

Students' Handbook - University Foundation Programme in Engineering

2026/27

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Course Outline

Module	% of overall grade
Term One	
Maths & Statistics	10%
Physics	10%
Core Computer Science/Chemistry	10%
Study Skills	15% (including Term 2)
Communication Skills	10% (including Term 2)
Academic English	-
Term Two	
Further Physics	10%
Further Computer Science/Chemistry	10%
Study Skills	15% (including Term 1)
Communication Skills	10% (including Term 1)
Further Mathematics & Mechanics	15%
Physics Project	10%
Academic English	-

Grading Guide

- A** 70 – 100%
- B** 60 – 69%
- C** 50 – 59%
- Fail** 0 – 49%

Applying to University - Filling in UCAS Applications

During the first two weeks of your course, we will introduce UCAS and help you with the registration.

In your application you will have to fill in information on the following:

- Your personal details - full name, postal address, email, telephone number, where you live
- Your nationality details
- How you will fund your studies
- Education - your Foundation Year at IFG and your high school details
- Employment
- Your personal statement
- Your university choices - you will receive extensive one to one help in choosing the right course and university for the next stage of your studies.

In the education section where you should fill in the Foundation Year information, use the following details:

Awarding organization	International Foundation Group
Qualification name	Foundation Year
Programme title	Engineering
Start date (for September intake)	September 2026
Start date (for January intake)	January 2026
End date (for September intake)	June 2027
End date (for January intake)	July 2027
Type of study	Full-time
Referee and/or Agent and/or Nominated access	Michael Addison Academic Director +44 (0)20 3633 0510 m.addison@intfoundationgroup.co.uk
Modules	Core Mathematics and Statistics Further Maths & Mechanics Physics Computer Science Study Skills Communication Skills
Qualification date	July 2027

Course Modules

Maths & Statistics

Term One

10% of overall grade

Introduction and Aims

This module is designed to ensure that all students have an appropriate level of mathematical knowledge and competence in order to progress onto undergraduate studies in a range of subjects. For business students it provides the foundation for further studies in terms two and three. It is based on A Level Core Mathematics modules, C1 and C2.

Objectives

- Develop an understanding of basic mathematical concepts and theories, and the skills required to solve a variety of problems.
- Apply mathematical concepts and theories in a range of contexts.
- Demonstrate knowledge and understanding of the specified subject content.
- Apply knowledge and critical understanding to mathematical problems.

Recommended Reading

Author	Title	Publisher
Pledger, K et al (2008)	<i>Advanced Maths for Edexcel: C1 + C2</i>	Heinemann
Pledger, K et al (2008)	<i>Advanced Maths for Edexcel: S1</i>	Heinemann
IFG Pharos - Presentations, Worksheets, Video and Audio Materials, Sample Assessments		

Assessment

Assessment title	% of module grade
End of Term Examination (2 hours)	100%

Study Skills

Term One and Term Two - 15% of overall grade

Introduction and Aims

This module is taught over two terms. It helps students to prepare for undergraduate studies in the UK. It addresses the challenges of taking a course in a second language and adapting to a very different style of teaching and assessment. It also aims to provide participants with the opportunity to develop skills and confidence in the communication process, in different academic and professional contexts. It also gives guidance to students on writing personal statements for university applications.

Objectives

- Take effective and useable notes from a lecture.
- Appreciate how to identify sources and use them effectively.
- Understand how to avoid plagiarism.
- Develop an ability to select and apply information in a logical and appropriate fashion.
- Structure written answers in a coherent way, developing arguments and reaching balanced conclusions.
- Be able to carry out a research project using a range of sources, and showing an understanding of the Harvard referencing system, and compiling a bibliography in the correct format.
- Complete a well-structured personal statement.

