**Notice for New Registration- Bachelor of Science (B.Sc) Degree**

**B.Sc. Degree Programme**

➢ **Overview**

The External Degree programme offered by the Faculty of Science, designed for part-time continuing education students. Usually the programme is conducted during weekends and the duration of the degree programme is tree years.

➢ **Intended Learning Outcomes**

- demonstrate the comprehensive knowledge and understanding of concepts, principles and practices in physical sciences

- represent the real-world problems in scientific framework using the concepts and principals in physical sciences

- collect qualitative and quantitative data; analyze and interpret in logically and accurately

- develop arguments and make sound judgment in accordance with basic theories and concepts of physical sciences

- apply knowledge and understanding of the principles, concepts and practices of physical sciences towards solving the problems

- use computing to solve real-world problems effectively and efficiently

- adopt emerging technologies leading to better and efficient solution

- communicate effectively convincingly to diverse ordinances

- work effectively with team member and stakeholders, displaying the skills of listening, negotiating and leadership

- integrate and work in different cultures and sub cultures, and respect their values

- adapt, work independently and in collaboration with others

- identify the ethics and exercise them

- maintain professional integrity, punctuality and practice effective managerial skills

- ➢ **List of Subjects**
  - ➢ Applied Mathematics(AMAT)
  - ➢ Computer Science(COSC)
  - ➢ Computer Studies(COST)
  - ➢ Pure Mathematics(PMAT)
  - ➢ Statistics(STAT)
  - b.
    - ➢
- ➢ **List of Subject Combinations**
  - ➢ **Combination 1:** Pure Mathematics, Applied Mathematics, Statistics
  - ➢ **Combination 2:** Pure Mathematics, Applied Mathematics, Computer Science
  - ➢ **Combination 3:** Pure Mathematics, Applied Mathematics, Computer Studies
  - ➢ **Combination 4:** Pure Mathematics, Compute Science, Statistics
  - ➢ **Combination 5:** Pure Mathematics, Computer Studies, Statistics

**Applied Mathematics**

<table>
<tr><td colspan="8" align="center"><strong>Subject:  Applied Mathematics (AMAT)</strong></td></tr>
<tr><td>Year</td><td><strong>Semester</strong></td><td><strong>Code</strong></td><td><strong>Title</strong></td><td><strong>Type</strong></td><td><strong>Pre-requisite</strong></td><td><strong>Co-requisite</strong></td></tr>
<tr><td rowspan="4">1</td><td rowspan="2">I</td><td>AMAT 16513</td><td>Vector Analysis</td><td>C</td><td>A/L Combined Mathematics</td><td></td></tr>
<tr><td>AMAT 16522</td><td>Mechanics I</td><td>C</td><td>A/L Combined Mathematics</td><td></td></tr>
<tr><td rowspan="2">II</td><td>AMAT 17532</td><td>Vector Methods in Geometry</td><td>C</td><td>AMAT 16513</td><td></td></tr>
<tr><td>AMAT 17543</td><td>Numerical Methods I</td><td>C</td><td>AMAT 16513</td><td></td></tr>
<tr><td rowspan="4">2</td><td rowspan="2">I</td><td>AMAT 26552</td><td>Scientific Computing  using Appropriate Software I</td><td>C</td><td>AMAT 17543</td><td></td></tr>
<tr><td>AMAT 26562</td><td>Mechanics II</td><td>C</td><td>AMAT 16522</td><td></td></tr>
<tr><td rowspan="2">II</td><td>AMAT 27572</td><td>Numerical Methods II</td><td>C</td><td>AMAT 17543</td><td></td></tr>
<tr><td>AMAT 27582</td><td>Scientific Computing  using Appropriate Software II</td><td>C</td><td>AMAT 26552</td><td>AMAT 27572</td></tr>
<tr><td rowspan="3">3</td><td rowspan="3">I</td><td>AMAT 36593</td><td>Computational Mathematics</td><td>C</td><td>AMAT 27582</td><td></td></tr>
<tr><td>AMAT 36603</td><td>Mathematics for  Finance I</td><td>O</td><td>PMAT 16522</td><td></td></tr>
<tr><td>AMAT 37613</td><td>Mathematical Modeling</td><td>C</td><td>PMAT 27572</td><td></td></tr>
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| | II | AMAT 37623 | Introduction to Fluid Dynamics | C | PMAT 36593 | |
| | | AMAT 37633 | Mathematics for Finance II | O | AMAT 36603 | |
| | | AMAT 37643 | Mechanics III | O | AMAT 26562 | |

