Contents

PART I - Information........................................................................................................................................... 3

1. Welcome....................................................................................................................................................... 3

2. A Note on this Handbook............................................................................................................................... 3

3. MSISS Background and Objectives.............................................................................................................. 4

4. General Information ..................................................................................................................................... 5

4.1. Term Dates................................................................................................................................................. 5

4.2. Contact Information .................................................................................................................................. 6

4.3. Dealing with Problems .............................................................................................................................. 7

PART II - Regulations ..................................................................................................................................... 10

5. Overview of Regulations ............................................................................................................................... 10

5.1. Rules for Handing in in-term Assessments ............................................................................................. 10

5.2. Teamwork Assessment .............................................................................................................................. 12

5.3. Plagiarism.................................................................................................................................................. 12

5.4. Examination Regulations – Junior Freshman.......................................................................................... 14

Part III – Programme Structure ....................................................................................................................... 16

6. An Overview of the Junior Freshman Year ................................................................................................. 16

6.1. EC1010 Introduction to Economics........................................................................................................ 16

6.2. ST1004 Introduction to Management Science ....................................................................................... 17

6.3. MA1E01/2 Engineering Mathematics I & II .......................................................................................... 17

6.4. BU1510 Introduction to Organisation and Management ....................................................................... 18

6.5. CS1010 Introduction to Programming .................................................................................................... 18

6.6. ST1001 Software Applications I ........................................................................................................... 18

6.7. ST1002 Statistical Analysis .................................................................................................................... 18
PART I - Information

1. Welcome

Welcome to the Management Science and Information Systems Studies (MSISS) degree programme. I hope you have an enjoyable and productive time here in Trinity and that you find your studies both stimulating and rewarding. If you have any queries during the year you are welcome to drop into my office in Room 1.32 in the Lloyd Institute or email me at aideen.keaney@tcd.ie.

I wish you every success in the coming year.

Aideen Keaney
Course Director, MSISS.

2. A Note on this Handbook

The BA Moderatorship (Mod) in Management Science and Information Systems Studies (affectionately known as MSISS) is a four year honours degree course run by the School of Computer Science and Statistics.

This handbook contains information and regulations for Junior Freshman students on the BA (Mod) Management Science and Information Systems Studies in the 2014-15 academic year. It provides a guide to what is expected of you on this programme, and the academic and personal support available to you. Please retain it for future reference.

Information provided in this handbook is accurate at time of preparation. Any necessary revisions will be notified by college email. Please note that, in the event of any conflict or inconsistency between the General Regulations published in the University Calendar and information contained in course handbooks, the provisions of the General Regulations will prevail. The University Calendar is available at

http://www.tcd.ie/calendar/

This handbook is also available from the School of Computer Science and Statistics website at

https://www.scss.tcd.ie/undergraduate/msiss/jf/

It is strongly recommended that you keep this booklet safely. You may need to refer to it during the year and you may wish to keep it and the booklets for the later years of the programme.
3. MSISS Background and Objectives

MSISS is one of the most challenging and exciting undergraduate degree level courses available in Ireland. It was originally set up in 1980 in the Engineering faculty to provide a degree that would have a greater emphasis on management science and quantitative methods than was to be found in traditional engineering degrees; until 1995, it was called Management Science and Industrial Systems Studies. Over the past 33 years the programme has continuously evolved and changed so that, at this stage, its roots in engineering have almost disappeared to be replaced by a focus on modern information systems. Today’s MSISS programme is designed to bridge a different gap - that between business, information technology and management science.

This change reflects changes in society and technology and in particular what our own graduates tell us about what is happening out there in the world of work. The demand for graduates with both business and quantitative skills and a firm understanding of information technology has grown rapidly over the past ten years and is likely to continue to increase for the foreseeable future. This is notwithstanding the dot.com crash of 2000-01. In fact, because of the heavy fall in IT related course entrants in recent years, there is a serious shortfall of such skills which is a major concern for employers in the area.

