COURSE INFORMATION					
Course Title	*Code*	*Semester*	*L+P+L Hour*	*Credits*	*ECTS*
Software Development Fundamentals	CIS 502		3 + 0 + 0	3	10

Prerequisites	-

Language of Instruction	English
Course Level	Master's Degree
Course Type	Core
Course Coordinator	Prof.Dr. Haluk Bingöl
Instructors	Prof.Dr. Bekir Tevfik Akgün, Prof.Dr. Haluk Bingöl, Dr. Öğr. Üyesi Asım Kazancıgil, Dr. Öğr. Üyesi Engin Kandıran
Assistants	
Goals	This course introduces the building block of programming languages such as loops, control structures, arrays etc. Also, students will learn about best programming practices
Content	It is aimed for students to learn the basics of programming using a programming language and to gain knowledge about analyzing basic software problems and creating relevant algorithms. Variables, expressions, sentences, Shape and pattern drawing, Functions, Conditional sentences, Functions that return values, Recursive expressions, Texts, Files.

Learning Outcomes	**Programme Learning Outcomes**	**Teaching Methods**	**Assessment Methods**
1) Student will be able to define the fundamental concepts in programming.	1	1,2,3	A,C
2) Student will be able to write, compile and debug programs in Java language.	1	1,2,3	A,C
3) Student will be able to use control structures (decision and loop statements) in Java.	1	1,2,3	A,C
4) Student will be able to design functions in Java.	1	1,2,3	A,C
5) Student will be able to use version control systems.	1	1,2,3	A,C

Teaching Methods:	Teaching Methods: 1: Lecture, 2: Question-Answer, 3: Discussion

Assessment Methods:	A: Testing, C: Homework

COURSE CONTENT		
Week	**Topics**	**Study Materials**
1	How computer works (Memory, CPU, ALU)	Lecture notes
2	Version control (git)	Lecture notes
3	Best practices in programming (Naming conventions, packaging)	Lecture notes
4	Elements of Programming	Lecture notes
5	Getting Starting with Primitive Types	Lecture notes
6	Working with Strings	Lecture notes
7	MIDTERM	Lecture notes
8	Control Structures	Lecture notes
9	Arrays	Lecture notes
10	2D and Multidimensional Arrays	Lecture notes
11	Iteration (Loops)	Lecture notes
12	Writing Functions	Lecture notes
13	Recursions	Lecture notes
14	Debugging	Lecture notes
15	FINAL	Lecture notes

RECOMMENDED SOURCES	
Textbook	1-Introduction to Programming with Java: A Problem Solving Approach. 2nd ed. Dean and Dean, McGraw-Hill, 2013. 2-*Head First Java*, 2nd ed., Sierra and Bates, O'Reilly, 2005.
Additional Resources	*Java tutorials*, (https://docs.oracle.com/javase/tutorial/), Oracle.

MATERIAL SHARING
Documents
Assignments
Exams

ASSESSMENT

IN-TERM STUDIES	NUMBER	PERCENTAGE
Midterm	1	60
Quizzes	1	20
Homework	1	20
Total		**100**
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		60
CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE		40
Total		**100**

COURSE CATEGORY	Expertise/Field Courses

COURSE'S CONTRIBUTION TO PROGRAM							
No	Program Learning Outcomes	Contribution					
		1	2	3	4	5	
1	Students have the knowledge and the skills to design and develop the complete systems for multi-media visual user interface.	X					
2	Students have advanced the knowledge and skills to design, develop and install the application systems for multimedia.						
3	Students have the knowledge and the skills to design, develop and apply algorithms and data structures to solve the basic problems of information processing, within the framework of discrete mathematics.					X	
4	Students have the knowledge and the skills to design and develop computer applications, based on user specified requirements, using modern structured development tools and install them on various hardware platforms and deploy their usage.					X	
5	Students have the knowledge and the skills to design and develop computer applications, based on user specified requirements, using modern object-oriented development tools and install them on various hardware platforms and deploy their usage.		X				
6	Students know the logic of computer operating systems, the basic set of system commands, how to control access to system resources by users of different departments and how to monitor the running of jobs in the system.					X	
7	Students have the knowledge and the skills to design and develop data models serving different requirements, database applications that would			X			

	access and process data using various types of software, including queries, reports and business applications.	
8	Students have the knowledge and the skills to design and develop business applications that would provide data access, modification and processing for data kept in enterprise database systems.	X
9	Students have the knowledge about computer networks, and have the skills to design, develop and monitor computer networks, how to configure them and how to maintain their performance.	
10	Students have the knowledge and the skills to design and develop visual user interfaces for the web, web-based applications for n-tier client/server configurations, how to deploy them in enterprises.	

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION			
Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration (Including the exam week: 15x Total course hours/week)	14	3	42
Hours for off-the-classroom study (Pre-study, practice, review/week)	14	5	70
Homework	10	10	100
Quizzes	10	1	10
Midterm	**1**	10	10
Final	**1**	10	10
Total Work Load			242
Total Work Load / 25 (h)			9.6
ECTS Credit of the Course			10