



**Trinity College Dublin**

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

Mechanical & Manufacturing Engineering

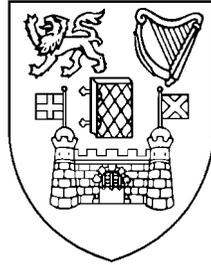
**Engineering with Management**

**B.Sc. (Ing.)**

**Junior Fresh Handbook**

**2018-2019**





**Discipline of Mechanical & Manufacturing Engineering  
Faculty of Engineering and Systems Sciences  
Trinity College Dublin**

**Junior Fresh Handbook  
2018/2019**

*Honours degree programme in*

**Engineering with Management  
B.Sc. (Ing.)**

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# 1 Introduction

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## Welcome

On behalf of all the staff and students of the **Department of Mechanical & Manufacturing Engineering** we would like to welcome you to Trinity College Dublin, but more particularly as a student of this department on the degree programme in **Engineering with Management**.

The department has 26 academic, 10 technical, three administrative staff, approximately 220 undergraduate students in 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> year of the BAI/MAI, approximately 80 students in the five years of the B.Sc./MAI programme, and 50 postgraduate students. As a department we have a well-deserved reputation for good teaching and research, but above all we take particular pride in being student friendly and in maintaining a good working atmosphere. So if you should experience any difficulties whether personal or academic, particularly in your first few weeks at TCD, do not hesitate to contact either of us, or indeed any other member of the academic staff. The intake of students into a degree programme is a very significant event for any department. You are therefore a special and unique group of students who along with your lecturers will experience exciting changes over the next few years. Technology is changing at an ever increasing pace and this is particularly so within the field of manufacturing engineering. Consequently over the next few years you will cover a course of study that will provide you with the knowledge to understand the fundamentals of engineering, science, and management, but more importantly you will develop skills that will enable you to use this knowledge in the rapidly changing environment of manufacturing engineering. This degree programme is one of two accredited engineering degrees provided in TCD, and a lot of hard work has gone in, and continues to go in, to ensure its continued success. We have no doubt that if you work hard, yet become involved and enjoy College life, you too will succeed. For our part, we will do our very best to assist you.

Enjoy the next 5 years!

Professor Daniel Kelly

Head of Department

Mechanical & Manufacturing Engineering

September, 2018.

Professor Garret O'Donnell

Academic Director

Engineering with Management

## A Few Wise Words

Everybody says college is different from school. Of course, in lots of obvious ways it is different, and no doubt you'll enjoy finding out just what those differences are. In not-so-obvious ways though, college is *very* different from school, and in this section we concentrate on how the academic side of university life is different and what you need to do about it.

1. You're not at school. We want you to do more than simply reproduce what you are told in lectures. You need to get a good *command* of the material. In engineering-related disciplines, the best way to do this (and the best way to know that you have really learned something) is to apply your new knowledge to solving new problems – not just repeating the examples done in class, but to similar (and more difficult) problems you'll find in textbooks or elsewhere. As a professional engineer, you will have to apply your knowledge and skills to problems you have never seen before; now is a good time to start!
2. Expect the material to be covered much faster than at school. Lecture time is at a premium, so it must be used efficiently. You cannot be taught everything in lectures and tutorials. It is your responsibility to learn the *course* material not just the lecture material. Most of this learning will take place outside of the classroom, and you must be willing to put in the study time necessary to ensure that this learning takes place. If you do fall behind in a course – that is, if you can't continue to understand the lectures as they are given, then you really need to make an effort to catch up right away. Don't be tempted to think that you can somehow catch up at the end of the year – it's almost impossible.
3. A lecturer's job is primarily to provide you with a framework, with *some* of the particulars, to guide you in doing your learning of the concepts and methods that comprise the material of the course. It is not to 'program' you with isolated facts and problem types or to monitor your progress. Your job is to fill out that framework with

a thorough understanding of the material. Evaluations are based on your understanding of the material, not your ability to recite the lecturer's notes and examples.

4. You are expected to read any recommended textbooks for comprehension. They will provide a broader and more detailed account of the material of the course. Don't read the textbook like a novel. Skimming to get the 'overall picture' is tempting but not very helpful. Attention to detail is the key and this means that reading is often slow-going. Frequently you'll need to use a pencil and paper to work through the examples for yourself. Patience, repetition, and attention to detail are the best ways to genuinely master the material.
5. As for *when* to read the textbooks, it's a good idea to read the appropriate section ahead of the lecture. This way, although you may not fully understand it, you'll be prepared for the lecture, and you will have a good idea what areas to ask questions about. If you haven't looked at the book beforehand, pick up what you can in the lecture (absorb the general idea and/or take thorough notes) and count on sorting it out later while studying the textbook and transcribing your notes.
6. Practical's and tutorials are far more important than the marks you might get for them, because they give you a chance to develop your understanding of the subject. They are also a good 'reality check' for you to see just how much you really understand. Tutorials, in particular, are a great opportunity to ask for clarification of a lecture or topic. This is what they are for and what the tutorial leader expects - use them to your advantage!
7. In examinations, the examiners set out to probe your mastery of the material in the course. Primarily, they will be looking for your command of the material, as noted above. You'll probably have to solve problems you have never seen before or ones that are presented in a different manner. Hence, preparing for examinations by

memorizing types of questions simply won't work – you must demonstrate your *understanding* of the material.

8. Engineering is about co-operation, but also individual effort. The everyday fruits of engineering, such as a jet aircraft or suspensions bridge or a microchip have been designed a built by teams of hundreds, even thousands of engineers working together. These engineers exchange ideas and ultimately co-ordinate their efforts to achieve the overall project goal. However, each component of even the largest project is the result of one individual's engineering skill and imagination.
  
9. During your time in college, you will be asked to work both individually and in groups. In the first case you should collaborate but ultimately produce your own work. For example, for a computing exercise, discuss the task with your classmates, swap ideas on how to solve the problem, but at the end of the day, design and implement your own solution and write your own report. In those situations when you are asked to work in a group and submit a single project, divide the project into tasks to be carried out by the individuals. Meet and share the results in order to assemble and present the final report.

(Adapted from “Teaching at University Level” by Steven Zucker in *Notices of the AMS*, August 1996.)

## **5<sup>th</sup> Year Options**

Students graduating after 2012 will require a Masters degree to be directly eligible for Chartered status. Therefore the School offers several options for a 5<sup>th</sup> year leading to a Masters degree (MAI).

### ***MAI (Domestic)***

This entails spending the 4<sup>th</sup> and 5<sup>th</sup> year in Trinity College, undertaking additional modules in the specialisation as well as a group project in 4<sup>th</sup> year and a significant individual project in 5<sup>th</sup> year.

