Kingdom of Saudi Arabia

Ministry of Higher Education

Najran University

College of Computer Science and

Information Systems

المملكة العربية السعودية

وزارة التعليم العالي

جامعة نجران

كلية علوم الحاسب ونظم المعلومات

College of Computer Science and Information Systems	Department of Computer Science
Course Code : 222CSS-3	**Computer Organization and Assembly Language**
Contact Hour : 3(0)	**Prerequisite : 111CSS-4**

Coordinator -

2. Course Description

Study of abstract computation models and formal languages. Finite state automata and regular languages, push down automata and context-free languages, linear bounded automata and context sensitive languages, and Turing machines and recursively enumerable and recursive languages.

3. Course Learning Outcomes

SL	By the end of this course, students should be able to:	Linkages to POs
1.	Describe the basic concepts of theory of computation, computation models, and formal languages.	a(W)
2.	Explain the relationships between computation models, formal languages types and their grammars.	a(W)
3.	Recognize the power and limitations of each model of computation.	c(S),i(S),j(S)
4.	Construct computation models to model different types of languages.	a(W),j(W)
5.	Generate computation models and languages from grammar.	a(S),b(S)
6.	Assess the equivalence of DFA with NFA, PDA with context free grammars, and regular expressions with finite automata.	b(S)

4. Learning Resources

Text	J. E. Hopcroft, R. Motwani, J.D. Ullman, Introduction to Automata Theory, Languages, and Computation, 3rd Edition, Addison Wesley
Reference	Michael Sipser, Introduction to the Theory of Computation, Thomas Course Technology, Latest Edition
Reference	John E. Hopcroft, Rajeev Motwani, Jeffrey D. Ullman, Introduction to Automata Theory, Languages, and Computation, Pearson Education, (2000)
Reference	Efim Kinber, Carl Smith, Theory of Computing, A Gentle Introduction, Prentice Hall, (2001).

5. Course Content : The list below provides a summary of the material that will be covered during the course

Week	Topics	References Book / Others Source	Special Event	Tutorial Activities	Lab Activities
1.	Introduction to automata and formal languages	Chapter One	NA	N/A	NA
2.	Finite Automata	Chapter two	NA	NA	NA
3.	Finite Automata	Chapter two	Quiz 1	Tutorial 1	NA
4.	Finite Automata	Chapter two	Assignment 1	Tutorial 2	NA
5.	Regular Expressions and Languages	Chapter three	Quiz 2	Tutorial 3	NA
6.	Regular Expressions and Languages	Chapter three	Midterm Exam-I	NA	NA
7.	Context Free Grammars and Languages	Chapter five	Assignment 2	Tutorial 4	NA
8.	Properties of Context Free Languages	Chapter five	NA	Tutorial 5	NA
9.	Pushdown Automata	Chapter six	NA	Tutorial 6	NA
10.	Turing Machines	Chapter eight	Midterm Exam-II	NA	NA
11.	Turing Machines	Chapter eight	Quiz 3	Tutorial 7	NA
12.	Context sensitive Languages	NA	NA	Tutorial 8	NA
13.	Linear Bounded Automata	NA	NA	NA	NA

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6. Evaluation Scheme: The following list is the contribution of course components to the final grade for the course.	
Component	Weight (%)
Assignment 1	3
Assignment 2	3
Quiz 1	4
Quiz 2	5
Quiz 3	5
First Exam	15
Second Exam	15
Final Exam	50
Total	100