Syllabus
CIS112-Object-Oriented Data Structures

2025-Spring

1. Catalog Definition

Principles of object-oriented programming (OOP) and data structures: stacks, queues, linked lists, trees, heaps, graphs.

2. Sections

There are 9 sections in this semester.

Course	Section	Instructor	Lecture	Lab	TA
cis112	1	Haluk Bingöl	M 11:00@120	T 09:00@304B	Melis Ulusoy
cis112	2	Haluk Bingöl	M 11:00@120	T 11:00@304B	Melis Ulusoy
cis112	3	Handan Kulan	M 11:00@xxx	W 09:00@210	Ekin Sönmez
cis112	4	Handan Kulan	M 11:00@xxx	W 11:00@210	Kağan Özetci
cis112	5	Handan Kulan	T 09:00@xxx	Th 11:00@304B	Seren Ucar
cis112	6	Ruhan Ikeda	M 14:00@xxx	Th 09:00@306	Kağan Özetci
cis112	7	Ruhan Ikeda	M 14:00@xxx	Th 11:00@306	Melis Ulusoy
cis112	8	Ruhan Ikeda	T 14:00@xxx	Th 14:00@306	Kağan Özetci
cis112	9	Sait Erkovan	M 14:00@xxx	Th 09:00@304B	İncinur Cem

3. Textbook

None.

4. Shared Resources

Resources are shared by means of

- YULearn: https://yulearn.yeditepe.edu.tr/.

5. Additional Resources

- **Introduction to Algorithms**, 4e, (CLRS) Cormen, Leiserson, Rivest, Stein, *MIT Press*, 2022.
- **Big Java- Early Objects**, 7e, Horstmann, *Wiley*, 2019. (**bjeo7**)
- **Big Java: Late Objects**, 2e, by Horstmann, *Wiley* 2016. (**bjlo2**)
- **The Design and Analysis of Computer Algorithms** by Aho, Hopcroft and Ullman, *Addison-Wesley*, 1974
- **Foundations of Computer Science** by Aho and Ullman, 1994, at http://infolab.stanford.edu/~ullman/focs.html
- **Fundamentals of Data Structures** by Horowitz and Sahni, *Pithman*, 1976.

- *Java Tutorials*, (https://docs.oracle.com/javase/tutorial/), *Oracle*.
- ***Introduction to Algorithms,*** (https://ocw.mit.edu/courses/6-046j-introduction-to-algorithms-sma-5503-fall-2005/) By Leiserson and Demaine, MIT OpenCourseWare, 2005. For recent ones search for "MIT OCW Introduction to Algorithms".

6. Weekly Program (tentative)

Date	Weeks	T#	Topics	Milestones
2025-02-17	1	**1**	git	
2025-02-24	2	**2**	**OOP**: bjlo2-Ch09-Inheritance and Interfaces	
2025-03-03	3	**3**	**OOP**: Generics	
2025-03-10	4	**4**	**Array**: Stack	
2025-03-17	5	**5**	**Array**: Queue (normal+circular)	Project-1 b
2025-03-24	6	**6**	**Generic**: Stack + Queue	Quiz-1
2025-03-31	7	**7**	**LinkedList**: Singly + Doubly	Project-1 e
2025-04-07	8	**8**	**LinkedList**: Stack + Queue + Deque	Midterm-1
2025-04-14	9	**9**	**Trees**: Binary + N-ary + Traverse	
2025-04-21	10	**10**	**Trees**: Binary Search Trees	Project-2 b
2025-04-28	11	**11**	**Trees**: Heap + PriorityQueue	Quiz-2
2025-05-05	12	**12**	**Graph**: Representation	Project-2 e
2025-05-12	13	**13**	**Graph**: Algorithms	Midterm-2
2025-05-19	14	**14**	**Hashing**	
				Final
			b: Project begins **e:** Project ends ***bjeo7***: Big Java- Early Objects, 7 edition by Horstmann ***bjlo2***: Big Java- Late Objects, 2 edition by Horstmann	

7. Software Used

We will be using professional tools:
- Integrated Development Environment (IDE)**: Eclipse**. Download "*Eclipse IDE for Enterprise Java and Web Developers*" from https://www.eclipse.org/downloads/packages/.
- Version control system: **Git**. Download "git" from https://git-scm.com/downloads.

8. Grading

	Quantity	Weight	Total
Midterm	2	15%	30%
Quiz	2	5%	10%
Project	2	5%	10%
Attendance	max		10%
Final	1	40%	40%
Total			**100%**

Note that
- Letter grading is based on curve.
- All the sections have a common exam.

- If you complete the Goal during the lab, you get one LabPlus. If you complete the Challenge, too, you get one more LabPlus. Enough number of LabPluses move your letter grade up by one if you are close to the boundary.
- Attendance is mandatory.
  - If you are late more than 30 minutes, then you are considered not attended.
  - If you attend less than 10 labs or less than 10 lectures, than you will automatically fail the course.
  - Your attendance point is based on the sum of lecture attendance and lab attendance as given in the table below.

Lecture + Lab	Attendance Points
20	2%
21	3%
22	4%
23	5%
24	6%
25	7%
26	8%
27	9%
28	10%

  - Examples:
    - If you attended 11 lectures and 12 labs, that is, in total 23 attendances, then you would get 5 points.
    - If you attended 9 lectures and 11 labs, that is, in total 20 attendances, then you would fail since you do not meet the criterion of minimum 10 lab attendance.

9. Course Learning Outcomes

#	CLO
1	Student will be able to develop object-oriented software
2	Student will be able to define the fundamental concepts in data structures
3	Student will be able to decide and use proper data structures for a problem
4	Student will be able to use Version Control Systems (git)

10. Honor Code

Any form of cheating or plagiarism is an automatic zero on the material (additional sanctions such as automatic F and/or disciplinary action will apply in serious cases). This includes copying material from each other or from the Web verbatim.

See university rules at https://ogrencimerkezi.yeditepe.edu.tr/en/student-ethical-principles-responsibilities-and-code-conduct.