### ***MAI (International – Option 1)***

This is offered in collaboration with the European CLUSTER Programme, a consortium of 12 universities. The student spends their 4<sup>th</sup> year abroad and returns to complete their 5<sup>th</sup> year at TCD. The other partner universities are: Technical University of Catalonia, Barcelona; Technische Universität Darmstadt; Technische Universiteit Eindhoven; Institut polytechnique de Grenoble; Instituto Superior Técnico Lisbon; Katholieke Universiteit Leuven/Université Catholique de Louvain; Helsinki University of Technology; Karlsruhe Institute of Technology; Ecole Polytechnique Fédérale de Lausanne; Politecnico di Torino; KTH Royal Institute of Technology Stockholm.

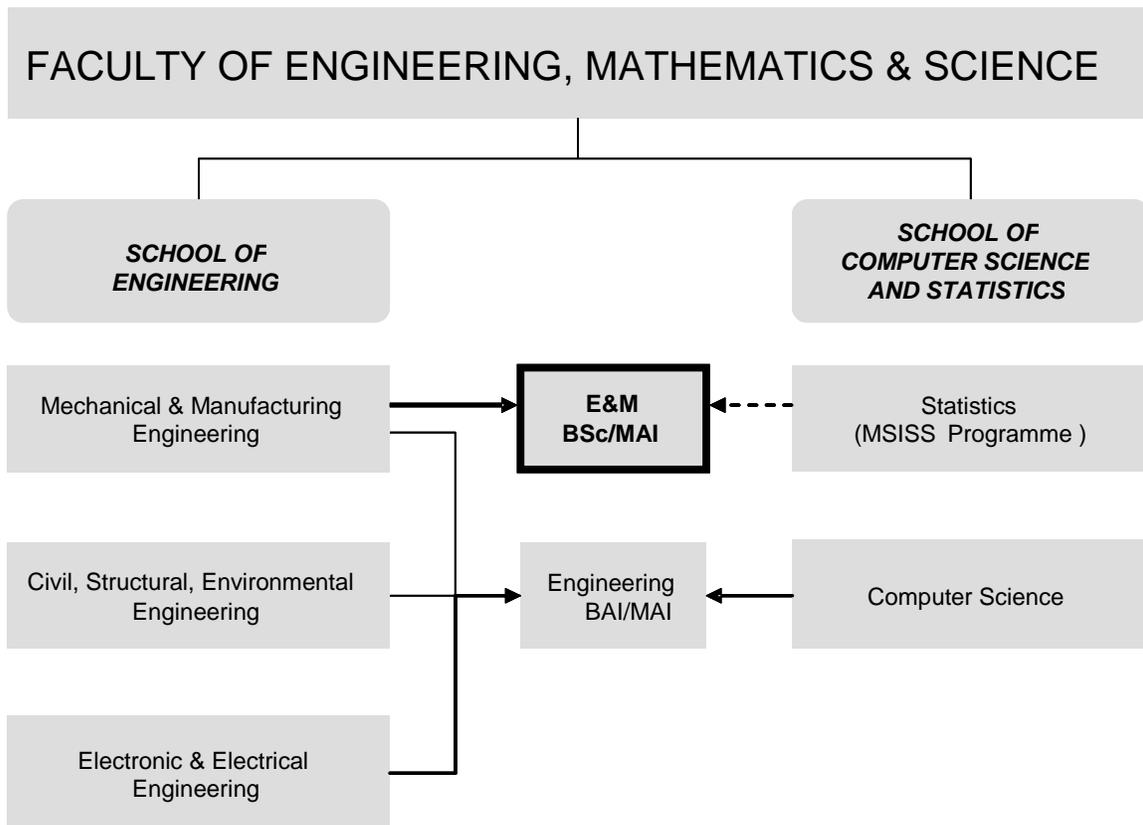
### ***MAI (International – Option 2)***

This is offered in collaboration with the UNITECH Programme, a consortium of 9 universities and 15 multinational corporate partners. Students will spend one semester in a partner university followed by a six month internship with one of the corporate partners.

Partner universities: Chalmers University of Technology, Gothenburg; École Centrale Paris; ETH Zurich; Loughborough University; Politecnico di Milano; RWTH Aachen University; University of Technology Delft; Universitat Politècnica de Catalunya, Barcelona.

## Faculty Structure

The E&M degree programme is run by the Department of Mechanical & Manufacturing Engineering. The department is part of the School of Engineering which forms part of the Faculty of Engineering & Systems Sciences. A significant contribution is made by the Management Science and Information Systems Studies programme of the Department of Statistics. The structure of the faculty is shown below:



## Junior Fresh Year

The first year is designed to introduce you to the fundamental tools of engineering and basic concepts of manufacturing and management science. Most of the engineering and science courses are taken together with the general engineering students. The website has all the course information, timetables, and this handbook.

### Courses

As will all engineering programmes, the first year comprises courses that introduce the basic analytical tools required for subsequent technical courses. Three of these focus on manufacturing and management science topics while the others cover mathematics, computer science, physics, chemistry, and engineering science as shown in Table 1.

1MEMS1	Introduction to Manufacturing	5 credits
1MEMS4	Introduction to Computing	5 credits
ST1004	Introduction to Management Science	10 credits
1E1	Engineering Mathematics I	5 credits
1E2	Engineering Mathematics II	5 credits
1E4	Physics	5 credits
1E5	Chemistry	5 credits
1E6	Electrical Engineering	5 credits
1E7	Mechanics	5 credits
1E10	Engineering Design II: Project	10 credits

### Details of Junior Fresh Courses

A detailed syllabus for each of the JF modules taken by Junior Fresh students in the Department is available on the School of Engineering website

<https://www.tcd.ie/Engineering/undergraduate/baiyear1/>

A detailed syllabus for each of the Engineering with Management modules taken by students is available on the Engineering with Management website

<https://www.tcd.ie/mecheng/engman/current/jf.php>

## **KEY DATES**

### **Semester 1 (Michaelmas Term)**

12 weeks     Monday, 10<sup>th</sup> September to Friday, 30<sup>th</sup> November 2018.

### **Semester 2 (Hilary Term)**

12 weeks     Monday, 21<sup>st</sup> January to Friday 12<sup>th</sup> April 2019.

### **Project/ Assignment Weeks: (Trinity Term)**

First semester: Monday 22<sup>nd</sup> November, 2018 to Friday, 26<sup>th</sup> November 2018.

Second Semester: Monday, 4<sup>th</sup> March, 2019 to Friday, 8<sup>th</sup> March, 2019.

### **Draft Examination dates (to be confirmed):**

Semester 1 examinations: Saturday, 8<sup>th</sup> December, 2018 to Friday, 14<sup>th</sup> December, 2018.

Semester 2 examinations: Tuesday, 23<sup>rd</sup> April, 2019 to Friday, 3<sup>rd</sup> May, 2019.