Recommended Reading

Author	Title	Publisher
Burns, T & Sinfield, S (2022)	<i>Essential Study Skills</i> 5th edition	Sage Perlego: https://ereader.perlego.com/1/book/4336896/23?page_number=179
Cottrell, S. (2019)	The Study Skills Handbook 5th Ed	Macmillan
www.learnhigher.ac.uk		
IFG Pharos - Presentations, Worksheets, Video and Audio Materials, Sample Assessments		

Assessment

The final assignment is an essay of approximately 1,500 words on a negotiated topic in which students show their ability to conform to academic rules, perform a basic literature review and write a critical essay and well structured essay.

In Term 1 students submit an essay proposal of approximately 300 words on a negotiated topic in which students show their ability to develop a well structured essay proposal and plan.

Assessment title	% of module grade
Essay Proposal	30%
Final Essay	70%

Communication Skills

Term One and Term Two - 10% of overall grade

Introduction and Aims

This module is taken in terms one and two of the foundation programme. The course is divided into four units: non-verbal communication, verbal communication, IT related communication and presentations. Various transferable skills will be developed through active participation in different academic and professional assessed tasks (formative and summative) leading to the independent production of a fully individual presentation on a chosen subject in an academic and professional manner.

Objectives

- Employ an appropriate and effective use of non-verbal and verbal communication skills in various professional and academic contexts.
- Interact confidently with individuals, groups and large audiences.
- Make effective use of word processing, spreadsheet and presentation software.
- Present and summarise ideas in a coherent way in various professional and academic contexts.
- Prepare and deliver a presentation with clarity and confidence using visual aids.
- Engage in reflective practice.

Recommended Reading

Author	Title	Publisher
Hargie, O (2018)	<i>The Handbook of Communication Skills. 4th ed</i>	East Sussex: Routledge Perlego: https://ereader.perlego.com/1/book/1570402/0
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Assessment

Assessment title	% of module grade
In Class Participation	10%
Interview and Reflective Essay	10%
Negotiation Meeting and Reflective Essay	15%
IT Related Communication Test	15%
Presentation and Reflective Essay	50%

Physics

Term One

10% of overall grade

Introduction and Aims

The Physics component of this programme is divided into Core Physics, Further Physics 1 and Further Physics 2. The aim of these modules is to develop knowledge and understanding as well as an appreciation of the applications of physics and their importance to different fields of human activity. In the Further Physics modules, there is also an emphasis on the development of skills in designing and executing experiments.

Objectives

- Develop essential knowledge and understanding.
- Appreciate the importance of the application of physics in different situations.
- Understand the interaction of physics with social, economic, and industrial fields.
- Develop an understanding of the link between theory and experiment.
- Use principles and concepts and apply them to interpret phenomena.

Recommended Reading

Author	Title	Publisher
Benn, M & George, G (2015)	Edexcel A Level Physics Student Book 1	Hodder
Akrill, T & George, G (2015)	Edexcel A Level Physics Student Book 2	Hodder
Kenneth Ford (2016)	Basic Physics	WSPC Perlego: https://ereader.perlego.com/1/book/853263/0
Priscilla Laws et al (2023)	Workshop Physics Activity guide	Wiley Perlego: https://ereader.perlego.com/1/book/4260170/1
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Assessment

Assessment title	% of module grade
Coursework	30%
End of Term Examination (2 hours)	70%

Computer Science

Term One

10% of overall grade

Introduction and Aims

Core Computer Science introduces students to the fundamentals of programming, databases, networks and web development. It also aims to develop knowledge and understanding as well as an appreciation of the applications of computer science to real-life situations in different fields. Students additionally develop research and analytical skills.

Objectives

- Demonstrate an understanding of, and the ability to apply, the underlying principles and concepts of computer science, including abstraction, decomposition, logic, algorithms and data representation.
- Show an appreciation of the analysis of problems in computational terms through solving such problems using programs appropriately.
- Demonstrate the capacity to think analytically, logically and critically.
- Appreciate a range of different aspects of computer science.
- Ability to use computer science related mathematics.
- Design, write and test programs to solve problems.
- Explain how a program works.
- Use abstraction effectively.
- Adopt a systematic approach to problem solving.

