

College of Science, Engineering and Technology

Department of Computer Science

CS 551 Syllabus

Course Name	Theory of Computation
Course Number	CS 551
Credit hours	3 credit hours
Course Pre-requisites	It is assumed that you are comfortable with mathematical concepts and formal mathematical proofs
Lecture Location	TECH334
Course Schedule	Tuesday: 5:30 pm -8:20 pm
Coordinator and Instructor	Lila Ghemri, TECH 314E Email: Ghemri_lx@tsu.edu Website: http://cs.tsu.edu/ghemri
Office Hours	T–R: 10:00 AM – 11:00 AM and 4:00-5:00 pm. This room is a gun free zone.
Course Catalog Description	Topics include logic, deductive proofs, finite automata; regular sets, expressions and their properties; push-down automata; standard, universal and linear bounded Turing machines, relationships between formal languages and automata.
Course Objectives and Learning Objectives	In this course, students will learn about computational requirements of some class of problems. We will show the limits of traditional computational models. At this end of this course; students will be able to: <ol style="list-style-type: none"> 1. Solve problems using different types of formal proofs 2. Design automata and regex to model regular languages and context free languages. 3. Implement a parser for an LL1 language. 4. Recognize classes of non-regular and non-context free languages.
Contribution to CS program Objectives	This course contributes to the following ABET goals: <ol style="list-style-type: none"> 1. In depth knowledge and skills needed in designing, implementing and managing Computer Science projects (CS2) 2. To produce graduates with the ability to analyze, investigate, understand, evaluate, appreciate and determine information and solutions to problems.(CS9)
Required Materials	Introduction to Automata Theory, Languages and Computation. Third Edition, by J. Hopcroft; R. Motwani; J. Ullman, ISBN: 0-201-44124-1, Addison-Wesley.
Additional Material	<ul style="list-style-type: none"> • JFLAP software at www.jflap.org • Other sources as required
Course Website	http://cs.tsu.edu/ghemri will be used to post the syllabus, announcements, assignments and any suggested reading material. Each student will be responsible for regularly checking the website for updates.

Grading Policies

Class attendance, in class programming, assignments, two midterm exams, and a final exam will be calculated using the following weighted scale:

10%	Pop Quizzes and in-class work
15%	Assignments
10%	Programming Project
40%	2 Exams
25%	Final Exam

- There are no make-up tests. If you miss a test and have a legitimate excuse, your grade will be based on your other work.
- Missing the final with a legitimate excuse will get you an I (Incomplete) and cause you to retake the final the following semester.
- If you do not have a legitimate excuse, you get F.
- There is no make-up for missed pop quizzes and class work.
- There will be no extra credit allowed. During the term, you are given ample opportunity to earn and make up grades.

Expected Work

- You are responsible for acquiring the book.
- You are responsible for reading class material before coming to class.
- There will be assignments accompanying each chapter. Assignments will count for 15% of your grade.

Grading Scale

98%-100%: A+	88%-89%: B+	78%-79%: C+	68%-69%: D+	0%-59%: F
93%-97%: A	83%-87%: B	73%-77%: C	63%-67%: D	
90%-92%: A-	80%-82%: B-	70%-72%: C-	60%-62%: D-	

Attendance Policy

This class adheres to the Class Attendance Regulations as outlined in <http://www.tsu.edu/PDFFiles/student/services/student%20handbook%202009%20082409%20WEB.pdf> Student attendance is checked and reported to the Student Academic Affairs.

Academic Integrity and Rules of behavior

1. The instructor strictly adheres to all University policies regarding academic integrity as stated in the TSU Student Handbook. Students are responsible for internalizing all information regarding TSU's academic integrity policies. Full text and explanation of these policies can be found in the TSU Student Handbook.
2. Unless specifically expressed by the instructor, collaboration between students in this course, between students in previous courses, external assistance in any form or presenting resources/research without proper citation which has been developed by another individual or organization is strictly prohibited. All work must be the result of your own efforts.
3. Mobile phones and other wireless devices: A student whose mobile rings during class will be asked to leave the classroom. Should this happen during an exam, the student will not be allowed to return or retake the exam at another time, while at the same time receiving a full absence.
4. More details at: <http://www.tsu.edu/PDFFiles/student/services/Student Code Conduct.pdf>
5. Attendance is taken at each class and reported to the Registrar Office

**Office of
Disability Services
and ADA Policy**

Through the Office of Disability Services, Texas Southern University provides individualized reasonable accommodations for students with disabilities as defined by the Americans with Disabilities Act of 1990, the Americans with Disabilities Act Amendments Act of 2008, and Section 504 of the Rehabilitation Act of 1973. These federal acts mandate equal opportunities for qualified persons with disabilities in all public facilities, programs, activities, services, and benefits derived from them. In order to receive accommodations a student must have a documented mental or physical disability that substantially limits a major life activity. Some examples of major life activities that would impact learning are: seeing, hearing, concentrating, communicating, reading, and writing. Reasonable accommodations are recommended based on the application review process and supporting documentation; however approved accommodations shall not modify course objectives. For more information about the accommodation process, please contact the Office of Disability Services at 713-313-4210 or 713-313-7691. This office is located in the Student Health Center, Room 140 and business hours are Monday through Friday from 8:00 am to 5:00 pm.

Date	Course Schedule and Required Reading	Course Learning Objectives
Week 1	Course presentation and Mathematical Concepts	CLO 1
Week 2	Mathematical Concepts: Proofs	CLO 1
Week 3	Mathematical Concepts: Proofs	CLO1
Week 4	Finite State Automata	CLO 2
Week 5, 6	Non determinism	CLO 2
Week 7	Regular Expressions	CLO 2
Week 8	Regular Grammars	CLO 2
Week 9	Test 1, Non Regular Languages	CLO 4
Week 10	Context Free Languages , Project Part 1 due	CLO 2
Week 11 ,12	Context Free Grammars, Push down Automata	CLO 2
Week 13	Test 2, Parser Design: Top down Parsers	CLO 3
Week 14, 15	Parser Design: Bottom up Parsers	CLO3
Week 16	Non-Context Free Languages/ Turing Machines	CLO 4
Week 17	Final and Parser Demo	

NB: The weekly outline above and the content may be changed subject to course needs and to ensure that the learning objectives are met.