Supplemental examinations: Monday, 26<sup>th</sup> August, 2019 to Saturday, 31<sup>st</sup> August 2019.

### **Lecture/tutorial/laboratory timetables**

Lecturers assume that you carry out a significant amount of personal study and expect you to be able to understand aspects of the subject not explicitly covered in lectures, tutorials, and laboratories.

The timetable for lectures, tutorials, and laboratories is attached at the end of this handbook. The assignment of students to the numbered laboratory groups will take place after registration. Every effort has been made to create a schedule that leaves significant blocks of time available to you to facilitate library and study time. There is an average of 30 scheduled hours per week. The expectation is that you will spend at least an additional 15 hours/week carrying out personal study (e.g. reading, problem sets, projects, lab reports).

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# Helpful Hints

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## **Location of Rooms and Labs**

The Engineering School is accommodated in a number of buildings located in various parts of the college campus – see the map in Appendix F. Most first year lectures are in the Arts Building, the Hamilton Building, the Physics Department and the Chemistry Department. Computer Science practical's take place in the Engineering Computer Laboratory in Parsons Building. The EM courses are taught in the Parsons Building and the Arts Block. A map of College is shown on the following page.

## **Libraries**

There are many libraries in the College. The main library for the School of Engineering is located in the Hamilton Building at the East end of College. This library houses all the lending and reference materials that will be recommended to the students. The library is open 9.30 a.m. – 10.00 p.m. Monday to Friday and 9.30 a.m. – 1.00 p.m. Saturday throughout the academic year.

The Engineering Librarian is Lorna Flannery (ext. 1805). Should you have any difficulty finding books, or need assistance of any sort, do remember that the library staffs are there to help you and will be very happy to do so.

## **E-mail and Internet Access**

All students are issued with an e-mail name and address on arrival in College. Increasingly, messages for individual students and general messages for the class are sent via e-mail. It is essential that you get into the habit of checking your e-mail regularly. Internet access is provided from computers in the public access computer rooms. Information Systems Services (ISS) issues a handbook to all students describing the use of the public access computer rooms. The Department of Mechanical & Manufacturing Engineering and the Department of Statistics also have computer

rooms available for use by EM students. Internet access from these computers is subject to individual department policy.

## **Need help?**

If you have problems, and most of you will, the best person to go to is your tutor. They are there to help you in all matters relating to your life in College. These include all personal problems and/or requests for special treatment (e.g. seeking permission to take a year off, obtaining details of your examination marks, appealing a result, changing courses). You are strongly encouraged to meet with your tutor in the first week and get to know them. Don't worry about inconveniencing them. Being a tutor is not compulsory so those that are tutors have chosen to be and expect you to visit them. When problems arise, they can be your strongest advocate.

### **Personal matters**

Tutors are not counselors but can lend a sympathetic ear to you if you are having personal difficulties at home or in college. More importantly, they can put you in contact with people who can be of direct help in counseling, health, and financial issues (e.g. the Student Counseling Service, the Student Health Service, the Student's Union, and the Senior Tutor's office). The sooner you approach your tutor with your difficulty, the more s/he can do for you.

In some matters you can deal directly with the department staff. These are described below:

### **Academic matters**

Academic matters (i.e. understanding course content, organising revision sessions) should be addressed to the lecturer or teaching assistant concerned. Don't let yourself get into greater and greater difficulty because you don't understand some of the lecture content. Most lecturers assume that, if there are no questions in or out of lectures, everything is clear to the students. It is surprising how effective a 15 minute meeting with a lecturer or teaching assistant can be. Be aware that these people are generally

only willing to help students who attend lectures regularly (unless the student is absent for some genuine reason).

### **Programme matters**

Examples of these issues are books not being available in the library, a lecturer not speaking clearly, projects with similar due dates. These should be taken to the class representative (you will have to elect one) who should then bring them to the attention of the Head of Department or Course Director (Prof. Daniel Kelly & Prof. Garret O' Donnell) If in doubt, speak to your tutor first.

### **Administrative matters**

If you need to replace a lost timetable or request a transcript, you should approach Nicole Byrne @ [nbyrne3@tcd.ie](mailto:nbyrne3@tcd.ie) . They have many other responsibilities so try and avoid asking them too many trivial questions and try not to ask them at or near the end of the day.

### **STUDENT INFORMATION SYSTEM (SITS) – ACCESS VIA [my.tcd.ie](http://my.tcd.ie)**

All communications from College will be sent to you via your online portal which will give you access to an 'in tray' of your messages. You will also be able to view your timetables online, both for your teaching and for your examinations. All fee invoices/payments, student levies and commencement fees will be issued online and all payments will be carried out online. You will be able to view your personal details in the new system – some sections of which you will be able to edit yourself. Up until 2013, all examination results were published online by the Examinations Office at <http://www.tcd.ie/vpcao/examinations.php> – from now on, your results will also be communicated to you via the online portal. Future plans for the new system include online module registration and ongoing provision of module assessment results.

## **Contacting Academic Registry**

All enquiries should be directed through one of the 4 channels:

- Log an enquiry via ASK AR on the my.tcd.ie portal
- Via email at [academic.registry@tcd.ie](mailto:academic.registry@tcd.ie)
- Via phone at #4500 [students] or #4501 [staff]

From there they will be answered directly or escalated to the correct team.

## **Trinity Education Project**

The Trinity Education Project is a university wide initiative to ‘rearticulate what a Trinity Education should be in the 21st century and to reemphasise our role as a leader in education’. This will enhance the experience of all Trinity students, including those in the school of engineering. The ‘high level’ graduate attributes span 4 dimensions – academic excellence, critical thinking and effective communication, life-long learning, and global citizenship. The academic and administrative structures will be enhanced to provide student learning-centred assessment, learning spaces, curriculum principles and architecture, internships and study abroad options and technology enhanced learning where appropriate.

While many details in this project have still to be determined, the currently proposed architecture for professional degrees (including engineering) would see 10 ECTS of ‘free electives’ (modules available to all students in the university, and chosen by the students) made available within the first 4 years of the programme, and 20 ECTS of ‘approved modules’ (modules from a prescribed menu outside of the students core requirements, but which are recognized as cognate and coherent). The school of engineering is excited by the opportunities to use this new project to provide flexible and agile responses to the needs of our graduates.

