Systems Programming

- **Course number and name:**
  CC 410 – Systems Programming

- **Credits and contact hours**
  Credits Hours: 3Hrs
  Contact Hours: In Lecture 2Hrs, In Tutorial 2Hrs.

- **Instructor's or course coordinator's name**
  Coordinator Name: Prof. Dr. Ahmed Fahmy

- **Text book, title, author, and year**
  o System software: an introduction to systems programming, Leland L. Beck, 3rd Edition, Addison Wesley, Longman Inc., 1997.

- **Specific course information**
  a. **Catalog description**
     INTRODUCTION TO SYSTEM PROGRAMMING, MACHINE ARCHITECTURE, MACHINE LANGUAGE, ASSEMBLY LANGUAGE, TWO PASS ASSEMBLERS, ONE PASS ASSEMBLERS, MACRO FACILITIES, CONDITIONAL MACROS, MACRO PROCESSORS, LOADERS, LINKERS, INTRODUCTION TO FORMAL LANGUAGES, COMPILERS AND INTERPRETERS.
  b. **prerequisites or co-requisites**
     Prerequisites: CC319
  c. **Type of the course (required, elective, or selected elective course) in the program**
     Required Course

- **Specific goals for the course**
  d. **Specific outcomes of instruction**
     After the completion of this course the students will be able to:

	Course Learning Outcomes	SO
1	Study the architecture of a hypothetical machine, its assembly language, macro language.	I,J
2	Program in assembly language.	J
3	Understand the structure and design of assemblers, linkers and loaders.	J
4	Understand the concepts and theory behind the implementation of high level programming languages.	J

Topics to be covered

- System programming Vs. Application programming
- Study of a hypothetical machine (SIC machine)
- Programming in assembly language
- Structure and design of a two pass assembler
- Structure and design of one pass assemblers
- Programming in macro languages
- Structure and design of macro processors
- Loaders and linkers
- Introduction to formal Languages and processing of high level languages