group	https://www.facebook.com/groups/1004643649901099/
Schedule & Duration	15 Weeks, 45 lectures, 50 minutes each (including exams)
Student Material	Text book, class handouts, lecture notes, and any additional reading assigned by the instructor
College Facilities	Classroom with whiteboard and projector, and computer laboratory with internet access
Course Objectives	The objectives of this course is to help students to: 1. Explain basic elements in programming, such as statements, expressions, control flow, loops, functions and recursion. 2. Explain basic elements in object-oriented programming such as objects, classes, and constructors. 3. Use pointers and arrays to create data structures. 4. Analyze, write, debug and test C++ and Python programs. 5. Develop C++ and Python programs to solve engineering problems.
Course Outcomes and Relation to ABET Program Outcomes	Upon successful completion of this course, a student should be able to: 1. Apply knowledge of mathematics and engineering in writing computer programs [1]. 2. Solve engineering problems using C++ and Python programming [1].

Course Topics	
	1. Introduction to Computers, Programs, and C++ (Sections 1.1-3, 1.6-9) [2 lectures] 2. Elementary Programming (Sections 2.1-13, 2.15, 2.16) [4 lectures] 3. Selections (Sections 3.1-3.16) [4 lectures] 4. Mathematical Functions, Characters and Strings (Sections 4.1-11) [3 lectures] 5. Loops (Sections 5.1-6, 5.9) [4 lectures] 6. Functions (Sections 6.1-13) [4 lectures] 7. Single-Dimensional Arrays and C-Strings (Sections 7.1-7, 7.11) [4 lectures] 8. Multi-Dimensional Arrays (Sections 8.1-5, 8.8) [3 lectures] 9. Recursion (Sections 17.1-2) [1 lecture] 10. Objects and Classes (Sections 9.1-6, 9.9) [3 lectures] 11. Pointers (Sections 11.1-2, 11.5-7) [2 lectures] 12. Python Basics, Types, Operators, Control Flow, Functions, and Objects (Textbook 2) [3 lectures] 13. Important Python Packages: NumPy, Pandas, Matplotlib, and SciPy (Textbook 2) [3 lectures]

Computer Usage   The practical aspects of the course will be covered by problem-solving programming assignments and practical exams.

Policies
- Attendance is required. Class attendance will be taken every class and the university's polices will be enforced in this regard.
- It is required to study the specified sections of the textbooks.
- Solving the programming assignments yourself is necessary to pass the midterm and final exams.
- All submitted work must be yours.
- Cheating will not be tolerated.
- Join the Facebook group of this course

Grading policy

Programming Assignments and quizzes	20%
Practical Midterm Exam	30%
Practical Final Exam	50%

Instructors

Instructor	Contact Information	Office Hours
Prof. Gheith Abandah	Room: CPE 406 Email: abandah@ju.edu.jo Website: abandah.com/gheith	Sun, Tue: 10:30-11:30 Mon, Wed: 1-2
Dr. Fahed Jubair	Room: CPE 417 Email: f.jubair@ju.edu.jo	Thu: 10:30-12:30 Wed: 10:30-11:30
Dr. Ashraf Suyyagh	Room: CPE 410 Email: a.suyyagh@ju.edu.jo Website: drsuyyagh.com/	Mon, Wed: 8:30-9:30 Thu: 9:30-10:30
Eng. Saadeh Sweadan	Room: CPE 419 Email: s.sweadan@ju.edu.jo	Sun, Tue: 11:30-12:30 Mon, Wed: 10:30-11:30
Eng. Asma Abedelkarim	Room: CPE 408 Email: a.abdelkarim@ju.edu.jo Website: asmaabdelkarim.com	Sun, Tue: 10:30-11:30 Mon, Wed: 10-11

Class Time and Location

Section 1:	Dr. Ashraf Suyyagh,	STT: 8:30–9:30,	Medium Auditorium
Section 2:	Dr. Fahed Jubair,	STT: 9:30–10:30,	Medium Auditorium
Section 3:	Eng. Asma Abedelkarim,	MW: 11:30–13:00,	Medium Auditorium
Section 4:	Prof. Gheith Abandah,	MW: 10:00–11:30,	Medium Auditorium
Section 5:	Eng. Saadeh Sweadan,	STT: 10:30–11:30,	Medium Auditorium

Last Updated   Jan 26, 2020

Program Outcomes (PO)	1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
	2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
	3	an ability to communicate effectively with a range of audiences
	4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
	5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
	6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
	7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.