For more detail see <https://www.tcd.ie/academic-services/tep/>

Cal. Wk.	Dates 2018/19 (week beginning)	2018/19 Academic Year Calendar	Term / Semester
1	27-Aug-18	Marking/Results	← Michaelmas Term begins/Semester 1 begins
2	03-Sep-18	Orientation (undergraduate)/Freshers' Week	
3	10-Sep-18	Teaching and Learning	← Michaelmas teaching term begins
4	17-Sep-18	Teaching and Learning	
5	24-Sep-18	Teaching and Learning	
6	01-Oct-18	Teaching and Learning	
7	08-Oct-18	Teaching and Learning	
8	15-Oct-18	Teaching and Learning	
9	22-Oct-18	Study/Review	
10	29-Oct-18	Teaching and Learning	
11	05-Nov-18	Teaching and Learning	
12	12-Nov-18	Teaching and Learning	
13	19-Nov-18	Teaching and Learning	
14	26-Nov-18	Teaching and Learning	
15	03-Dec-18	Revision	
16	10-Dec-18	Assessment	← Michaelmas term ends Sunday 16 December 2018/ Semester 1 ends
17	17-Dec-18	Christmas Period - College closed	
18	24-Dec-18	24 December 2018 to 1 January 2019 inclusive	
19	31-Dec-18		
20	07-Jan-19	Foundation Scholarship Examinations <sup>^</sup>	
21	14-Jan-19	Marking/Results	← Hilary Term begins/Semester 2 begins
22	21-Jan-19	Teaching and Learning	← Hilary teaching term begins
23	28-Jan-19	Teaching and Learning	
24	04-Feb-19	Teaching and Learning	
25	11-Feb-19	Teaching and Learning	
26	18-Feb-19	Teaching and Learning	
27	25-Feb-19	Teaching and Learning	
28	04-Mar-19	Study/Review	
29	11-Mar-19	Teaching and Learning	
30	18-Mar-19	Teaching and Learning (Monday, Public Holiday)	
31	25-Mar-19	Teaching and Learning	
32	01-Apr-19	Teaching and Learning	
33	08-Apr-19	Teaching and Learning	
34	15-Apr-19	Revision (Friday, Good Friday)	← Hilary Term ends Sunday 21 April 2019
35	22-Apr-19	Assessment (Monday, Easter Monday)	← Trinity Term begins

36	29-Apr-19	Trinity Week	
37	06-May-19	Marking/Results (Monday, Public Holiday)	<b>← Statutory (Trinity) Term ends Sunday 2 June 2019/ Semester 2 ends</b>
38	13-May-19	Marking/Results	
39	20-May-19	Marking/Results	
40	27-May-19	Summer Research	
41	03-Jun-19	Summer Research (Monday, Public Holiday)	
42	10-Jun-19	Summer Research	
43	17-Jun-19	Summer Research	
44	24-Jun-19	Summer Research	
45	01-Jul-19	Summer Research	
46	08-Jul-19	Summer Research	
47	15-Jul-19	Summer Research	
48	22-Jul-19	Summer Research	
49	29-Jul-19	Summer Research	
50	05-Aug-19	Summer Research (Monday, Public Holiday)	
51	12-Aug-19	Summer Research	
52	19-Aug-19	Summer Research	

^ Note: it may be necessary to hold some exams in the preceding week.

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# Regulations and Assessment

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## College Regulations

College regulations are set out in the University Calendar, which may be consulted in any College Library, the Enquiries Office, any academic or administrative office or online – [www.tcd.ie/calendar/](http://www.tcd.ie/calendar/). You are expected to be aware of the various regulations - ignorance of the regulations is not a valid reason for failure to comply.

## Collaboration, Plagiarism and Individual Work

Engineering is about co-operation, but also individual effort. The everyday fruits of engineering, such as jet aircraft, suspension bridges, microprocessors or software systems, have been designed and built by teams of hundreds, even thousands, of engineers working together. These engineers exchange ideas and ultimately co-ordinate their efforts to achieve the overall project goal. However, each component of even the largest project is the result of one individual's engineering skill and imagination. If you want to become a successful engineer, you must develop your own ability to analyse problems. This means that, while it is useful to work as a team initially, you must ultimately produce your own work. For example, for a computing exercise, discuss the task with your classmates, swap ideas on how to solve the problem, but at the end of the day, implement your own solution. The examinations will test your ability rather than just your knowledge and the only way to develop your ability for engineering analysis is to complete the laboratory and tutorial exercises yourself.

## Plagiarism

In the academic world, the principal currency is *ideas*. As a consequence, you can see that *plagiarism* – i.e. passing off other people's ideas as your own – is *tantamount to*

*theft*. It is important to be aware the plagiarism can occur knowingly or unknowingly, and the offence is in the action not the intent.

Plagiarism is a serious offence within College and the College's policy on plagiarism is set out in a central online repository hosted by the Library which is located at <http://tcd-ie.libguides.com/plagiarism>. This repository contains information on what plagiarism is and how to avoid it, the College Calendar entry on plagiarism and a matrix explaining the different levels of plagiarism outlined in the Calendar entry and the sanctions applied.

Undergraduate and postgraduate new entrants and existing students, are required to complete the online tutorial '**Ready, Steady, Write**'. Linked to this requirement, all cover sheets which students must complete when submitting assessed work, must contain the following declaration:

**I have read and I understand the plagiarism provisions in the General Regulations of the University Calendar for the current year, found at: <http://www.tcd.ie/calendar>**

**I have also completed the Online Tutorial on avoiding plagiarism 'Ready, Steady, Write', located at <http://tcd-ie.libguides.com/plagiarism/ready-steady-write>**

Plagiarism detection software such as "Turnitin" and Blackboard's "SafeAssign" may be used to assist in automatic plagiarism detection. Students are encouraged to assess their own work for plagiarism prior to submission using this or other software.

## **Attendance, non-satisfactory attendance, course work**

For professional reasons lecture and tutorial attendance in all years is compulsory in the School of Engineering. For more on this, See Part II, Academic Progress Section (25) of the College Calendar <http://www.tcd.ie/calendar/1718-2/part-2-undergraduate-courses-and-other-general-information/general-regulations-and-information/academic-progress/>

All students must fulfil the course requirements of the school or department, as appropriate, with regard to attendance and course work. Students may be deemed non-satisfactory if they miss more than a third of their course of study or fail to submit a third of the required course work in any term. **Therefore, a minimum 75% attendance rate at lectures, Laboratories and Tutorials is required.**

At the end of the teaching term, students who have not satisfied the school or department requirements may be reported as non-satisfactory for that term. Students reported as non-satisfactory for the Michaelmas and Hilary terms of a given year may be refused permission to take their annual examinations and may be required by the Senior Lecturer to repeat their year.

Further details of procedures for reporting a student as non-satisfactory are given on the College website at:

<http://www.tcd.ie/undergraduate-studies/academic-progress/attendance-course-work.php>

## **Assessment**

The overall result for the year is the weighted average of the individual module results. The weighting is based on the credits associated with each module. Students are obliged to be present and make a serious attempt at all their examinations. You are advised to read the examination regulations on the [School Website](#). Particular attention should be given to the College Regulations concerning medical certificates in the case of missed examinations. Further information is available in [Part II, Academic Progress Section \(35\) of the College Calendar](#) .

