


AMOUD UNIVERSITY
“A Vehicle for Peace and Development”
AMOUD UNIVERSITY



FACULTY OF COMPUTING AND ICT

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY PROGRAMME

ACADEMIC YEAR 2015/ 2016

COURSE DESCRIPTION

BIT 217	Linear Algebra
Contact Hours	39
Pre-requisite	N/A
Purpose/Aim	The syllabus for this course is divided into three modules. Intermediate Algebra Module I: Intermediate Algebra Module II: Intermediate Algebra Module III:
Course Objective (Indicative Learning Outcomes)	<p>(i) Intermediate Algebra Module I: This module of the course covers the following topics: The real number system; order of operations; simplifying expressions; solving linear equations and inequalities in one variable; applications and modeling; overview of graphing; linear equations in two variables; relations and functions; compound inequalities in one and two variables; absolute value equations and inequalities in one variable; linear inequalities in two variables; systems of equations in two variables; properties of exponents; scientific notation; and polynomial arithmetic.</p> <p>(ii) Intermediate Algebra Module II: The topics of this module includes: properties of exponents; scientific notation; polynomial arithmetic; factoring and equation solving; rational expression arithmetic and simplification; complex fraction simplification; rational, radical and quadratic equations; polynomial inequalities in one variable; operations on radical expressions and expressions containing rational exponents; complex number system introduction; and applications and modeling.</p> <p>(iii) Intermediate Algebra Module III: Topics covered in this module are: linear systems, matrices, and determinants; vector spaces, \mathbb{R}^n and its subspaces; Eigenvalues, Eigenvectors, and applications; orthogonal matrices; linear transformations; and complex scalars; with applications.</p>
Course Content	<ul style="list-style-type: none"> • Equations with Two Variables • Algebraic Fractions • Linear Equations in One Variable • Segments, Lines, and Inequalities • Linear Equations In Two Variables



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	<ul style="list-style-type: none"> • Linear Equations In Three Variables • Polynomial Arithmetic • Factoring Polynomials • Rational Expressions • Relations and Functions • Polynomial Functions • Radicals and Complex Numbers • Quadratics In One Variable • Conic Sections • Quadratic Systems • Matrices and Determinants • Vector Spaces • Eigenvalues, Eigenvectors and Applications • Linear Transformations 		
Learning & Teaching Methodologies	Lectures, tutorials and communication exercises		
Instructional Materials/Equipment	Classroom with audio visual aids		
Course Assessment	Type	Weighting (%)	
	Final Examination	60	
	Mid Term Examination	20	
	Assignment	10	
	Attendance	10	
	Total	100	
Recommended Reading	Title	Author	Publisher
	Linear Algebra: An Introduction (First or Second Edition)	Richard Bronson and Gabriel B. Costa Elsevier Academic Press	
Additional Reading	Linear Algebra Done Right	Sheldon Axler	
Other Support Material	A variety of multimedia systems and electronic information resources as prescribed by the lecturer. Various application manuals, URL search and journals.		