**Computer Science**

<table>
<tr><td colspan="7"><b>Subject: Computer Science(COSC)</b></td></tr>
<tr><th>Year</th><th>Semester</th><th>Code</th><th>Title</th><th>Type</th><th>Pre-requisite</th></tr>
<tr><td rowspan="4">1</td><td rowspan="2">I</td><td>COSC 16512</td><td>Introduction to Computing</td><td>C</td><td>G.C.E. A/L</td></tr>
<tr><td>COSC 16523</td><td>Fundamentals of Programming</td><td>C</td><td>G.C.E. A/L</td></tr>
<tr><td rowspan="2">II</td><td>COSC 17533</td><td>Data Communication and Networks</td><td>C</td><td>COSC 16512</td></tr>
<tr><td>COSC 17543</td><td>Object Oriented Programming</td><td>C</td><td>COSC 16523</td></tr>
<tr><td rowspan="4">2</td><td rowspan="2">I</td><td>COSC 26552</td><td>Software Engineering</td><td>C</td><td>COSC 16512, COSC 17543</td></tr>
<tr><td>COSC 26563</td><td>Data Structures and Algorithms</td><td>C</td><td>COSC 17543</td></tr>
<tr><td rowspan="2">II</td><td>COSC 27573</td><td>Computer Architecture and Operating Systems</td><td>C</td><td>COSC 16512, COSC 16523</td></tr>
<tr><td>COSC 27583</td><td>Database Management Systems</td><td>C</td><td>COSC 16523</td></tr>
<tr><td rowspan="8">3</td><td rowspan="4">I</td><td>COSC 36593</td><td>Enterprise Software Design and Architecture</td><td>C</td><td>COSC 26563, COSC 27583</td></tr>
<tr><td>COSC 36603</td><td>Web & Internet Technologies</td><td>O</td><td>COSC 17533, COSC 17543, COSC 27583</td></tr>
<tr><td>COSC 36612</td><td>Visual Programming</td><td>O</td><td>COSC 27583, COSC 26552</td></tr>
<tr><td>COSC 36622</td><td>Cyber Security</td><td>O</td><td>COSC 17533</td></tr>
<tr><td rowspan="4">II</td><td>COSC 37633</td><td>Full-Stack Software Development</td><td>C</td><td>COSC 36593</td></tr>
<tr><td>COSC 37642</td><td>Artificial Intelligence</td><td>O</td><td>COSC 16512, COSC 16523</td></tr>
<tr><td>COSC 37652</td><td>Mobile Application Development</td><td>O</td><td>COSC 17543, COSC 27583</td></tr>
<tr><td>COSC 37662</td><td>Big Data Technologies</td><td>O</td><td>COSC 17533, COSC 17543, COSC 27583</td></tr>
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**Computer Studies**

| Subject: Computer Studies(COST) | | | | | |
|---|---|---|---|---|---|
| Year | Semester | Code | Title | Type | Pre-requisite |
| 1 | I | COST 16512 | Introduction to Computing | C | G.C.E. A/L |
| | | COST 16523 | Fundamentals of Programming | C | G.C.E. A/L |
| | II | COST 17532 | Introduction to Computer Networks | C | COST 16512 |
| | | COST 17543 | Database Management Systems | C | COST 16512, COST 16523 |
| 2 | I | COST 26553 | Object Oriented Programming | C | COST 16523, COST 17543 |
| | | COST 26563 | Systems Analysis & Design | C | COST 16512 |
| | II | COST 27573 | Web Development | C | COST 26553 |
| | | COST 27582 | Information Systems | C | COST 26563 |
| 3 | I | COST 36593 | Event Driven Programming | C | COST 27573 |
| | | COST 36602 | Social and Professional Issues in Computing | O | COST 26563 |
| | | COST 36612 | Human Computer Interaction | O | COST 27573, COST 27582 |
| | | COST 36622 | Software Project Management | O | COST 27582 |
| | II | COST 37633 | Multimedia Technologies | C | None |
| | | COST 37642 | Mobile Application Development | O | COST 26553 |
| | | COST 37652 | Software Quality Assurance | O | COST 27582 |
| | | COST 37662 | Industry-based Project | O | All the Level 01 and Level 02 courses, COST 36593 |