Examination timetables are published on your personal TCD portal page some weeks before the examinations take place. It is your responsibility to note these carefully – you will be informed that timetables have been published but you must check them continuously, as examination details may change.

## Course Regulations

### Assignment deadlines

Many E&M courses include an element of continuous assessment. Different departments have their own rules on continuous assessment and homework. You should make sure you are familiar with these rules and that you understand them. The Department of Mechanical and Manufacturing Engineering rules are summarised below:

1. The lecturer must notify the students of:
  - the deadline
  - where and how the assignment is to be handed in
  - the penalties for late submission
  - the procedure for granting permission for late submissions.

Otherwise the default rules, as set out below, will apply.

2. The deadline for all continuous assessment work will be 5pm on the day specified.
3. The work must be handed in to the Department Secretary who will stamp it with the date and time and record the submission in a log. The submission must be clearly labelled and must show the student's name, the assignment title, the course number, and the lecturer's name.
4. Penalties for late submission are as follows: material submitted late will be marked down 20% of the mark that would otherwise have been awarded for each day (or part thereof) that it is late. Work submitted after 5pm of the fifth day after the deadline will receive a mark of zero.
5. Extensions are normally granted 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 your

lecturer. Lecturers will normally grant an extension following a letter from a tutor. Keep in mind that valid reasons are those that could not have been foreseen.

6. Sometimes, where there is a general problem, a Lecturer may award an extension to the entire class. This will be posted (and optionally e-mailed to all students). Penalties will apply as stated above from the revised deadline.

Students are obliged to be present and make a serious attempt at all their examinations. You are advised to read the Examination Regulations (included in this Section 5 of this booklet). Particular attention should be given to the College Regulations concerning medical certificates.

Examination timetables are placed on the notice board some weeks before the examinations take place. It is *your* responsibility to note these carefully.

### **Anonymous Marking**

The College has approved the practice of anonymous marking for undergraduate examinations. This does not apply to continuous assessment and term tests. All undergraduate examination results are published anonymously by student number on school, department or course office notice-boards, as appropriate.

<http://www.tcd.ie/calendar/1718-2/part-2-undergraduate-courses-and-other-general-information/general-regulations-and-information/academic-progress/>

## **DESCRIPTION OF THE EUROPEAN CREDIT TRANSFER SYSTEM (ECTS)**

**The European Credit Transfer and Accumulation System (ECTS)** is an academic credit system based on the estimated student workload required to achieve the objectives of a module or programme of study. It is designed to enable academic recognition for periods of study, to facilitate student mobility and credit accumulation and transfer. The ECTS is the recommended credit system for higher education in Ireland and across the European Higher Education Area.

The ECTS weighting for a module is a **measure of the student input or workload** required for that module, based on factors such as the number of contact hours, the number and length of written or verbally presented assessment exercises, class preparation and private study time, laboratory classes, examinations, clinical attendance, professional training placements, and so on as appropriate. There is no intrinsic relationship between the credit volume of a module and its level of difficulty. The European **norm for full-time study over one academic year is 60 credits**.

**ECTS credits are awarded to a student only upon successful completion of the module year.** Progression from one year to the next is determined by the module regulations. Students who fail a year of their module will not obtain credit for that year even if they have passed certain component modules. Exceptions to this rule are one-year and part-year visiting students, who are awarded credit for individual modules successfully completed.

## EXAMINATION RULES

### FRESHMAN AND JUNIOR SOPHISTER

A full set of Examination Rules can be found on the School of Engineering website:

[http://www.tcd.ie/Engineering/undergraduate/pdf/ExaminationRules\\_1819.pdf](http://www.tcd.ie/Engineering/undergraduate/pdf/ExaminationRules_1819.pdf)

The full set of overall grades is set out below;

<i>Description</i>	<i>Grade</i>	<i>Criterion</i>
First Class Honors	<b>I</b>	mark greater than or equal to 70%
Second Class Honors, First Division	<b>II.1</b>	mark greater than or equal to 60% and less than 70%
Second Class Honors, Second Division	<b>II.2</b>	mark greater than or equal to 50% and less than 60%
Third Class Honors	<b>III</b>	mark greater than or equal to 40% and less than 50%
Fail	<b>F</b>	the candidate has failed to satisfy the criteria listed above
Exclude	<b>EX</b>	the candidate has not made a serious attempt at the examinations <u>or</u> the candidate has not passed the year within eighteen months from that date on which they first became eligible <u>or</u> the candidate has at least one unexplained absence

Deferred	<b>D</b>	the candidate was absent with permission due to medical or other grounds and the result is incomplete
ERASMUS Awaiting Result	<b>ER</b>	Applies to Erasmus / International Exchange students
Result Withheld	<b>RW</b>	it may be necessary for academic or administrative reasons to withhold a result (e.g. unpaid fees or fines)
Withdrawn	<b>WD</b>	the candidate has withdrawn from the course
Repeat year	<b>R</b>	the candidates is given permission to repeat the year IN FULL (applies at SUPPLEMENTAL examinations ONLY)
Pass	<b>P</b>	the candidate may rise to the next year of the degree programme (applies at SUPPLEMENTAL examinations ONLY)

After the Court of Examiners' meeting, ANNUAL and SUPPLEMENTAL examination results are published anonymously in student number order.

### Individual module results

All individual module results are published anonymously by student number on the College notice boards, on the local School of Engineering website -

<http://www.tcd.ie/Engineering/Results/> (students will need their College username and password) and on the College's Examinations Office website -

<http://www.tcd.ie/Examinations/Results/>

Where a mark is not reported for a module the following codes apply where appropriate:

**f** = mark is less than 25%;

- a** = absent with permission/explained absence – may take a SUPPLEMENTAL examination;
- A** = absent without permission or explanation – **automatic exclusion**;
- mc** = medical certificate supplied to and accepted by the Senior Lecturer;
- cr** = credit for subject e.g. candidate is exempt on the basis of their performance in the Foundation Scholarship examination;
- gw** = grade withheld (e.g. unpaid fees or fines).
- p** = credit for subject passed on previous occasion.

### **Repeating the year**

Candidates must repeat the year IN FULL which includes all continuous assessment requirements and laboratory experiments.

### **Publication of Results**

Examination results are published on the Department Notice board in Parsons Building. The examination results of candidates are published on the notice board in order of the candidates' student numbers. Candidates' names are not listed. Anyone seeking a candidates' result must have their student number. Tutors can also be contacted regarding your examination results.

### **Re-checking/Re-marking of Examination Scripts**

Extract from [Part II, Academic Progress Section \(52\) of the College Calendar](#):

- (i) All students have a right to discuss their examination and assessment performance with the appropriate members of staff as arranged for by the director of teaching and learning (undergraduate) or the head of department as appropriate. This right is basic to the educational process.
  
- (ii) Students are entitled to view their scripts when discussing their examinations and assessment performance.