Recommended Reading

Author	Title	Publisher
Heathcote, P. M., and Heathcote, R. S. U (June 2017)	AQA AS and A Level Computer Science	PG ONLINE
Motopeda Oluyide (2024)	Introduction to Computer Science	Toronto Academic Press Perlego: https://ereader.perlego.com/1/book/4501042/1
Shirlee Forrest (2014)	Handbook of Computer Science	Learning Press Perlego: https://ereader.perlego.com/1/book/1239203/1
Philip Laplante (2017)	Dictionary of Computer Science, Engineering and Technology	CRC Press Perlego: https://ereader.perlego.com/1/book/1499738/0
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Assessment

Assessment title	% of module grade
Coursework	100%

Chemistry

Term One and Term Two - 20% of overall grade

This module is for students wishing to progress to Chemical Engineering at university. It replaces Computer Science in the syllabus.

Introduction and Aims

Core Chemistry introduces students to the fundamentals of physical, organic and inorganic chemistry. Students develop deeper knowledge of atomic structures and the arrangement of electrons in an atom. They also learn how to calculate amounts of substances and how to write formulae and balance equations. The main types of chemical bonding and structures will also be studied as well as an introduction to organic and inorganic chemistry.

Objectives

- Understand the structure of an atom and the driving force behind chemical bonds and chemical reactions.
- Understand the various types of mole calculation and their application.
- Attain a grasp of the behaviour of some main group elements.
- Develop an understanding of the complexity and scope of organic reactions and understand the behaviour of some key functional groups.

Recommended Reading

Author	Title	Publisher
Lister, T & Renshaw, J (2014)	AQA Chemistry A Level	Oxford
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Assessment

Assessment title	% of module grade
Coursework 1	15%
End of Term 1 Examination (2 hours)	35%
Coursework 2	15%
End of Term 2 Examination (2 hours)	35%

Further Mathematics & Mechanics

Term Two

15% of overall grade

Introduction and Aims

The course builds on the themes covered in the Core Mathematics module as well as introducing topics in Mechanics. The syllabus is predominantly based on C3, C4, and M1 from the A level Maths syllabus.

Objectives

- Further develop an understanding of basic mathematical concepts and theories, and the skills required to solve a variety of problems.
- Extend a range of mathematical skills and techniques and use them in more difficult, unstructured problems.
- Develop abilities to reason logically and recognise incorrect reasoning, to generalise and to construct basic mathematical proofs.
- Develop an awareness of the relevance of mathematics to other fields of study, to the world of work and to society in general.
- Acquire the skills needed to use technology such as calculators and computers effectively, recognise when such use may be inappropriate and be aware of limitations.
- Take increasing responsibility for own learning and evaluation of own mathematical development.

Recommended Reading

Author	Title	Publisher
Hooker, S & Jennings, M (2008)	Advanced Maths for Edexcel: Mechanics M1	Pearson
Pledger, K (2008)	Advanced Maths for Edexcel: Core Maths C3,	Pearson
Atwood, G (2015)	Advanced Maths for Edexcel S2	Pearson
Martin Liebeck (2018)	A Concise Introduction to Further Mathematics. 4th edition	Chapman & Hall/CRC Perlego: https://ereader.perlego.com/1/book/2193446/0
Ron Larson (2018)	Trigonometry	Cengage Learning Perlego: https://ereader.perlego.com/1/book/2728624/1
IFG Pharos - Presentations, Worksheets, Video and Audio Materials, Sample Assessments		

Assessment

Assessment title	% of module grade
End of Term Examination (2 hours)	100%

Further Physics

Term Two

10% of overall grade

Introduction and Aims

The course builds on the themes covered in the Core Physics module and also develops student skills in planning and conducting practical investigations. Topics are based largely on A2 level syllabi.

Objectives

- Develop essential knowledge and understanding.
- Appreciate the importance of the application of physics in different situations.
- Understand the interaction of physics with social, economic, and industrial fields.
- Develop an understanding of the link between theory and experiment.
- Use specialised language where necessary.
- Use principles and concepts and apply them to interpret phenomena.
- Develop skills in planning and executing practical investigations.

