T.C.
RECEP TAYYİP ERDOĞAN ÜNİVERSİTESİ
MÜHENDİSLİK VE MİMARLIK FAKÜLTESİ - Bilgisayar Mühendisliği

Lesson Information

Semester	Course Unit Code	ECTS	Course Name
Güz	CE103	5.00	Algorithms and Programming I

Lesson Information

Department / Program	
Type of Course Unit	
Prerequisities and co-Requisities	Not Exist
Objectives of the Course	This course goal is to develop algorithm and programming expertise from scratch in a powerful way to provide a high-quality career path for students. The lecture will be based on expertise sharing and guiding students to find learning methods and practice for algorithm and programming topics. By making programming applications and projects in the courses, the learning process will be strengthened by practicing rather than theory. This course provides functional programming for C, C++, C#, and Java with up-to-date development environments.
Course Content	? Developer Road Map ? Algorithm Design and Basics ? Basic Operating System Information for Development Requirement ? Basic Remote Connection and Working Know-How ? Source Code Version Management Systems (GIT) ? Integrated Development Environments ? Application Test Automation ? Application Debugging and Bugfixing ? Functional Programming (C,C++, C#, Java) ? Continues Integration and Continues Development Processes ? Software Development Principles ? Application Documentation Automation ? Shared and Static Library Development and Test in Cross-Environment
Recommended Optional Programme Components	During this course, you should have a laptop for programming practices. You will have your development environment, and you will use this for examination and assignments also classroom practices.
Recommended or Required Reading	This course does not require a coursebook. If necessary, you can use the following books and open-source online resources. ? Paul Deitel and Harvey Deitel. 2012. C How to Program (7th. ed.). Prentice Hall Press, USA. ? Intro to Java Programming, Comprehensive Version (10th Edition) 10th Edition by Y. Daniel Liang ? Introduction to Algorithms, Third Edition By Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, and Clifford Stein ? Problem Solving and Program Design in C, J.R. Hanly, and E.B. Koffman, 6th Edition. ? Robert Sedgewick and Kevin Wayne. 2011. Algorithms (4th. ed.). Addison-Wesley Professional. ? Harvey M. Deitel and Paul J. Deitel. 2001. Java How to Program (4th. ed.). Prentice-Hall PTR, USA. ? Paul Deitel and Harvey Deitel. 2016. Visual C# How to Program (6th. ed.). Pearson.
Internship Status	Not Exist
Name of Lecturers	Asst. Prof. Dr. Uğur CORUH

Learning Outcomes

1	Understand a software developer's road map and qualifications
2	Use different types of development environments to build applications.
3	Understand the relation between real-life problems and their programming practices.
4	Use language features in C, C++, C#, and Java for functional programming and evaluate their relative benefits.
5	Understand application generation flows and outputs in detail, such as binaries and executables.
6	Use the source code, version management systems, and portals based on GIT
7	Work on the remote systems with remote connection tools.
8	Use common developer tools that help application developers
9	Create application libraries such as static, shared libraries for code reusability and functional packaging.
10	Create unit tests for their applications to automate tests for their algorithms.

11	Create console and GUI-based applications for their solutions.
12	Create documentation for their applications.

Weekly Course Contents			
Week	**Subjects**		
	Theoretical	**Practice**	**Laboratory**
1	Course Plan and Communication Grading System, Assignments, and Exams Computer Engineering Job Qualifications and Road Map Google Search Basics Programming Introduction (Operating System Basics, Computer Network Basics, Numerical System Basics, Character Sets)	N/A	Workshop
2	Algorithm Basics, Flowgorithm, Pseudocode Programming Environment Setup and Configuration for C, C++, Java, and C# Common Developer Tools Online Programming Envoriments	N/A	Workshop
3	Source Code Sharing and Version Management	N/A	Workshop
4	Shared Library Development and Application Test Automation for C, C++, C# and Java TDD (Test Driven Development)	N/A	Programming Workshop
5	C Functional Console Programming	N/A	Programming Workshop
6	C++ Functional Console Programming	N/A	Programming Workshop
7	C# Functional Console Programming	N/A	Programming Workshop
8	Midterm	N/A	Midterm
9	Java Functional Console Programming-I	N/A	Programming Workshop
10	Java Functional Console Programming-II	N/A	Programming Workshop
11	Java Functional Console Programming-III	N/A	Programming Workshop
12	C / C++ Graphical User Interface (GUI) Programming	N/A	Programming Workshop
13	C# Graphical User Interface (GUI) Programming	N/A	Programming Workshop
14	C# Graphical User Interface (GUI) Programming	N/A	Programming Workshop
15	Java Graphical User Interface Programming	N/A	Programming Workshop
16	Final	N/A	Final

Course Assessment		
Yarıyıl (Yıl) İçi Etkinlikleri	**Number**	**Percentage of Contribution**
Project Preparation	3	100
Sum		**100**

Yarıyıl (Yıl) Sonu Etkinlikleri	**Number**	**Percentage of Contribution**
Project Preparation	3	100
Sum		**100**

Contribution of the in-term activities and final exam grade to the final success grade	**Percentage of Contribution**
End of Semester(Year) Learning Activities	60
Semester(Year) Learning Activities	40
Sum	**100**

Activities	**Number**	**Hour**	**Total Work Load (Hours)**
Attending Lectures	14	5	70
Project Preparation	6	9	54
Total Work Load (Hours)			124