Subject Code: AMA290

ENGINEERING MATHEMATICS

Level: 2

Contact Hours:
Lect: 21
Sem/Tut: 21

Student Effort Hours: 120

Assessment Method:
Examination 70%
Coursework 30%

Credit Value: 3

Pre-requisites: Nil
Co-requisites: Nil
Exclusions: Nil

Subject Leader/Lecturer/Dept.: (AMA)

Subject Aim:

The subject is intended to:

1. Emphasize the mathematics concepts, principles of numerical analysis and their applications to the construction industry. It gives students a mathematical background within the context of its application to engineering problems.

Learning Outcomes:

Students will demonstrate their ability to:-

1. Interpret, understand and prepare the data which they will be required to manipulate for construction problems.
2. Understand the application of analytical calculations.
3. Apply quantitative techniques to problem solving in building design, construction and management.

Syllabus Content:

Linear Algebra: Basic operations of vectors, matrices and determinants; Systems of linear equations; General properties of solutions; Elimination method; Ill conditioned systems; Eigenvalues and eigenvectors; Applications.

Applied Calculus: Functions of several variables; Partial derivatives; Maxima, minima and saddle point; Lagrange multiplier; Application to error estimates.

Linear Programming: Formulations; Graphical solution; Simplex method; Parametric modelling; Project Scheduling by PERT/CPM.

Learning and Teaching Approach:

The method of learning will be composed of formal lectures and tutorials. The lecturer will present the study topics in the lectures. In tutorial class. The work will focus on problem solving based on examination type questions and practical examples.

Assessment:

Examination and coursework will constitute the 70% and 30% of the overall marks of the subject respectively. The coursework mark will be based on the assignments and seminar discussions.

Reading List:

Recommended:

Supplementary: