Information & Recommendations

Course text books

George Humphrey. *New Concise Maths 4*, Gill & Macmillan (2003).
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The references for each topic given in the course timetable refer to the above text books. These are provided to enable students to clearly determine the course content.

Note the relevant chapters are available online:

http://www.nuigalway.ie/engineering-informatics/undergraduatestudents/
engineeringmathsqualifyingexaminationpreparatorycourse/

 Needless to say the material is contained in any of the standard Leaving Certificate course books, which are equally suitable preparatory sources.

Preparation

The Special Maths Exam Preparatory Course (course) is designed to aid students in their <u>final</u> preparation for the Special Entrance Examination (exam); it should not be viewed as the only necessary preparation. It is impossible to cover every topic in detail in the given timeframe, therefore students are strongly advised to prepare as follows:

- Begin preparation for the Special Entrance Maths Examination **NOW**. The four and a half day preparatory course will be most beneficial to those who have a good foundation.
- Revise all the material on the Leaving Cert. lower level course – proficiency at this level is essential.
- Work through as much of the material on the Leaving Cert. higher level course as possible. In particular:
    - ❖ Coordinate geometry of the line (Ref. Maths 4, Chapter 6), it will be assumed that students are well versed in this material – there are no lectures or tutorials on this topic.
    - ❖ Equations – quadratic, cubic, simultaneous (three variables) – reference here is Maths 4, Chapters 1 & 2. There is a two-hour tutorial on this topic, the tutor will help students work through as many examples as possible, but prior knowledge is assumed.
    - ❖ Binomial theorem (Ref. Maths 4, Chapter 16), permutations and combinations (Ref. Maths 5, Chapter 5) – again there is a two-hour tutorial on these topics, but it is necessary to be familiar with the material.
    - ❖ The lecture on complex numbers will focus on: polar form of a complex number, De Moivre's Theorem, powers of complex numbers and roots of complex numbers. It is expected that students will know

all the basic material on complex numbers (add/subtract etc), reference here is Maths 5, Chapter 2.

- ❖ Trigonometry – revise the trigonometric ratios (sin, cos, tan), sine and cosine rule, solution of triangles (Maths 4, Chapter 7).
- ❖ Indices and logarithms – a thorough knowledge of these are essential (Ref. Maths 4, Chapters 4 & 5).

- It is strongly advised that students attend all lectures and tutorials.

Lectures

While a thorough foundation to each topic will be given in the lectures, emphasis will be on working through suitable problems. The aim is to bridge the gap between the Leaving Cert. lower level and that required to be successful in the entrance exam; this will be achieved by tackling a variety of problems of increasing difficulty. Learning how to approach a problem and apply the knowledge available will be emphasised. Although all focus is on the exam, the work done here will form a solid foundation for an Engineering degree course, so the stronger the foundation the better. The lectures will require active participation by the students.

Tutorials

Students will be split into smaller groups to work on various problem sheets and past exam papers. Each group will have a tutor available to help them as they work through the problems; however students should understand that they will be doing the work. The tutorials based on topics not covered by the lectures may recall certain facts, but it will be assumed that students have undertaken the appropriate revision.

Help and support

While all the above may seem very daunting, just remember that you have already engaged with much of the material. If you want to get a place on an Engineering degree course this is your opportunity, so go for it. Prepare for this with the vigour and thoroughness required to achieve anything in life. The course lecturer and tutors will help in any way possible, but you must play your part. The course will be very beneficial, but like everything in life the more you put in, the more you get out.