Programming and information technology 213 (MPR 213)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	18.00
Programmes	BEng Chemical Engineering
	BEng Chemical Engineering Engage
	BEng Civil Engineering
	BEng Civil Engineering Engage
	BEng Industrial Engineering
	BEng Industrial Engineering Engage
	BEng Mechanical Engineering
	BEng Mechanical Engineering Engage
	BEng Metallurgical Engineering
	BEng Metallurgical Engineering Engage
	BEng Mining Engineering
	BEng Mining Engineering Engage
Prerequisites	No prerequisites.
Contact time	2 practicals per week, 4 lectures per week
Language of tuition	Both Afr and Eng
Academic organisation	Mechanical and Aeronautical En
Period of presentation	Semester 1

Module content

Advanced spreadsheet applications: Named ranges, linear algebra, solution of systems of equations, regression, interpolation, optimisation and table manipulation. Basic structured programming: Looping, branching, subroutines, iteration, reading and writing data files. Development, coding and debugging of simple programs in a high level programming language. Programming principles are illustrated via mathematical concepts such as limits, differentiation, integration and linear algebra. Structured programming by making use of functions and available toolboxes. Basic graphical output (plotting is also covered). Different information resources, searching and management of information. Use of databases. Development of webpages. Hardware interaction and control of equipment and systems.

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