CS 302 Automata Theory

Fall 2016

	NAME/SCHEDULE	***E-MAIL+TEL/PLACE***	***OFFICE HOUR***
INSTRUCTOR	***Kemal İNAN***	***inan + 9518/FENS 1013***	***By appointment***
ASSISTANT(S)	***Figen BEKEN FİKRİ***	***fbekenfikri / UC 1083***	***M 14.30-15.30 OR By appointment***
LECTURES	***Tu 14:40 – 16:30 Th 12:40 – 13:30***	***FENS L063 FENS L067***	
RECITATION	***W 15:40 - 16:30***	***FENS L063***	

Main Text *: Introduction to Automata Theory, Languages and Computation , Hopcroft, Motwani & Ullman, Pearson (Addison Wesley) 2006 , 3rd edition*

Auxiliary Text *: Elements of the Theory of Computation, Lewis & Papadimitriou, Prentice Hall 1998.*

Grading Policy *: 10% HW, 35% Quizzes, 20% MT, 35% Final*

Important : *10 quizzes with 15 minute duration each shall be part of the course. Quizzes will be held during chosen lectures. A student missing more than **3** quizzes **fails** irrespective of medical or any other excuses ! The overall quiz grading will be the average of the best **7** out of 10.*

Homework Policy : *There will be 8 homeworks as part of the course. Homeworks will typically be assigned on SUCourse on Tuesdays before class and will be collected as hard copies on the next Tuesday at the beginning of the class, unless otherwise stated. Late submissions within 1 day will be accepted with the 10% off of the full grade.*

Tentative Schedule

Sept								***27*** *1,2*	***29*** *2*
Oct	***4*** *3* *HW1*	***6*** *3*	***11*** *3,4* *HW2*	***13*** *4*	***18*** *5* *HW3*	***20*** *6*	***25*** *8*	***27*** *8,7*	
Nov	***1*** *7,9* *HW4*	***3*** *9,10*	***8*** *10,11* *HW5*	***10*** *Midterm*	***15*** *11,12*	***17*** *12*	***22*** *12,13* *HW6*	***24*** *13*	***29*** *14* *HW7*
Dec	***1*** *15*	***6*** *15*	***8*** *15,16*	***13*** *16*	***15*** *17*	***20*** *17* *HW8*	***22*** *17*	***27*** *17*	***29*** *17*

Tentative Course Outline

1 – Introduction : Languages, Automata and Grammars **(Main Text (MT) 1.1, 1.5)**

2 – Deterministic Finite Automata as Language Acceptors (DFA) **(MT 2.1, 2.2)**

3 – Nondeterministic Finite Automata (NFA) and Linguistic Equivalence to DFA

(MT 2.3 - 2.5)

4 – Regular Expressions (RE) **(MT 3.1)**

5 – *RE and NFA* **(M.T 3.2)**

6 – *Regular Languages and Properties* **(M.T. 4.1, 4.2)**

7 – State Equivalence and Minimal State DFA **(MT 4.4)**

8 – Algorithms for the DFA and NFA **(MT 4.3, 4.4)**

9 – Context-Free Grammars (CFG) **(MT 5.1)**

10– Parse Trees and Applications **(MT 5.2, 5.3)**

11 – Ambiguity in Grammars and Languages **(M.T. 5.4)**

12 – Pushdown Automata (PDA) **(MT 6.1, 6.2)**

13 – CFG and PDA **(M.T. 6.3)**

*14 – Deterministic Context-Free Languages (***MT 6.4***)*

15 – Properties of and Algorithms for Context Free Languages **(MT 7.1,7.2, 7.4)**

16 - Determinism and Parsing **(AT 3.7, p 158-177)**

17 - Introduction to Turing Machines **(AT Chapters 4 ,5 selections)**