(iii) Students' examination performance cannot be discussed with them until after the publication of the examination results.

(iv) To obtain access to the breakdown of results, a student or his/her tutor should make a request to the director of teaching and learning (undergraduate), course co-ordinator or appropriate member of staff.

(v) Examination scripts are retained by schools and departments for thirteen months from the date of the meeting of the court of examiners which moderates the marks in question and may not be available for consultation after this time period.

### **“52 Re-check/re-mark of examination scripts**

(i) Having received information about their results and having discussed these and their performance with the director of teaching and learning (undergraduate) or the head of department and/or the appropriate staff, students may ask that their results be reconsidered if they have reason to believe:

(a) that the grade is incorrect because of an error in calculation of results;

(b) that the examination paper specific to the student's course contained questions on subjects which were not part of the course prescribed for the examination; or

(c) that bias was shown by an examiner in marking the script.

(ii) In the case of (a) above, the request should be made through the student's tutor to the director of teaching and learning (undergraduate) or course co-ordinator as appropriate.

(iii) In the case of (b) and/or (c) above, the request should be made through the student's tutor to the Senior Lecturer. In submitting such a case for reconsideration of results, students should state under which of (b) and/or (c) the request is being made. (Details of the procedures relating to the re-check/re-mark of examination scripts

are available on the College website

<https://www.tcd.ie/academicregistry/exams/results/recheck/>)

(iv) Once an examination result has been published it cannot be amended without the permission of the Senior Lecturer.

(v) Requests for re-check or re-mark should be made as soon as possible after discussion of results and performance and no later than twelve months from the date of the meeting of the court of examiners which moderated the marks in question.

(vi) Any student who makes a request for re-check or re-mark that could have implications for their degree result is advised not to proceed with degree conferral until the outcome of the request has been confirmed”.

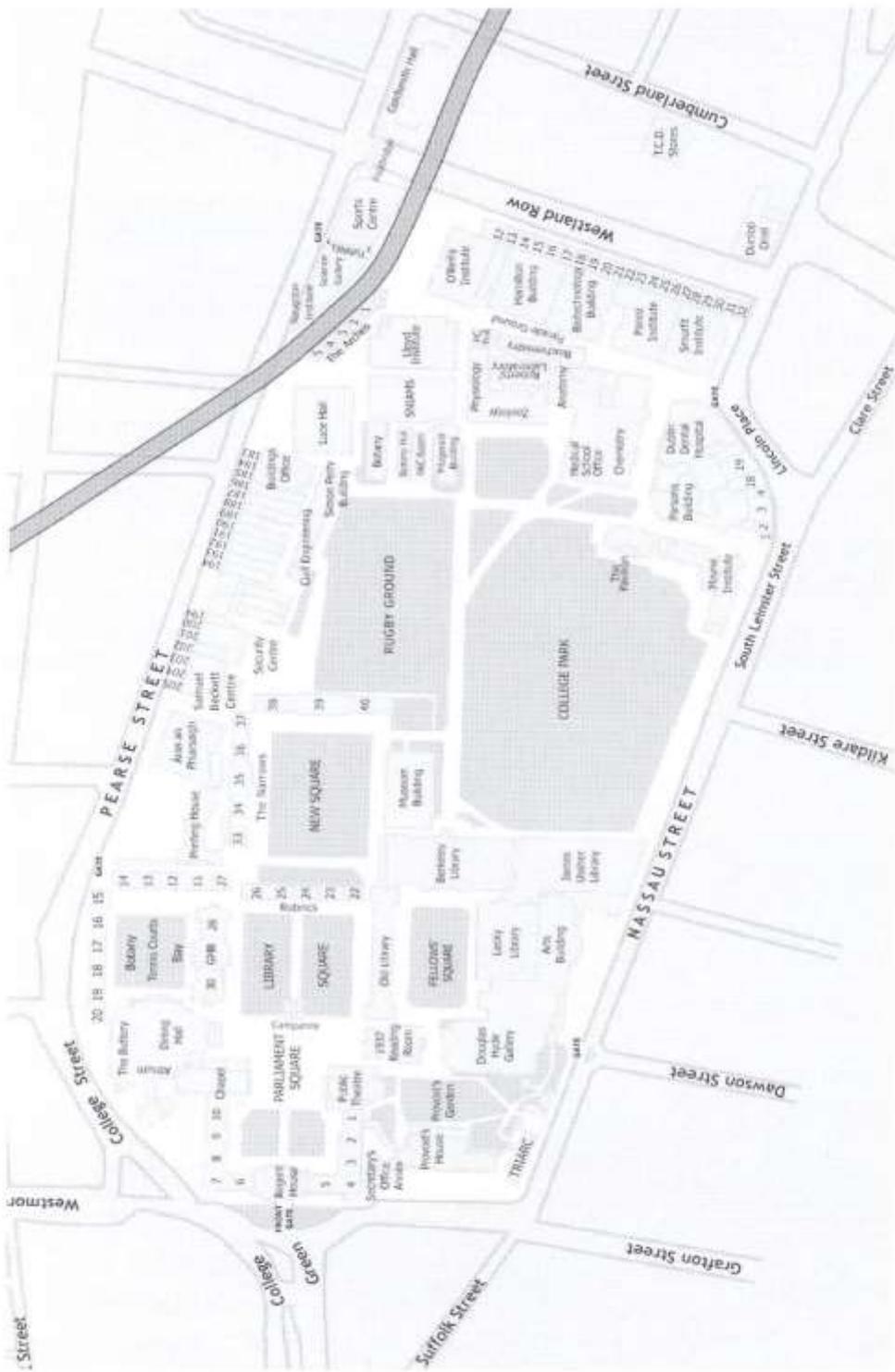
## **Appeals**

Extract from [Part II, Academic Progress Section \(53\) of the College Calendar](#):

”53 A student may appeal a decision of the court of examiners relating to academic progress to a Court of First Appeal. (Details of procedures relating to Courts of First Appeal are available on the College website at <https://www.tcd.ie/undergraduate-studies/academic-progress/appeals.php> and from relevant course offices) Appeals should be made in writing by a student’s tutor or, if the tutor is unwilling or unable to act, by the Senior Tutor or his/her nominee who shall be another tutor. Students may request a representative of the Students’ Union to represent them as an alternative to their tutor or the Senior Tutor. Tutors or Students’ Union representatives who are filing an appeal must use the procedural form, must indicate the precise grounds upon which the appeal is being made (see Academic Appeals Committee §54 below for applicable grounds) and what the appeal is attempting to achieve on the student’s behalf, e.g. permission to repeat the year, special examination etc. The attention of those bringing an appeal is

directed to the assistance offered by the school or course administrators and the undergraduate studies staff in Trinity Teaching and Learning in helping them to complete their records, provide copies of medical certificates and other appropriate documents. The Court of First Appeal shall not hear requests for re-checking/re-marking of examinations and assessments which should be processed according to the regulations as set out in §52 above. The recommendations of the Court of First Appeal are forwarded to the Senior Lecturer who may approve or reject or vary any such recommendations. As a consequence recommendations of a Court of First Appeal are not binding and shall not have a formal effect unless and until they have been considered and approved by the Senior Lecturer.

