

Discrete Mathematics

- **Course number and name:**
CC 218 – Discrete Mathematics

- **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. Attallah Hashad

- **Text book, title, author, and year**
 - Sussana Epp, “Discrete Mathematics with Applications”, PWS 1995, 2nd Edition

- **Specific course information**
 - a. **Catalog description**
The logic of statements - logical form and equivalence - logic implementation - arguments – predicates - number theory - counting methods – function – relation - methods of proof.
 - b. **prerequisites or co-requisites**
Prerequisites: CC111
 - c. **Type of the 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	Able to comprehend mathematical logic, predicates and methods of proof.	A,I
2	Understand mathematical induction.	A,I
3	Understand discrete structures like functions and relation.	K,I

Topics to be covered

- Logical form & logical equivalence
- Conditional statement, valid & invalid arguments
- Predicates & quantified statements
- Arguments with quantified statements
- Number theory
- Counting elements
- Functions defined on general sets
- One-to-one, onto, inverse function, composition of functions
- Relations on sets
- Reflexivity symmetry, transitivity & equivalence relations
- Partial order relations
- Finite state automata
- Mathematical inductions