The primary objective of the MSISS programme is to produce graduates who are numerate as well as business and computer literate and who have a solid understanding of how to approach and solve practical problems using a variety of tools and techniques. To do this represents a considerable challenge for us and for you, which is what makes MSISS one of the most interesting courses around. We hope you will find that MSISS is both an exciting and a challenging course that will keep you on your toes for the next four years.

The programme has three main streams:

• **Business and Management**

  Subjects covered include economics, management, finance and organisational psychology. Most of the modules in this area are taken in conjunction with Business Studies students.

• **Quantitative Methods**

  It is a key objective of the course that students be numerate and at home with important mathematical and statistical tools. To this end, this part of the programme encompasses mathematics, statistics and management science/operations research methods.

• **Information Technology and Systems**

  The emphasis here is on the practical application of IT, but the programme starts with basics, including fundamentals of computing and use of end user tools such as spreadsheets and word processing. In later years you will go on to study information systems, databases and state of the art application systems development techniques.
While the above areas make up the core of the programme, there is also a firm emphasis on personal skills such as verbal communication, interviewing, teamwork and report writing. In some cases, these will be taught explicitly. In other modules, these skills are woven into the fabric of the teaching approach. The course and, in particular, the modules in the third and fourth years, are under constant review, so it is probable that the subjects in the final two years will be slightly different by the time you get there. Changes will be incremental so don’t worry too much about this.

MSISS subject skills are built up in layers. Each subject area is presented in each year at an increasingly advanced level, with each year from second year onwards being linked into the material covered in the preceding year. Remember that every component of the programme is there for a purpose. In some cases this linkage may be quite subtle.

Never assume that a particular subject or topic is in some way “unimportant”. This is especially true of mathematics which underpins most of the course.

4. General Information

4.1. Term Dates

Teaching is conducted in two academic terms with a total of twenty four weeks. The following table lists the duration of each term and the start and end dates for teaching in each term for the 2013-14 academic year. No lectures are held during the reading weeks in each term.

<table>
<thead>
<tr>
<th>Term</th>
<th>Duration</th>
<th>Start and End Dates (2014-15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michaelmas Term (MT)</td>
<td>12 weeks</td>
<td>22(^{rd}) September 2014 – 12(^{th}) December 2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Reading Week: 3(^{rd}) November – 7(^{th}) November 2014)</td>
</tr>
<tr>
<td>Hilary Term (HT)</td>
<td>12 weeks</td>
<td>12(^{th}) January 2015 – 3(^{rd}) April 2015</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Reading Week: 23(^{rd}) February – 27(^{th}) February 2015)</td>
</tr>
</tbody>
</table>

Annual examinations will take place from 27\(^{th}\) April to 22\(^{nd}\) May 2015. Examination dates will be posted on the College web site in due course. It is the student’s responsibility to determine dates, times and locations of examinations.

Please note that the timetable attached to this booklet is subject to minor changes so make sure you make corrections as appropriate.
4.2. Contact Information

BA (Mod) Management Science and Information Systems Studies Administration

Course Director
Dr Aideen Keaney
Aideen.Keaney@tcd.ie

Course Administrator
Gillian Long
Gillian.Long@scss.tcd.ie

4.2.1. Notice Board

The MSISS notice boards are on the first floor opposite the entrance to the stairs in the North East corner. All notices for Junior Freshman students will be posted here. Individual messages for students may also be left here. Please check this notice board regularly.

4.2.2. Electronic Mail

All students are issued with an e-mail name and address on arrival in College. Nearly all messages for individual students and broadcast messages for the class are sent via e-mail. Please get into the habit of checking your e-mail regularly. You will be shown how to do this in the introductory lab session.
4.3.  Dealing with Problems

If you have problems, it saves you and us a great deal of hassle if they are directed to the right source. In general enquiries should be directed as follows:

4.3.1.  Personal Problems

Most matters including all personal problems and/or requests for special treatment (e.g. seeking permission to take a year off, obtaining details of your examination marks or appealing an examination result) should be taken to your tutor, whose job it is to help you. Going to other staff members or the course administrator will only result in your being re-directed. If your tutor cannot be found, you should approach one of the other tutors or in an emergency, the Senior Tutor. Your personal tutor contact details are available to view via the student portal, my.tcd.ie.