In particular, pursuant to §37, the Senior Lecturer will approve a recommendation that a student be permitted to sit a special examination, outside of the annual and supplemental sessions, as set out in the Almanack, only in exceptional circumstances. (This power is exercised by the Senior Lecturer by delegation from the University Council, and the principles of delegation set out in Part 3 of the Introduction Chapter of the 2010 Statutes shall apply.) A student may appeal such decisions of the Senior Lecturer, whether approved or rejected or varied, to the Academic Appeals Committee.



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# Heath & Safety

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## **Safety in the Department**

Dear Student,

The Department of Mechanical & Manufacturing Engineering operates a 'safe working environment' policy and we take all practical precautions to ensure that hazards or accidents do not occur. We maintain safety whilst giving you the student very open access to the departmental facilities. Thus safety is also your personal responsibility and it is your duty to work in a safe manner when within the department. By adopting safe practices you ensure both your own safety and the safety of others.

Please read the Safety Document on the Departmental website:  
<http://www.mme.tcd.ie/> and comply with the instructions given within. Failure to behave in a safe manner may result in your being refused the use of departmental facilities.

Mr. JJ Ryan

Departmental Safety Officer

## **Student Disability Services**

If you have a disability or a specific learning disability (such as dyslexia) you may want to register with Student Disability Services.

Do you know what supports are available to you in College if you have a disability or a specific learning disability? Further information on our services can be found at

[www.tcd.ie/disability](http://www.tcd.ie/disability)

**Declan Reilly and Alison Doyle** are the Disability Officers in College. You can make an appointment to see them by phoning 6083111, or emailing them at: [disab@tcd.ie](mailto:disab@tcd.ie).

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## **College Health Service, House No 47**

### **The Clinical staff in the College Health Service:**

Medical Director:

Dr. David McGrath

Assistant Medical Director/Psychiatrist:

Dr. Niamh Farrelly

Doctors:

Dr. Niamh Murphy

Dr. Mary Sheridan

Dr. Aisling Waters

Dr. Lisa Lawless

Nurses:

Ms. Carmel Conway

Ms. Karen Darley

Physiotherapist:

Ms. Karita Saar Cullen

Health Promotion Officer:

Ms. Martina Mullin

<http://www.tcd.ie/collegehealth/contact-us/> Tel. 01 8961556 / 8961591

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# Student Supports

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## **Academic Concerns: Sources of Assistance**

- Other students in the class;
- Course lecturer;
- Engineering class representatives;
- your personal tutor (or any other tutor if you cannot find yours), or the Senior Tutor;
- Head of Department,
- Head of School or Director of Teaching and Learning (Undergraduate), Assistant Prof. Ciaran Simms ([csimms@tcd.ie](mailto:csimms@tcd.ie));
- Students' Union Education Officer ([education@tcdsu.org](mailto:education@tcdsu.org)).

## **Student Learning Development**

Student Learning Development is here to help you develop and master the academic skills to succeed at Trinity. The supports available include:

- Free workshops throughout the year on a variety of topics for students from all departments.
- A Blackboard module featuring a range of resources, including podcasts and interactive workshops that provide academic support to students. Topics include:
- Time management
- Presentation skills (incl poster presentations)
- Procrastination and Concentration
- Effective study skills
- Writing skills
- Exam skills

- Individual consultations – meet with a learning advisor to discuss your study issues

For more information please visit <http://student-learning.tcd.ie>

### **Other supports for learning in College include:**

- The Maths Help Room, which provides informal help from Trinity students. It is located in the Maths Seminar Room, 2nd Floor, 18 Westland Row and is open on Monday-Friday, from 1-2pm
- The Programming Support Centre is available to all computer science and engineering students taking programming courses. See [www.scss.tcd.ie/misc/psc](http://www.scss.tcd.ie/misc/psc)
- Peer Learning is available in several of the modern language departments. It involves working with other students to get the most from your course to improve performance. E-mail us for further information: [student.learning@tcd.ie](mailto:student.learning@tcd.ie)

### **S2S Peer Support**

S2S Peer Support is all about one student listening to another student and providing information and assistance. Peer Supporters are available for any student in the College and are there for anything you might want to talk through with them. You don't need to be in distress or crisis to talk to a Peer Supporter, but they can help with the larger problems as well as the smaller things. Our volunteers are highly trained, confidential and professional, but they're also fellow students who can offer some genuine empathy and a friendly ear.

If anything is on your mind and you'd like to share it with a good listener then a Peer Supporter would love to help. You can email us directly at [student2student@tcd.ie](mailto:student2student@tcd.ie) or request a meet-up with a Peer Supporter by calling 01 896 2438 or filling out an online form.

S2S website: <http://student2student.tcd.ie>

# Careers Advisory Service

What do you want to do? How will you get there? We are here to support you in answering these and other questions about your career.

## Junior and Senior Fresh Students

**Get Involved:** Remember that your course of study, extra- curricular activities, voluntary and part-time work all provide opportunities for developing skills and gaining an insight into your career preferences. In your Senior Fresh year, look out for short-term internship opportunities.

**MyCareer:** Log in to MyCareer to keep abreast of jobs, study and careers events of interest to you.

## Junior Sophisters

**Attend class seminar:** Typically this takes place in Hilary term and includes information on applying for work experience and internships and postgraduate study.

**Get work experience:** The programme of summer work experience and internships is particularly relevant to Junior Sophisters. Personalise your MyCareer profile to receive email alerts tailored to your preferences.

**MyCareer:** Log in to MyCareer to keep abreast of jobs, study and careers events of interest to you.

## Finalists and Senior Sophisters

**Meet Employers and/or Explore Further Study:** You may have decided to seek employment directly after graduation and many employers visit Dublin to actively seek out talented graduates. For others, further study may be their preferred option. Your MyCareer dashboard will keep you informed.

**Find Jobs:** Personalise your MyCareer profile to receive email alerts tailored to your interests.

**Attend class seminar:** Typically this takes place in Michaelmas term and includes information on applying for postgraduate study and jobs.

**GradLink Mentoring:** An opportunity to get advice and support from a Trinity graduate.

**Drop-In CV/ LinkedIn Clinics:** We also provide support at a practical level, helping you to improve your applications, which will benefit you in securing your future, whether in employment or further study.

