

Introduction to Artificial Intelligence

- **Course number and name:**
CC 511 – Introduction to Artificial Intelligence
- **Credits and contact hours**
Credits Hours: 3Hrs
Contact Hours: In Lecture 2Hrs, and In Tutorial 2Hrs
- **Instructor’s or course coordinator’s name**
Coordinator Name: Dr. Rowayda Sadek
- **Text book, title, author, and year**
 - Artificial Intelligence: A modern Approach : Stuart Russell and Peter Norvig. Prentice-Hall
 - Elaine Rich, Kevin Knight, Artificial intelligence, McGrawHill Inc 1995
 - John Durkin, Expert systems, Mac., 1994.
 - Ivan Bratko, Prolog programming for AI , A.W.
- **Specific course information**
 - a. **Catalog description**
AI : History and Goals – AI as Representation and search – Knowledge based systems – Logic (Propositional and Predicate) as a representation language – Informed search techniques - Prolog as an example of an AI language – Expert Systems.
 - b. **prerequisites or co-requisites**
Prerequisites: CC218, CC319
 - c. **Types of Course (required, elective, or selected elective course) in the program**
Required Course
- **Specific goals for the course**
 - a. **Specific outcomes of instruction**
After the completion of this course the students will be able to:

	Course Learning Outcomes	SO
1	Understand the basic concepts of artificial intelligence.	J
2	Discuss a wide variety of search techniques.	J
3	Explain the methods for encoding knowledge in computer systems.	J
4	Implement a wide variety of intelligent applications using C, Prolog, and shells.	J

Topics to be covered

- Introduction to AI : Definition - History – Goals
- AI as Representation and Search. State Space. Search Strategy
- Blind search techniques
- Informed (Heuristic) search techniques : Hill Climbing – Best First – A*
- Admissibility – Monotonicity – Informedness of a heuristic function
- Game trees
- Expert systems & knowledge-based systems
- Propositional Logic : Syntax – Semantic – Proof by resolution refutation
- First Order Logic : Syntax – Semantic
- First Order Logic : Resolution - Soundness – Completeness
- Introduction to Prolog Basic Mechanisms : Matching – Backtracking
- Prolog tree data structuring
- AI : Applications