4.3.2.  Administrative Matters

Administrative matters (e.g. replacement of lost timetables or requests for transcripts) should be addressed to Gillian Long Gillian.Long@scss.tcd.ie or to teaching-unit@scss.tcd.ie.

4.3.3.  Academic Matters

Academic issues (e.g. “I don’t understand this”, “Can we arrange a revision class?”) should be taken to the lecturer concerned. First year students are sometimes reluctant to approach lecturers with academic problems. Lecturers are here to help you. **If you are in difficulties you should ask for help.** There are few things more anxiety inducing than getting into greater and greater difficulty on a module because you do not understand some fundamental points in earlier lectures. Be aware however that lecturers are generally only willing to help students who attend lectures regularly (unless the students concerned are absent for some genuine reason). Many academic staff, including the Director of Studies, have ‘office hours’, i.e. times when they are available in their rooms to meet students without a prior appointment. These are usually posted on their office door. It is helpful to staff if a problem can wait until one of these times.

Programme or wider course issues (e.g., books are not available in the library, you can’t hear a certain lecturer because he/she does not speak clearly) should be taken to the class representative (you will have to elect one) who should in turn take them up with the Director of Studies, Aideen Keaney. If in doubt, speak to your tutor first.
4.3.4. Programming Centre

The Programming Centre is available to all MSISS students free of charge. The centre operates as a drop-in service where you can get help with any problems you might have with programming in your courses. For further information, please visit https://www.scss.tcd.ie/misc/psc/

4.3.5. Study Skills

Skills4studycampus (S4SC) is an interactive e-learning resource, designed to enable students to develop study skills and is suitable for students on all courses and in any year of study. The system was tested in a pilot project in Trinity last year, and is now available via the skills4studycampus link on the college's local home page, http://www.tcd.ie/local

4.3.6. Students with Disabilities

If you have a general or a specific learning disability (such as dyslexia) you may want to register with Student Disability Services. A variety of supports are available to disabled students within the College. Further information on these services can be found at http://www.tcd.ie/disability/

You can make an appointment to see staff of Student Disability Services:

- By Phone: (01) 896 3111
- By Text (Deaf Students): 086 3442322
- By Email: disab@tcd.ie
- On the website
- Or, by calling into the office (Room 2054, The Arts Building).
4.3.7. Student 2 Student

From the moment you arrive in College right the way through to your end of year exams Student 2 Student (S2S) is here to make sure your first year is fun, engaging and a great foundation for the rest of your time in Trinity. You’ll meet your S2S mentors in Freshers’ Week and they’ll make sure you know other people in your course before your classes even start. They’ll keep in regular touch with you throughout your first year and invite you to events on and off campus. They’ll also give you useful information about your course and what to look out for. Mentors are students who have been through first year and know exactly what it feels like, so you never have to worry about asking them a question or talking to them about anything that’s worrying you.

S2S also offers trained Peer Supporters if you want to talk confidentially to another student or just to meet a friendly face for a coffee and a chat. S2S is supported by the Senior Tutor’s Office and the Student Counselling Service.

http://student2student.tcd.ie, E-mail: student2student@tcd.ie, Phone: + 353 1 896 2438

4.3.8. Other Sources of Support and Help in College

- Student Counselling Service – 3rd Floor 7-9 South Leinster St., Tel: 01 896 1407, or email: student-counselling@tcd.ie. Emergency appointments are available. This service is confidential and free to students. See http://www.tcd.ie/Student_Counselling/

- Chaplains - House 27, chaplaincy@tcd.ie. Tel: Peter Sexton and Paddy Gleeson : 01 896 1260; Julian Hamilton : 01 896 1901 and Darren Mc Callig at 01 896 1402. The Chaplains run a Bereavement Support Group for those who have experienced loss. The Chaplains will also help you make contact with other religious communities in Dublin. See http://www.tcd.ie/Chaplaincy/index.htm

- College Health Service - House 47 (beside the rugby pitch), Tel: 01 896 1556. Appointments may be made in person or by telephone. This service is free to most students. http://www.tcd.ie/College_Health

- College Tutors and Senior Tutor’s Office, House 27. Tel: 01 896 2551. stosec@tcd.ie. You can find your tutor's name and contact number through the my.tcd.ie portal.