**Practice Interviews:** A practice interview tailored to the job/ course of your choice with practical feedback.

**MyCareer:** Log in to MyCareer to keep abreast of jobs, study and careers events of interest to you.

### MyCareer

An online service that you can use to:

- Apply for opportunities which match your preferences - vacancies including research options
- Search opportunities- postgraduate courses and funding
- View and book onto employer and CAS events
- Submit your career queries to the CAS team
- Book an appointment with your Careers Consultant

Simply login to MyCareer using your Trinity username and password and personalise your profile.

### Careers Advisory Service

Trinity College Dublin, 7-9 South Leinster Street, Dublin 2

01 896 1705/1721 | Submit a career query through MyCareer



MyCareer:

[mycareerconnect.tcd.ie](http://mycareerconnect.tcd.ie)



TCD.Careers.Service



TCDCareers



[www.tcd.ie/](http://www.tcd.ie/)

[Careers/students/postgraduate/](http://www.tcd.ie/Careers/students/postgraduate/)



@TCDCareers



[tinyurl.com/LinkedIn-](http://tinyurl.com/LinkedIn-TCD-Connecting)

TCD-Connecting

## Opening Hours

**During term:** 9.30am - 5.00pm, Monday - Friday

**Out of Term:** 9.30am - 12.30pm & 2.15 - 5.00pm, Monday - Friday

## Tutors

The tutors responsible for engineering students are:

<b>TUTOR</b>	<b>OFFICE LOCATION</b>	<b>EXTN.</b>
Kevin Kelly	Mechanical Engineering, Parsons Building	1465
Bruce Murphy	Mechanical Engineering, Parsons Building	8503
David Taylor	Mechanical Engineering, Parsons Building	1703
Henry Rice	Mechanical Engineering, Parsons Building ( <b>Erasmus only</b> )	1996
Trevor Orr	Civil Engineering, Museum Building	1204
Bidisha Ghosh	Civil Engineering, Museum Building	3646
Brian Caulfield	Civil Engineering, Museum Building	2534
Aonghus McNabola	Civil Engineering, Museum Building	3837
Laurence Gill	Civil Engineering, Museum Building	1047
Dermot O'Dwyer	Civil Engineering, Museum Building	2532
Alan O'Connor	Civil Engineering, Museum Building	1822
Liwen Xiao	Civil Engineering, Museum Building	3741
Sarah McCormack	Civil Engineering, Museum Building	3321
Francesco Pilla	Civil Engineering, Museum Building	1638
Naomi Harte	Electronic and Electrical Engineering, Printing House	1861
Edmund Lalor	Electronic and Electrical Engineering, Printing House	1743
<i>Senior Tutor</i>		
Dr Aidan Seery	Senior Tutor's Office, House 27	2004

<b>Head of Department</b>	Prof Danny Kelly	<a href="mailto:kellyd9@tcd.ie">kellyd9@tcd.ie</a>	0.02
<b>Chief Technical Officer</b>	Mr Mick Reilly	<a href="mailto:mireilly@tcd.ie">mireilly@tcd.ie</a>	1.08
<b>Executive Officer</b>	Ms Louise Williams	<a href="mailto:WILLIALO@tcd.ie">WILLIALO@tcd.ie</a>	1.03
<b>Executive Officer</b>	Ms Nicole Byrne	<a href="mailto:nbyrne3@tcd.ie">nbyrne3@tcd.ie</a>	1.03
<b>Executive Officer</b>	Ms Lisa O'Neill	<a href="mailto:grepeng@tcd.ie">grepeng@tcd.ie</a>	1.03
<b>Executive Officer</b>	Ms Melissa Caffrey	<a href="mailto:tcbe@tcd.ie">tcbe@tcd.ie</a>	1.03

<b>STAFF NAME</b>	<b>EMAIL</b>	<b>LOCATION</b>
Prof Mark Ahearne	<a href="mailto:ahearnm@tcd.ie">ahearnm@tcd.ie</a>	0.02
Prof Gareth Bennett	<a href="mailto:bennetgj@tcd.ie">bennetgj@tcd.ie</a>	2.09
Prof Conor Buckley	<a href="mailto:cbuckle@tcd.ie">cbuckle@tcd.ie</a>	2.12
Mr John Gaynor	<a href="mailto:jgaynor@tcd.ie">jgaynor@tcd.ie</a>	3.10
Prof Dermot Geraghty	<a href="mailto:tgerghty@tcd.ie">tgerghty@tcd.ie</a>	3.02
Prof David Hoey	<a href="mailto:dahoey@tcd.ie">dahoey@tcd.ie</a>	3.06
Professor Kevin Kelly	<a href="mailto:kevin.kelly@tcd.ie">kevin.kelly@tcd.ie</a>	2.06
Prof John Kennedy	<a href="mailto:kennedj@tcd.ie">kennedj@tcd.ie</a>	2.01
Prof Catriona Lally	<a href="mailto:lally@tcd.ie">lally@tcd.ie</a>	2.10

Prof Rocco Lupoi	<a href="mailto:lupoir@tcd.ie">lupoir@tcd.ie</a>	2.07
Prof Conor McGinn	<a href="mailto:mcginnc@tcd.ie">mcginnc@tcd.ie</a>	2.05A
Prof Craig Meskell	<a href="mailto:cmeskell@tcd.ie">cmeskell@tcd.ie</a>	2.13
Prof Michael Monaghan	<a href="mailto:monaghmi@tcd.ie">monaghmi@tcd.ie</a>	2.05A
Prof Bruce Murphy	<a href="mailto:bruce.murphy@tcd.ie">bruce.murphy@tcd.ie</a>	3.12
Prof Garret O'Donnell	<a href="mailto:odonnege@tcd.ie">odonnege@tcd.ie</a>	2.08
Prof Kevin O'Kelly	<a href="mailto:okellyk@tcd.ie">okellyk@tcd.ie</a>	3.03
Prof Seamus O'Shaughnessy	<a href="mailto:oshaugse@tcd.ie">oshaugse@tcd.ie</a>	2.05A
Prof Tim Persoons	<a href="mailto:persoont@tcd.ie">persoont@tcd.ie</a>	2.11
Prof Richard Reilly	<a href="mailto:richard.reilly@tcd.ie">richard.reilly@tcd.ie</a>	Bio-Sci
Prof Henry Rice	<a href="mailto:hrice@tcd.ie">hrice@tcd.ie</a>	1.03B
Prof Tony Robinson	<a href="mailto:arobins@tcd.ie">arobins@tcd.ie</a>	3.11
Prof Ciaran Simms	<a href="mailto:csimms@tcd.ie">csimms@tcd.ie</a>	3.04
Prof David Taylor	<a href="mailto:dtaylor@tcd.ie">dtaylor@tcd.ie</a>	1.03C
Prof Daniel Trimble	<a href="mailto:dtrimble@tcd.ie">dtrimble@tcd.ie</a>	Watt Building