**MET 1203 Computing and Programming in Meteorology (3CU)**

**Description**

This course deals with programming packages used for problem solving and data analysis in a meteorological context.

**Objectives**

The course will help the students to achieve the following objectives

* Understand the concepts of MATLAB and its applications
* Describe the codes used in FORTRAN and their applications

**Learning Outcomes**

By the end of the course, the student should be able to:

* Use a mathematical programming language such as MATLAB
* Develop simple models using FORTRAN
* Transfer data and text between various software packages

**Intellectual, Practical and transferable skills**

* Creative and innovative
* Problem solving
* Analytical
* Communication

**Teaching and learning patterns**

* Use of practical examples
* Class discussions
* Lectures
* Group presentations

**Indicative content**

Computer programming and data analysis involving the following

* Introduction to MATLAB
* Entering vectors, matrix and array operations,
* Matrix building functions,
* Common scalar/vector/matrix functions,
* M-files,
* Text strings/error messages,
* Graphics, importing files, processing data, input/output,
* Introduction to FORTRAN,
* Using Unix, working with text strings READ and PRINT statements, IF and DO statements Writing own programmes,
* Introduction to Instat and using SIAC to analyse data.

**Assessment Method**

The assessment method is structured to include course work, and final examination. Course work consists of assignments, reports, practicals and tests and accounts for 40% of the final grade. The final examination will account for 60% of the final grading

**Core Reference materials**

* [**Glenn A. Gibson**](http://www.google.co.ug/search?hl=en&sa=N&tbs=bks:1&q=inauthor:%22Glenn+A.+Gibson%22&ei=91qbTL-aJoOQjAfXuvzQCQ&ved=0CDwQ9Ag)**,** [**James R. Young**](http://www.google.co.ug/search?hl=en&sa=N&tbs=bks:1&q=inauthor:%22James+R.+Young%22&ei=91qbTL-aJoOQjAfXuvzQCQ&ved=0CD0Q9Ag) (1982): Introductiontoprogrammingusing FORTRAN77, *Prentice-Hall*
* **Robert J. Bent and George C. Sethares** (1996): QuickBasic: An introduction to Computer Programming on the IBM PC. *PWS Pub Co*