Recommended Reading

See Reading list for Physics

Assessment

Assessment title	% of module grade
Coursework	20%
Practical Investigation	40%
End of Term Examination (2 hours)	40%

Further Computer Science

Term Two

10% of overall grade

Introduction and Aims

This course takes place in term two and both widens and deepens the topics dealt with and assessed in the core course in Computer Science in term one; the learning objectives of this course are aligned to those found at A level.

Objectives

- Demonstrate an understanding of, and the ability to apply, a wide range of underlying principles and concepts of computer science, including abstraction, decomposition, logic, algorithms and data representation.
- Show a wide appreciation of the analysis of problems in computational terms by practical program development using one or more of the following: assembly, functional, or object oriented languages as appropriate.
- Demonstrate the capacity to think analytically, logically and critically.
- Appreciate a range of different aspects of computer science including professional and ethical issues.
- Ability to select and to use computer science related mathematics correctly and effectively in various design and problem solving contexts.
- Design, write and test programs to solve problems.
- Explain how programs work for data communication, sorting and searching and data analysis.
- Use abstraction effectively in the formulation and solution of problems.
- Adopt a systematic approach to problem solving using appropriate tools and strategies such as divide conquer.

Recommended Reading

See Reading List for Computer Science

Assessment

Assessment title	Assessment objectives	% of module grade
Coursework 2	AO1 - AO4	60%
Final Examination (Term 1 & 2)	AO1 - AO4	40%

Final Examination: The final examination is a summative assessment covering content taught across both Term One (Core Computer Science) and Term Two (Further Computer Science). It assesses students' knowledge and understanding of computer science concepts, together with their ability to apply computational thinking, analyse problems and interpret or evaluate computational solutions and technologies.

AI – Concepts, Ethics and Applications

This course is part of Further Computer Science, and is incorporated into it. It gives students the opportunity to complete a short piece of coursework and gain external credits at RQF Level 3. Taking this additional coursework is not compulsory (only available at IFG London & Online)

Introduction and Aims

This course introduces students to the concepts, applications and implications of artificial intelligence. Students develop a practical understanding of how AI systems use data and algorithms, how different approaches to machine learning operate, and how AI is applied across different sectors. Students use accessible AI tools to investigate a defined problem, evaluate their performance and limitations, and consider how outputs can be improved.

The module also develops students' understanding of responsible AI use, including issues relating to bias, privacy, surveillance, digital rights, accountability and relevant legal and regulatory frameworks. Examples and practical activities may be contextualised to students' intended academic or professional fields.

Module Content

- Fundamentals of Artificial Intelligence
- Data, Bias and AI Performance
- AI Applications
- Practical Application of AI
- Ethical, Legal and Social Issues
- Responsible AI

Objectives

On successful completion of the module, students should be able to:

- Explain how AI systems are trained using data and algorithms.
- Distinguish between supervised, unsupervised and reinforcement learning.
- Analyse how data quality, diversity and bias can influence AI behaviour and outputs.
- Assess the application, benefits and limitations of AI within selected sectors.
- Select and use an appropriate AI tool to complete a defined task.
- Evaluate the performance and limitations of an AI tool and identify appropriate refinements or safeguards.
- Analyse ethical, legal and social issues associated with artificial intelligence.
- Develop and communicate reasoned recommendations for the responsible development and use of AI.

Project

Term Two

Written project and oral presentation.

10% of overall grade

Introduction and Aims

All students complete an independent project related to their intended area of study. The project provides students with an opportunity to investigate a contemporary scientific or engineering topic in greater depth and to develop skills in independent research, critical analysis and academic communication.

Engineering students investigate a current development or issue in physics or engineering and explore the scientific principles that underpin it. Students are expected to identify and evaluate appropriate academic sources, explain relevant scientific concepts accurately and clearly, and demonstrate an understanding of how these concepts relate to the selected topic.

The project is communicated through both a written academic report and an oral presentation. Students are expected to use appropriate academic conventions, including accurate referencing, and to communicate technical information effectively to an appropriate audience.

