EMT 1105 Engineering Mathematics

Hours Per Week			Hours per Semester	Weighted Total Mark	Weighted Exam Mark	Weighted Continuous Assessment	Credit Units
LH	PH	TH	CH	WTM	WEM	WCM	CU
4	0	4	60	100	60	40	4

Rationale/Course Description

The course provides the foundation for useful solutions to mathematical models relevant to the construction environment.

Objectives/Aims

- To provide an introductory treatment of mathematical concepts and techniques
- To introduce the student to the basic numerical processes to obtain approximate but useful solutions to mathematical models.

Course Content

1.0 Calculus [15 CH]

1.1 Differentiation, partial differentiation, maxima and minima. I
1.2 Introduction to differential equations,
1.3 Integration, basic formula, by parts, successive integration, application to area length, areas.

2.0 Plane analytic geometry; [15CH]

2.1 Fundamental concepts, standard form,
2.2 General equation and properties of straight line, circle, parabola, ellipse and hyperbola.

3.0 Calculations for area of plane regular shapes [10CH]

3.1 Using algebraic and trigonometric methods and
3.2 Using irregular shapes by approximate methods.

4.0 Conic coordinates. [10 CH]

5.0 Solid geometry; [10 CH]

5.1 Fundamental concepts,
5.2 The plane,
5.3 Straight line,
5.4 Space loci
5.5 Quadric surface.

Learning Outcomes

On completion of the course, the student will be able to apply various mathematical concepts and models in solving analytical problems in a built environment.

Method of Teaching/Delivery

The course will be conducted through lectures and tutorials. The course tutor will provide basic materials to be supplemented by individual reading effort of students

Assessment Method

Assessment will be done through continuous assessment including assignments and tests contributing 40%. The final exam will contribute 60%.

Reading/reference materials

Weltner K. Grosjean J. Schuster P. and Weber W.J. (1986): Mathematics for Engineers & Scientists, Stanley Thomas Publishers. London.

Erwirt Kreyszig (1988): Advanced Engineering Mathematics, (6th Edn.) John Wiley & Son; New York

Mathematics for, Economists: An Elementary Survey Prentice - Hall, Inc. Englewood Cliffs New Jersey.