Syllabus for

swe592 Complex Networks

3 (3+0+0) ECTS 6

2020 Spring

Catalog Definition

Random, Regular, Scale-Free, Small-World networks. Empirical studies, metrics, models and applications of Complex Networks. Clusters, Community Detection, Same Complex Networks: Social, Biological Networks, Internet, WWW.

(A course based on cmpe556 Complex Networks.)

General Information

Instructor:	Haluk O. Bingol
TA:	none
Student TA:	none
Course Schedule:	TTT 111213 @BM A5
PS Schedule:	none

Grading

Midterm:	35 %
Final (Project):	50 %
Attendance and Contributions:	15 %

Text Book

- none

Reference Books

- *Networks - An introduction*, Newman, Oxford, 2010, [T57.85 .N523 2010].
- *The Structure and Dynamics of Networks*, Newman, Barabasi and Watts, Princeton, 2006, [TK5105.5 .N485 2006].

Course Outline

Course is based on paper reading, presentations and discussions. A term project is designed, implemented, presented and reported as a paper.

Weekly Program (Tentative)

week	Subject
1.	Introduction to networks (technological, social, biological)
2.	Mathematics of networks
3-4.	Measures and metrics
5.	Large scale structure
6.	Some network algorithms
7-8.	Network models
9-10.	Processes on networks
11.	Epidemic models
12.	Community structure
13.	Web search