**Pure Mathematics**

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<tr><td colspan="6" align="center"><strong>Subject: Pure Mathematics(COST)</strong></td></tr>
<tr><td>Year</td><td><strong>Semester</strong></td><td><strong>Code</strong></td><td><strong>Title</strong></td><td><strong>Type</strong></td><td><strong>Pre-requisite</strong></td></tr>
<tr><td rowspan="4">1</td><td rowspan="2">I</td><td>PMAT 16513</td><td>Discrete Mathematics I</td><td>C</td><td>A/L Combined Mathematics</td></tr>
<tr><td>PMAT 16522</td><td>Matrix Algebra</td><td>C</td><td>A/L Combined Mathematics</td></tr>
<tr><td rowspan="2">II</td><td>PMAT 17532</td><td>Discrete Mathematics II</td><td>C</td><td>PMAT 16513</td></tr>
<tr><td>PMAT 17543</td><td>Theory of Calculus</td><td>C</td><td>PMAT 16513</td></tr>
<tr><td rowspan="4">2</td><td rowspan="2">I</td><td>PMAT 26553</td><td>Linear Algebra</td><td>C</td><td>PMAT 16522</td></tr>
<tr><td>PMAT 26562</td><td>Infinite Series</td><td>C</td><td>PMAT 17543</td></tr>
<tr><td rowspan="2">II</td><td>PMAT 27572</td><td>Ordinary Differential Equations</td><td>C</td><td>PMAT 17543</td></tr>
<tr><td>PMAT 27583</td><td>Functions of Several Variables</td><td>C</td><td>PMAT 26553</td></tr>
<tr><td rowspan="5">3</td><td rowspan="2">I</td><td>PMAT 36593</td><td>Complex Variables</td><td>C</td><td>PMAT 27583</td></tr>
<tr><td>PMAT 36602</td><td>Abstract Algebra</td><td>C</td><td>PMAT 26553</td></tr>
<tr><td rowspan="3">II</td><td>PMAT 37612</td><td>Theory of Riemann Integration</td><td>C</td><td>PMAT 17543</td></tr>
<tr><td>PMAT 37622</td><td>Mathematical Methods</td><td>C</td><td>PMAT 27583</td></tr>
<tr><td>PMAT 37632</td><td>Geometry</td><td>C</td><td>PMAT 27583</td></tr>
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**Statistics**

| Subject: Statistics(STAT) | | | | | |
|---|---|---|---|---|---|
| **Year** | **Semester** | **Code** | **Title** | **Type** | **Pre-requisite** |
| 1 | I | STAT 16514 | Fundamentals of Statistics | C | GCE (A/L) |
| | | STAT 16521 | Statistical Laboratory | C | GCE (A/L) |
| | II | STAT 17533 | Probability Distributions and Applications I | C | STAT 16514 |
| | | STAT 17542 | Optimization I | C | GCE (A/L) |
| 2 | I | STAT 26513 | Probability Distributions and Applications II | C | STAT 17533 |
| | | STAT 26522 | Optimization II | C | STAT 17542 |
| | II | STAT 27533 | Inferential Statistics | C | STAT 26513 |
| | | STAT 27542 | Survey Methods & Sampling Techniques | C | STAT 26513/STAT 27533 |
| 3 | I | STAT 36513 | Statistical Models | C | STAT 27533 |
| | | STAT 36522 | Statistical Quality Control | C | STAT 17533/ STAT 27542 |
| | II | STAT 37532 | Non-parametric Statistics | C | STAT 27542 |
| | | STAT 37543 | Time Series Analysis | C | STAT 36513 |