Assessment Objectives

- A01** Demonstrate effective independent research through the selection and appropriate use of relevant and reliable academic sources.
- A02** Demonstrate knowledge and understanding of the scientific principles relevant to the selected topic and apply these appropriately to a contemporary scientific or engineering context.
- A03** Analyse and evaluate information from a range of sources to develop a coherent and well-supported discussion.
- A04** Communicate scientific and technical information clearly and effectively in written and oral forms, using appropriate terminology, structure, visual material and academic conventions.

Academic English

Term One and Term Two

0% of overall grade

Introduction and Aims

This course is designed for prospective students seeking to raise the proficiency of their productive and receptive academic language skills.

The primary study focus is on delivering the course content in a manner that prepares students for the style of teaching and learning at universities in the United Kingdom. The lesson input and participation aim to enhance overall academic expression, encourage critical thinking and promote private study.

IELTS (International English Language Testing System) is a supplementary scope of scholastic development which offers theoretical and practical insight into IELTS Academic and is of particular benefit to students who wish to build on their test techniques and improve the IELTS band score.

Objectives

Writing

- Increase range of vocabulary for academic purposes.
- Use punctuation effectively and correctly.
- Learn about British English conventions for academic writing.
- Develop skills in describing and interpreting diagrams and tables.
- Select and organise ideas.
- Develop and link supporting examples.
- Use synonyms to avoid repetition.
- Develop strategies for correcting errors and proofreading.
- Understand English syntax and use this understanding to produce syntactically correct text.
- Identify and avoid contractions, tautology, split infinitives, the passive tense, double negatives and malapropisms.

Reading

- Develop the ability to understand the general meaning and main ideas of a text within a limited amount of time.
- Understand how to interpret the inferences and applied meanings of a text.
- Increase range of vocabulary.
- Understand a writer's opinions, views and claims.
- Develop exam skills including tactics on how to answer multiple choice, short answer, yes/no/not given and true or false questions.

Listening

- Comprehend main ideas and identify factual information.
- Recognise the opinions, attitudes and purpose of a speaker.
- Pay attention to tone, cadence and interpreting the meaning of silence.
- Follow the development of an argument.

- Demonstrate an understanding of detail by matching a list of items.
- Develop skills in labelling a diagram or plan.
- Develop skills in completing graphs, forms or tables.
- Show an ability to summarise, locate and remember key words and ideas.

Speaking

- Develop fluency and coherence.
- Use a wide range of appropriate vocabulary How to answer a question, and develop an argument or theme logically.
- Use a wide range of pronunciation features.
- Express attitudes, likes and dislikes effectively.

Recommended Reading

Author	Title	Publisher
British Council	<i>British Council: LearnEnglish Teens</i> https://learnenglishteens.britishcouncil.org/	British Council
Sam McCarter	<i>Ready for IELTS 2nd Ed</i>	Macmillan
Sue O'Connell	<i>Focus on IELTS</i>	Pearson
Raymond Murphy	<i>English Grammar in Use 5th Ed</i>	Cambridge UP
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Assessment

Assessment title	% of module grade
Academic Listening Comprehension - 30 minutes, 40 questions	25%
Academic Reading Interpretation - 60 minutes, 40 questions	25%
Academic Spoken Communication - 15 minutes, 3 tasks	25%
Academic Writing - Visual Data Report - 30 minutes, 150-200 words	10%
Academic Writing - Discursive essay - 45 minutes 250-300 words	15%

* Assessment for this module is independent of the Foundation Programme and does not therefore contribute towards the overall grade.

Disclaimer

This handbook does not replace IFG's regulations. All students will be required, as a condition of enrolment, to abide by and submit to the procedures of IFG which are amended from time to time.

Every effort has been made to ensure the accuracy of the information contained within this handbook, but it is subject to alteration without notice. IFG will use all reasonable endeavours to deliver programmes in accordance with the descriptions set out in this handbook. However, IFG reserves the right to make variations to the contents or methods of delivery of programmes.