BA124- Mathematics (2)

Hour: Lecture: 2 Hrs. Tutorial: 2 Hrs. Credit: 3.

Coordinator: Mohsen Salah

Text Book:

- Robert T. Smith and Roland B. Minton, *Calculus: Early Transcendental Functions,* Mc GRAW. Hill, latest edition.
- Printed Notes.

Specific course information:

a. This course addresses integration and some of its geometric applications, as well as elementary matrix algebra. It includes definitions and intuitive meanings of indefinite and definite integrals; Fundamental Theorem of Calculus; Basic techniques of integration; Integration by parts; Geometric applications; Integration of powers of trigonometric functions; Substitution; Miscellaneous and Trigonometric substitutions; Integration of rational functions in x through partial fractions; Numerical Integration. Gauss' method for the solution of linear equations; Matrix inversion and its use in the solution of linear equations.

b. Prerequisite: BA123

c. Designation: Required

Specific goals for the course:

- Ability to apply knowledge of mathematics, science, and engineering.

Course instruction outcomes:

- The students will develop skills in the techniques of integration, and enables them to grasp its intuitive meaning.
- The students will be provided with essential knowledge and skills in matrix algebra.

Student outcomes:

A, E

Topics Covered:

Definition of indefinite integrals and table of famous integrals - Simple rules of integration and the fundamental theorem of calculus - Fundamental theorem of calculus and integration by parts - Integration by parts and integration of rational functions - Integration of rational functions - Integration of trigonometric powers - Trigonometric substitution and 7^{th} week exam - Integration of quadratic forms and the reduction formulas - Definite integration - Area and volume - Area, volume and length of curve - Average of a function, numerical integration - Matrix Algebra - Solution of systems of linear equations.

Course / credit hours	Math & Basic Sciences	Engineering Topics	General Education
Math 2(BA124)/3	3		