- Welfare Officer, Students’ Union, House 6, College 01 646 8437, welfare@tcdsu.org;

- Niteline - A confidential help-line for students run by students is available during term-time, by telephone between 9pm and 2.30am from Thursday to Sunday at 1800 793 793 and on Mondays from 9pm to 1.30am.

**REMEMBER**

*If you are in difficulties of any sort, seek help as soon as possible. The staff and College support services are here to help you.*

Page 9 of 18
5. Overview of Regulations

This part of the Course Handbook sets out the examination regulations that apply to the BA (Mod) Management Science and Information Systems Studies in the 2014/2015 academic year.

The College Calendar, which is published annually at the beginning of each academic year, contains the following additional regulations:

- **General Regulations** that apply to all degree programmes in the University;
- **General Faculty Regulations** that apply to courses within the Faculty of Engineering, Mathematics and Science;
- Regulations that apply specifically to the Moderatorship in Management Science and Information Systems Studies.

If any discrepancy exists between the regulations in this document and the College Calendar, the College Calendar takes precedence.

The Calendar is available online at [http://www.tcd.ie/calendar/part1/](http://www.tcd.ie/calendar/part1/)

You are expected to be aware of the various regulations. Ignorance of the regulations is not a valid reason for failure to comply.

5.1. Rules for Handing in in-term Assessments

Many MSISS modules include an element of continuous assessment. Different departments have their own rules on assessments and homework. You should make sure that you are familiar with these rules and that you understand them. The MSISS rules for handing in and marking of assessments are summarised below.

1. Unless otherwise stated, the deadline for all MSISS continual assessment work will be 12.00 noon on a Monday. The Lecturer-in-Charge must give written or e-mail notice of alternative deadlines. Where non standard procedures apply, (s)he must also give written or e-mail notice of:

   - the deadline;
   - where and how assessments are to be handed in;
   - the penalties for late submission;
   - the procedures for granting permission for late submissions.

Otherwise the default rules as set out below will apply.
2. The default procedure for assignment submission is as follows.

All module work must be handed in to the School office. When handing in an assignment or project, you must sign the “Student Assessment Sign-in” sheet in the presence of the course administrator. The date and time the assessment is handed in is noted on this sheet. Assessments must be clearly labelled and show:

- Your name;
- The correct description of the assignment (e.g. Applied Prob. Exercise 3);
- The name of the appropriate lecturer.

At the end of the week, the tray will be cleared and all assignments and the sign-in sheet will be handed to the lecturer.

If the office is closed you should put your assignment in the box provided and sign the sign-in sheet. Clearly write your name, the name of the assignment, the name of the lecturer, and the time you signed in.

3. **Penalties** for late submission are as follows. Material submitted late will be down marked 20% of the mark that would otherwise have been awarded for each day (or part thereof) that it is late. Thus work that is late at all will incur a penalty of 20%, work submitted more than 24 hours late will incur a penalty of 40% and so on. Work submitted more than 96 hours late will receive a mark of zero. For MSISS this means that work submitted after 12.00 noon on the Friday of the relevant week will receive a mark of zero.

4. **Extensions** are normally granted only if you can present a good reason for not being able to submit on time. If you need an extension you should speak to your tutor not to the Lecturer. Lecturers will normally grant you an extension following a letter from your tutor who must ask for a specified number of days extension. Tutors will only recommend extensions if the difficulties could not have been foreseen.

Sometimes, where there is a general problem, a Lecturer may award an extension to the entire class. In this case, the details of the extension will be posted or e-mailed to all students. The penalty will operate as before, after the extension. If the assessment in question is a team project, and the extension is sought - through the tutor - by one team member, the maximum extension that can be given is 1 week.

