SE4022 Engineering Analysis

Module status in MSc Professional Engineering: Option **Module credits:** 15

Aims

To develop an understanding of relevant mathematical and computer-based techniques for conducting investigational or design activities, together with associated practical capabilities.

Content

This is a generic module specification – whilst adhering to the broad principles set out here, the content of any particular delivery of the module will necessarily depend on the selected engineering domain and the learning contract agreed between the programme participant, Aston University and the participant's professional engineering institution.

Illustrative content: Mathematical principles. Applicable computer models and computational procedures. Practical applications to investigative and design work. Limitations.

Teaching

The module may be taught to an appropriate extent through work-based projects supplemented by individual learning (eg through directed reading or guided research) and supported by individual supervision and mentoring. Subject to learning contract specification, it is likely that some of the module will be supported by formally taught material from one or more level 4 modules forming part of another EAS MSc programme, accessed by distance learning.

Assessment

Written reports and/or other formal work products arising from any work-based project(s) will be assessed. Where content has been accessed by distance learning, and if specified by the learning contract, a proportion of the module mark may be derived from formal assessments associated with the modules accessed.

If assessment is based entirely on work-based activities, the participant's reports should total around 4000 words, or 10-15 pages including appropriate diagrams, tables, etc. Where formal assessment of distance learning provides part of the overall module assessment, reports on work-based activities should be limited to around 2500 words (about 6-9 pages) in total.

Module outcomes

What the participant should gain from successful completion of the module	*Teaching/Learning Methods*	*Assessment Methods*
Knowledge and Understanding Broad knowledge and understanding of relevant mathematical and computer-based models and an appreciation of their significance and limitations in relation to current and emerging technologies and design methodologies	A suitable combination of work-based projects, individual learning and distance learning	Written reports or other appropriate formal work products, probably supplemented by exam assessment of distance learning material
Intellectual Skills Ability to apply mathematical or computer-based models for solving problems and assessing the suitability of particular techniques Ability to use scientific and mathematical knowledge to investigate new technologies		
Professional/Subject-Specific Skills		
Transferable Skills		

Learning resources

As appropriate to the selected engineering domain and any modules accessed by distance learning

Other modules required in order to take this module

SE4001 Professional Development Audit