Subject Code: AMA104

Level: 1

Contact Hours: Lect: 28 Tut: 14

Student Effort Hours: 120

Assessment Method: Coursework 40% Examination 60%

Credit Value: 3

Prerequisites: AMA103

Corequisites: Nil

Exclusions: Nil

Subject Leader/Lecturer/Dept.: (AMA)

Subject Aim:

*This subject is intended to:*

1. This is a subject to provide the students with a solid foundation in Mathematics and Statistics. It aims to prepare the students for studying an undergraduate programme in Engineering or Science. The emphasis will be on application of mathematical methods to solving basic engineering science problems.

Learning Outcomes:

*Students will demonstrate their ability to:-*

1. understand the concept of convergence and divergence of series and to apply Taylor’s expansions in solving numerical problems;
2. use the methods in matrices and linear equations in problem solving;
3. apply the techniques of statistics to model and solve problems in science and engineering;
4. undertake continuous learning.

Syllabus Content:

1. Infinite series:
   - Convergence of series, including tests for convergence; power series; Taylor expansions of functions; applications.
2. Linear Algebra:
   - Matrices and determinants; Systems of linear equations.
3. Probability and Statistics:
   - Descriptive statistics; Frequency distribution; Mean, median and mode; Variance and standard deviation; Probability; Discrete and continuous random variables; Normal distributions; Sampling; Hypotheses testing and estimations.

Learning and Teaching Approach (tasks and activities designed to achieve learning outcomes):

The lectures aim to provide the students with an integrated knowledge required for the understanding and application of mathematical concepts and techniques. To develop students’ ability for logical thinking and effective communication, tutorial and presentation sessions will be held.

Assessment (assessment of student performance resulting from learning tasks):

- Continuous Assessment: 40%
- Examination: 60%
- Total: 100%

To ensure that students learn and reflect continuously. Continuous Assessment is an important element. The continuous assessment comprises of assignments, in-class quizzes and tests. The assignments are used to assist the students to reflect and review on their progress. The end-of-semester examination is used to assess the knowledge acquired by the students and their ability to apply and extend such knowledge.

Reading List:


Teaching activities: Lecture (LT)/Tutorial (TU)/Seminar (SM)/Drawing (DW)/Laboratory or Practical (LB)/Studio (ST)/Workshop (WS)/Project (PJ)/Field Study (FS)/Guided Study (GS)/Visit (VS)