Instructor: D.T. Huynh Office: ECSS 3.801
Office Hours: Tues./Thurs. 1:00 – 2:00pm via MS Teams (For an appointment please send email to: huynh@utdallas.edu)
Teaching Assistant: TBA Course Prerequisites: CS 3305 (Discrete Math II) or equivalent
Contents Description:
1. Brief review of mathematical background. (Chapter 0 in text) (Binary relations, digraphs, strings, languages, inductive definitions and types of proof ...)
2. Finite Automata and Regular Expressions. (Chapter 1 in text) (Deterministic and nondeterministic finite automata, regular expressions and regular sets, Kleene's Theorem.)
3. Properties of Regular Sets (Chapter 1, in particular Section 1.4) (Pumping Lemma, closure properties, decision algorithms)
4. Context-Free Grammars and Languages. (Chapter 2 in text) (Context-free grammars, regular grammars)
5. Simplified Forms and Normal Forms. (Chapter 2 in text) (Useful symbols, productions, unit productions, Chomsky normal form)
6. Pushdown Automata. (Section 2.2 in text) (Pushdown automaton, equivalence between pushdown automata and context-free languages)
7. Properties of Context-Free Languages. (Section 2.3 in text) (Pumping Lemma, closure properties, the CYK algorithm)
8. Turing Machines. (Chapters 3 and 4 in text) (Turing machines, their variants and the undecidability of the halting problem)
9. Undecidability. (Chapter 5 in text)

Required Textbooks and Materials:
Sipser, M.: "Introduction to the Theory of Computation", Cengage Learning, (3rd edition) 2013. (Main Text)

Assignments and Academic Calendar/Grade Scale:
• 5 Homework assignments 10% (HW assignments are due on eLearning on the date given. Late HWs will not be accepted. HW assignments will be uploaded on eLearning. Solutions of HW problems will be provided on eLearning.)
• Exam #1 (75 minutes) 25% Tues., Feb. 22, 2:30 pm
• Exam #2 (75 minutes) 30% Tues., March 29, 2:30 pm
• Exam #3 (75 minutes) 35% Thurs., May 5, 2:30 pm

Course and Instructor Policies:
• A copy of the lecture notes (Chapters 1-9) can be found on UTD eLearning
• Exam #3 is not comprehensive. (Each exam will cover approx. 1/3 of course content.)
• Students are encouraged to discuss HW problems. However, your submission must be your own work. Anyone caught cheating on HWs will receive zero credit.
• If you decide to stop attending class, be sure to drop the course since you will not be dropped automatically. • Any student wishing to contest a grade on a HW should contact the TA.

• Final grades will be posted by the Records Office.
• All exams will be graded by the instructor. HWs will be graded by the TA.
• There will be no makeup exams under normal circumstances.
• No late homework or assignment will be accepted!
• I do not read e-Learning e-mails. Please use my UTD e-mail account above for any communications.
• All grade disputes must be reported within 1 week of the grade in question being posted on eLearning. Uncontested grades will be final after 1 week. If you have questions concerning your exam grades, please contact me. Due to FERPA grades cannot be discussed via email.

Class Attendance:
The University's attendance policy requirement is that individual faculty set their course attendance requirements. Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty. In some courses, instructors may have special attendance requirements; these should be made known to students during the first week of classes.

Class Participation:
Regular class participation is expected. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs).