EMT2101 Engineering Mathematics III [6CH]

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

Course Description

Drawing from the concepts covered in Engineering Mathematics I and II, this course is designed to consolidate and advance analytical techniques for solution of ordinary differential equations; and introduces concepts fundamental to the study of other courses in Computer Engineering. The major themes covered include integral transforms, series solutions to ordinary differential equations and special functions.

Objectives

- Introduce the student to Integral Transforms and their application to the solution of Ordinary Differential Equations
- Introduce the Power Series solution technique to Ordinary Differential Equations
- Expose the student to some special functions fundamental to engineering specifically Gamma, Beta, Bessel and Legendre.
- To develop problem solving skills and proof skills by working on specific problems in which it is natural to look at special or simpler cases in order to try to discover patterns. An integral part of the process of mathematical thinking is to wander into blind alleys, sometimes being frustrated, before ultimately obtaining a solution or proof. In this process mathematical scientists often work together with colleagues, and this group work and sharing of ideas often adds great value to a mathematical investigation.
- To give a balanced introductory treatment of the area of Partial Differential Equaitons (PDEs) so that a student appreciates the power of PDE modeling; and is aware of major techniques for their solution. The focus of the course is on analytical techniques for the classical linear PDE of physics and engineering (heat, wave and Laplace equations), and their frequent occurrence in applications.