# Internet course material supporting mathematics programmes offered at RMIT

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**Abstract**

In this presentation, two of the on-line mathematics subjects offered at RMIT using the internet will be discussed. The subjects chosen are:

1. An introductory mathematical subject that supports a particular Manufacturing Engineering course; with an enrolment of approximately twenty students.

2. A higher level subject taken by the majority of students studying either Engineering or Applied Science at RMIT; with an enrolment of approximately one thousand students.

In the first, web pages deliver the content of the course using Acrobat. Examples of the material available can be accessed using the main introductory page which is located at the URL

www.ma.rmit.edu.au/kepler/manops/MA058.pdf .

The subject is based on a prescribed text, a copy of which will be provided on loan to each student who enrols in the course. Due to the small enrolment numbers, this subject is presented using various activities: interactive explorations and discussions; independent problem

solving; group problem solving built around applications; and Maple-based exercises. (A copy of the most recent student version of Maple will also be loaned to each student enrolled in the course.) These activities are based on material contained within the text, although, mainly for test purposes, other resources are also being developed.

The explorations and discussions are aimed at generating interactions between students and to assist their understanding of the concepts introduced in the text. These interactions can be either asynchronous (using e-mail and First Class conferences) or synchronous (using the telephone, chat within First Class or more comprehensive communication through NetMeeting). The lecturer's help will be readily available; for example, some of the designated activities will consist of on-line tutorials.

Group problem solving activities — each problem is group-unique with each group consisting of two to three students — will contribute 50% to the total assessment. Such activities are completed by submitting a Maple worksheet to the designated First Class conference. For assessment purposes, each group submission is required to include a clear indication of the contribution made by each member of the group. The remaining assessment for this subject is based on a final examination.

In the second — covering basic topics that include Laplace transforms, Fourier series and separation-of-variable techniques applied to partial differential equations — a complete set of course notes that are integrated with sets of illustrative Maple exercises is provided that support traditional lectures offered in a large-class setting. Student assessment includes the submission of set Maple projects and a final examination.