ELE1204 STATICS & DYNAMICS

Hours per Semester				Weighted Total Mark	Weighted Exam Mark	Weighted Continuous Assessment Mark	Credit Units
LH	PH	TH	CH	WTM	WEM	WCM	CU
30	0	00	60	100	60	40	2

Brief Course Description

Statics and Dynamics course is designed purposely to help Electrical Engineering students to understand mechanical forces and energy in physical structures (structures used in electrical and telecommunication installations).

Course Objectives

By the end of the course students should be able to:

- Understand types of mechanical forces in physical engineering structures
- Apply the concepts of statics and dynamics in the design of engineering structures.

Detailed Course Content:

Statics: **[15 Hours]**

Fundamental concepts and principles of mechanics; Important vector quantities; Fundamental units; Moments and couples; Resultants of forces and couples; Laws of equilibrium; Free body diagrams; structures, cables, frames and machines;

Dynamics: **[15 Hours]**

Fundamentals of dynamics; Dynamics of particles and rigid body including kinematics and kinetics; Applications of Newton's second Law of motion; Analysis of motion in two dimensional and three dimensional spaces; Simple harmonic motion; Methods of energy momentum Applications of Dynamics to the engineering concepts; Strength of material, Fluid Mechanics, Pulleys, Chains; Concepts of Flywheel, Bearing, Mechanical Power Transmission.

Mode of Delivery

The course will be taught by using lectures, tutorials and assignments.

Assessment

Assignments, tests and final examination. Their relative contributions to the final grade are :

Requirement	**Percentage contribution**
Course work (Assignments, tests)	4
0% Final examination	6
0%	
Total	**10**

0% Learning Outcomes

Having successfully completed the module, you will be able to demonstrate knowledge and understanding of:

- Basic concepts and principles in mechanics of solids
- Applications of mathematics and principles of superposition
- Structural analysis
- Material behaviours under mechanical loadings
- Abilities to identify, describe and analyse the performance of mechanical systems
- Basis for beam design

Method of Teaching /Delivery

The course will be taught by using lectures, tutorials and assignments.

Mode of Assessment

Assignments, tests and final examination. Their relative contributions to the final grade are :

Requirement	**Percentage contribution**
Course work (Assignments, tests)	40
% Final examination	60
% **Total**	

100%

Recommended and Reference Books

- Benham PP, Crawford RJ, Armstrong CG, Mechanics of Engineering Materials (1996) Pearson/Prentice Hall [Library] [Shops]
- Hibbeler RC, Statics and mechanics of materials (2004) Pearson/Prentice Hall [Library] [Shops]
- Hibbeler RC, M