

MODULE SPECIFICATION – UNDERGRADUATE PROGRAMMES

KEY FACTS

Module name	Foundation Year Module
Module code	CV0001
School	Mathematics, Computer Science & Engineering
Department or equivalent	Engineering
UK credits	120
ECTS	60
Level	3
Delivery location (partnership programmes only)	Westminster and Kingsway College

MODULE SUMMARY

Module outline and aims

This module provides you with the essential mathematical and scientific background necessary to progress to Stage 1 of BEng programmes in Civil Engineering. This module stimulates educational development and intellectual awareness, thus providing the optimum basis for the acquisition of successful habits and skills.

On successful completion of this module, students may be permitted to transfer to Stage 1 of the following programmes:

BEng Civil Engineering

The aims of this module are to:

- To provide students with the essential mathematical and scientific background necessary to progress to Stage 1 of the BEng programmes in Civil Engineering.
- To encourage the development of the student's awareness of the learning process and foster their intellectual development in order to produce students with a well-established sense of their competence as learners.

Content outline

1 MATHEMATICS

Core Unit CEM1 - Number

Core Unit CEM2 - Introduction to Algebra

Core Unit CEM3 - Introduction to Graphs

Further Unit FEM1 - Introduction to Calculus

Further Unit FEM2 - Trigonometry & Series

Further Unit FEM3 - Further Calculus
Further Unit FEM4 - Vector Algebra & Complex Numbers

2 PHYSICS

Core Unit CEP1 - Fundamental Concepts of Physics
Core Unit CEP2 - Forces and Motion
Core Unit CEP3 - The Physics of the atom and electron
Further Unit FEP1 - Matter
Further Unit FEP2 - Capacitors & Resistor Circuits
Further Unit FEP3 - Circular Motion and Elasticity
Further Unit FEP4 - Oscillations

3 MECHANICS

Core Unit CMH1 - Core Mechanics
Further Unit FMH1 - Vectors, Kinematics and Newton's Laws
Core Unit FMH2 - Dynamic Friction and Equilibrium
Further Unit FMH3 - Principles of Motion and Projectiles
Further Unit FMH4 - Variable Acceleration
Further Unit FMH - Centres of Mass

4 COMPUTING & INFORMATION TECHNOLOGY

Core Unit CEC1 - Microcomputing Hands-On
Core Unit CIT1 - Presentation Software (Word and PowerPoint)
Core Unit CIT2 - Data-handling with a Spreadsheet (EXCEL)
Further Unit CIT3 - Data-Handling with a Database Package (ACCESS)
Further Unit CEC2 - Introductory Programming (with HTML)

5 Communication and Study Skills

WHAT WILL I BE EXPECTED TO ACHIEVE?

On successful completion of this module, you will be expected to be able to:

Knowledge and understanding:

- Demonstrate a substantial foundation in Mathematics, Physics and Mechanics, consistent with the further study of these and related subjects in Stage 1 of the Civil Engineering Programme

Skills:

- Demonstrate an understanding of the theoretical basis of the principles of static's and dynamics.

- Demonstrate the skills required in a science laboratory
- Demonstrate competence in the communication skills necessary for Higher Education
- Show a clear understanding of the fundamental concepts of Physics, and the ways in which these concepts can be used to explain observable physical phenomena.
- Be familiar with a range of techniques appropriate to learning independently and in lectures, tutorials and practical work
- Demonstrate comprehensive grounding in mathematics as a basis for further study.

Values and attitudes:

- Reflect appropriately upon lectures and demonstrations attended during the course.

HOW WILL I LEARN?

Lectures, tutorials, coursework and use of computer programs.

Lectures are used as a means of covering the essential principles in sufficient detail to allow you to achieve the knowledge and understanding of the principles relevant to the subject matters.

Table 1: Teaching pattern

Teaching component	Teaching type	Contact hours (scheduled)	Self-directed study hours (independent)	Placement hours	Total student learning hours
Mechanics	Lecture	126	150	0	276
Computing & IT	Practical classes and Workshops	54	60	0	114
Communication & Study Skills	Practical classes and workshops	36	52	0	88
Mathematics	Lecture	180	210	0	390
Physics	Lecture	162	170	0	332
Total		558	642	0	1200

WHAT TYPES OF ASSESSMENT AND FEEDBACK CAN I EXPECT?

Assessments

Unseen examinations provide a controlled, objective environment in which to assess learning outcomes, however some skills are best assessed continuously through coursework and practical assignments. Assessment spread over the academic year also helps develop and measure time & quality management skills.

Table 2: Assessment pattern:

Assessment component	Assessment type	Weighting	Minimum qualifying mark	Pass/Fail?
Mechanics	Written Exams and set exercises	22	65	N/A
Computing and IT	Written Exams and set exercises	18	60	N/A
Communication and Study Skills	Written Exams and set exercises	8	60	N/A
Maths	Written Exams and set exercises	24	65	N/A
Physics	Written Exams and set exercises	28	65	N/A

Assessment criteria

Assessment Criteria are descriptions of the skills, knowledge or attributes students need to demonstrate in order to complete an assessment successfully and Grade-Related Criteria are descriptions of the skills, knowledge or attributes students need to demonstrate to achieve a certain grade or mark in an assessment. Assessment Criteria and Grade-Related Criteria for module assessments will be made available to students prior to an assessment taking place. More information will be available from the module leader.

Feedback on assessment

Following an assessment, students will be given their marks and feedback in line with the Assessment Regulations and Policy. More information on the timing and type of feedback that will be provided for each assessment will be

available from the module leader.

Assessment Regulations

For progression to an engineering degree programme at City, the Pass mark for the module is overall 65% plus pass mark 65% for individual assessment components listed in the Table 2 above except for Study Skills and Computing which must be passed at minimum 60%. The weighting for the different components can also be found above. The Programme Specification contains information on what happens if you fail an assessment component or the module.

INDICATIVE READING LIST

Mathematics

Bostock, L. and Chandler, S. "Core Maths for Advanced Level". (Stanley Thornes, Cheltenham, 2000). ISBN: 0-7487-5509-8

Physics

Muncaster, R. "A-Level Physics". 4th edition. (Stanley Thornes, Cheltenham, 1993). ISBN: 07487-1584-3

Azzopardi, F. and Stewart, B. "Accesible Physics for A-Level" (Macmillan, Basingstoke, 1995). ISBN: 0-333-62780-6

Mechanics

Sadler, AJ. and Thorning, D. W.S. "Understanding Mechanics" (Oxford University Press, Oxford, 1998). ISBN: 019-914675-6

Version: 5.0

Version date: Feb 2019

For use from: 2018-19

Appendix: see <http://www.hesa.ac.uk/content/view/1805/296/> for the full list of JACS codes and descriptions

CODES

HESA Code	Description	Price Group
118	Civil Engineering	b

JACS Code	Description	Percentage (%)
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F300	The study of the properties of matter and energy and the relationships between them, making extensive use of mathematical techniques and models. May also include mechanics, optics, electricity, magnetism and acoustics. May also include atomic, nuclear, particle and solid state studies	25
G100	The rigorous analysis of quantities, magnitudes, forms and their relationships, using symbolic logic and language, both in its own right and as applied to other disciplines.	50
G500	The study, design or application of computers systems which capture, process and transmit information.	25