5. **You should always retain a copy of everything submitted in case of dispute; a paper copy is recommended.** If kept in electronic form, you should have a backup copy. This is important. If, for example, a Lecturer says he/she never received your submission and you do not have a copy, it may be difficult to prove that you ever submitted it!

6. If you have really exceptional problems (for example, your tutor is ill), you should speak to the Director of Studies.
5.2. Teamwork Assessment

During your time in MSISS you will be required to work in teams and prepare assessments which will be graded and contribute to your final examination results. Your attention is drawn to the following regulation, instituted in an effort to be equitable to all team members:

“In the case of project work conducted by teams, the work of each team will be assessed as a team. Individual students’ assessment grades will be based primarily on the team assessment grade. In addition, students may be asked to submit an individual report on perceived contributions, per cent, of all team members. Adjustments to individual grades may be made in the light of these reports. In the event of discrepancy, the lecturer may consult some or all group members.”

5.3. Plagiarism

Students should be aware of the University’s policy regarding plagiarism. Plagiarism is interpreted by the University as the act of presenting the work of others as one’s own work, without acknowledgement. Plagiarism is considered as academically fraudulent, and an offence against University discipline. The University considers plagiarism to be a major offence, and subject to the disciplinary procedures of the University. Plagiarism can arise from deliberate actions and also through careless thinking and/or methodology. The offence lies not in the attitude or intention of the perpetrator, but in the action and in its consequences. Plagiarism can arise from actions such as:

(a) copying another student’s work;

(b) enlisting another person or persons to complete an assignment on the student's behalf;

(c) quoting directly, without acknowledgement, from books, articles or other sources, either in printed, recorded or electronic format;

(d) paraphrasing, without acknowledgement, the writings of other authors.

Examples (c) and (d) in particular can arise through careless thinking and/or methodology where students:

(i) fail to distinguish between their own ideas and those of others;

(ii) fail to take proper notes during preliminary research and therefore lose track of the sources from which the notes were drawn;

(iii) fail to distinguish between information which needs no acknowledgement because it is firmly in the public domain, and information which might be widely known, but which nevertheless requires some sort of acknowledgement;

(iv) come across a distinctive methodology or idea and fail to record its source.
All the above serve only as examples and are not exhaustive. Students should submit work done in co-operation with other students only when it is done with the full knowledge and permission of the lecturer concerned. Without this, work submitted which is the product of collusion with other students may be considered to be plagiarism.

It is clearly understood that all members of the academic community use and build on the work of others. It is commonly accepted also, however, that we build on the work of others in an open and explicit manner, and with due acknowledgement. Many cases of plagiarism that arise could be avoided by following some simple guidelines:

(i) Any material used in a piece of work, of any form, that is not the original thought of the author should be fully referenced in the work and attributed to its source. The material should either be quoted directly or paraphrased. Either way, an explicit citation of the work referred to should be provided, in the text, in a footnote, or both. Not to do so is to commit plagiarism.

(ii) When taking notes from any source it is very important to record the precise words or ideas that are being used and their precise sources.

(iii) While the Internet often offers a wider range of possibilities for researching particular themes, it also requires particular attention to be paid to the distinction between one's own work and the work of others. College regulations on Plagiarism can be found in the College Calendar, Section H70-78: General Regulations and Information or online at:

http://www.tcd.ie/calendar/assets/pdf/general_information.pdf

We reserve the right to use plagiarism detection technology to investigate suspicions of plagiarism.
5.4. Examination Regulations – Junior Freshman

To rise from one year to the next year of the programme, Junior Freshman students must satisfy their examiners subject to the regulations set out in this section.

1. The examinable subjects are as follows:

<table>
<thead>
<tr>
<th>Codes</th>
<th>Subject</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC1010</td>
<td>Introduction to Economics</td>
<td>10</td>
</tr>
<tr>
<td>ST1004</td>
<td>Introduction to Management Science</td>
<td>10</td>
</tr>
<tr>
<td>MA1E01</td>
<td>Engineering Mathematics I</td>
<td>5</td>
</tr>
<tr>
<td>MA1E02</td>
<td>Engineering Mathematics II</td>
<td>5</td>
</tr>
<tr>
<td>BU1510</td>
<td>Introduction to Organisation &amp; Management</td>
<td>10</td>
</tr>
<tr>
<td>CS1010</td>
<td>Introduction to Programming</td>
<td>10</td>
</tr>
<tr>
<td>ST1001</td>
<td>Software Applications I</td>
<td>5</td>
</tr>
<tr>
<td>ST1002</td>
<td>Statistical Analysis I</td>
<td>5</td>
</tr>
</tbody>
</table>

These are examined during the annual examination period.

The mark in each subject is generally a combination of an exam mark and a coursework mark, except for ST1001, which is assessed by coursework and attendance. The method which is used to combine exam and assignment marks into the overall mark is at the discretion of the course lecturer. In some courses to pass students must pass BOTH the written examination AND the coursework component. Students should make themselves aware of the rules governing assignments at the beginning of each course.

2. The overall average mark in the annual examination will be a weighted average of each modules mark. The weights used will be the ECTS value for each subject.

3. To pass candidates must achieve a mark of 40% or more in each of the subjects.

4. Candidates may also pass by compensation if and only if:

- They achieve an overall average mark of 40% or more and either;
  - pass modules totalling 55 credits, and get a minimum mark of 30% in the failed module
  - or
5. A grade based on the overall average mark will be returned for students who pass as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>70%-100%</td>
</tr>
<tr>
<td>II.1</td>
<td>60%-69%</td>
</tr>
<tr>
<td>II.2</td>
<td>50%-59%</td>
</tr>
<tr>
<td>III</td>
<td>40%-49%</td>
</tr>
</tbody>
</table>

Where appropriate, transcripts will show “by compensation”.

6. Students who do not pass the year at the annual examination session will be required to sit supplemental examinations or complete supplemental coursework in those modules failed in the Annual Examination Session.

7. To pass the supplemental examination candidates must achieve a minimum of 40% in each of the subjects examined. Candidates may also pass by compensation if and only if:

- They achieve an overall average mark of 40% or more and either;
  - pass modules totalling 55 credits, and get a minimum mark of 30% in the failed module
  - or
  - pass modules totalling 50 credits, and get a minimum mark of 35% in the failed module(s) (either one 10-credit module or two 5-credit modules).

A student's overall mark will be calculated as the average of each module's mark weighted by its ECTS rating. Where a module has been examined more than once, the mark achieved in the most recent examination will be used. The overall end of year result for a student who is eligible to progress on the basis of marks attained at a supplemental examination will be recorded as “Pass at Supplemental”.

8. A student who does not pass by either of the methods above is required to repeat the year in full. This includes completing all assessment elements of all modules (e.g. all continuous assessment requirements).

9. Failure to present at College examinations without good reason will result in a student being excluded from the course.

Students who do not make a serious attempt at their examinations may be excluded from the course.
6. An Overview of the Junior Freshman Year

The first two years of MSISS are devoted to laying down the foundations for the senior years. In your third and fourth years, you will have the opportunity to choose between certain options and specialise in certain areas. For this year and next however, the course material is predetermined.

This section lists the Junior Freshman subject modules and a brief description of each is given. Detailed module descriptors are available to view on the student portal, my.tcd.ie. Note: the brief module descriptions may be subject to change. Please refer to my.tcd.ie for the most up to date versions.

<table>
<thead>
<tr>
<th>Introduction to Economics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Management Science</td>
</tr>
<tr>
<td>Engineering Mathematics I &amp; II</td>
</tr>
<tr>
<td>Introduction to Organisation and Management</td>
</tr>
<tr>
<td>Introduction to Programming</td>
</tr>
<tr>
<td>Software Applications I</td>
</tr>
<tr>
<td>Statistical Analysis I</td>
</tr>
</tbody>
</table>

A key to success in your first year is to work steadily. Many of the subjects are not as easy as they seem and none of them are amenable to last minute cramming or learning by rote. Many students who try a cramming approach end up doing repeats in September or, worse still, repeating the year.

It is important to realise that what counts as good work in a university can be quite different from what matters in the Leaving Certificate, A Levels or their equivalents. In particular, the ability to memorise and to solve standard problems will not earn you top grades in MSISS (or elsewhere). Universities are much more about learning than about being taught and about thinking rather than about recalling. This may seem like a subtle point, but it has major implications. You will be told more about this during your first lectures.

6.1. EC1010 Introduction to Economics

This module provides students with a broad introduction to, and overview of, introductory economics, covering both microeconomics and macroeconomics.
The module focuses on the principles of economics. The module does not assume any previous knowledge of economics and has no pre-requisites.

The first part of the module covers microeconomics, which is concerned with the allocation of scarce resources between competing uses at the disaggregated level of individuals, households and firms. The central issue concerns the respective roles of the price mechanism and of the government in resource allocation.

The second part of the module covers macroeconomics, which is concerned with economy-wide aggregates such as the overall scale of economic activity, the rate of inflation, the levels of employment and unemployment and the exchange rate. The central issue concerns the role of the government in tackling macroeconomic challenges such as reducing unemployment, promoting growth and maintaining price stability.

### 6.2. ST1004 Introduction to Management Science

This module covers a range of subjects in management science at an introductory level. The objectives of the module are to give students an overview of the subject, to teach important basic techniques and introduce systematic thinking about problems. The first semester starts with an introduction to problem solving and models and moves on to cover the time value of money, classic network problems, inventory control and time series forecasting and graphical linear programming. The second semester develops ideas in linear programming and introduces the simplex method. It will cover the basic transportation and allocation algorithms and introduce the basic ideas of game theory and decision analysis.

### 6.3. MA1E01/2 Engineering Mathematics I & II

Engineering Mathematics I and II provide the basic mathematical underpinnings required for the other quantitative modules.

Engineering Mathematics I starts with the calculus of functions of one real variable, formalising and building on Leaving Certificate mathematics. The module emphasises both theoretical foundations of calculus and application of mathematical methods and is intended to enable students to recognise mathematical structures in practical problems, to translate problems into mathematical language and to apply differentiation and integration to solve them.

Engineering Mathematics II concludes the study of the calculus of functions of one variable and begins the study of linear algebra. The module emphasises both the theoretical foundations of the integral calculus and the application of mathematical methods and gives an introduction to modelling with differential equations and power series approximations.
6.4. BU1510 Introduction to Organisation and Management

This module introduces students to the nature and form of organisations and their management, indicating their importance in society and why the study of their form, management and performance constitutes one of the disciplines of the social sciences. This module provides a foundation for later business and financial topics.

The module is structured around five key themes: the historical context of organisations; the competitive environment of organisations; modes of organising; managing organisations, and finally managing today.

6.5. CS1010 Introduction to Programming

This module provides an introductory course in computer programming. The course takes a practical approach to teaching the fundamental concepts of computer programming, with a strong emphasis on tutorial and laboratory work, and is an important vehicle for developing students’ analytical and problem-solving skills.

The module aims to give students an understanding of how computers can be employed to solve real-world problems. Specifically, students are introduced to the object-oriented approach to program design and are taught how to write programs in Java, a popular and widely used object-oriented language.

Students also have the opportunity to reinforce their problem solving and programming skills by developing solutions to programming problems and implementing those solutions as object-based programs.

6.6. ST1001 Software Applications I

The purpose of this course is to provide an introduction to the practical uses of computer applications particularly in the area of word processing, spreadsheets, presentation packages and web page design and development.

6.7. ST1002 Statistical Analysis

The aim of the course is to introduce the students to basic statistical concepts. A considerable emphasis is placed on the use of a statistical package to analyse data. Topics include the nature of data, descriptive statistics, displaying data using graphs, the normal distribution, selecting random samples, confidence intervals for means and proportions, hypothesis testing, independent t-tests, chi-square tests and simple linear regression.