



Tutored online learning programmes

For engineering professionals

Introduction

Positioned between traditional universities, business and industry, Cranfield combines the academic rigour and long-term perspective of a university with the commercial and business focus of industry. The University is a major force in the aerospace and defence sectors as a result of its people, resources and cutting edge technology.

As prime contractor to BAE SYSTEMS, Cranfield University has, working with a range of industrial and academic experts, created a suite of innovative online courses. These unique courses are multimedia, tutor-led and interactive for a high quality learning experience. Previously delivered exclusively to BAE Systems and its partner companies, we are now able to offer these courses to the wider defence and aerospace audience worldwide.

Each course engages up-to-date online learning technologies and employs the latest web-based software to deliver the material to the delegate at work or at home.

Course key features

- Successful completion is certificated by Cranfield University and can be used as a contribution towards 'further learning requirements' for Professional Registration such as IEng and CEng.
- Delivered purely online via the internet (no travel or subsistence costs incurred).
- Interactive with a tutor available throughout the learning experience.
- Networking opportunities and interaction with other delegates through the examined discussion board and group project.
- Practical knowledge is gained and exchanged through several case studies and the group project.
- Set at 1st year undergraduate level.
- Candidates can be worldwide – internet access permitting.

Who should apply?

The courses have been designed for those working with engineers, including technicians, graduate engineers and non-engineering professionals across the defence, aerospace, naval and land sectors. Minimum entry is ONC /A-level requiring maths or equivalent.

Duration and start date

The duration of each course is approximately 12-17 weeks, based on 5 hours per week. Contact Kayleigh Brennan for forthcoming dates and prices, k.brennan@cranfield.ac.uk.

Courses overview

Each course contains a number of study units in audio-visual presentation format, discussion questions and assignments, followed by a group project, which involves delegates working together on a realistic project to address key issues introduced during the course and form the solution to a problem.

Principles of Vehicle Dynamics (course code - 0LLP1)

Learning outcomes: To describe the basic physical performance and dynamic characteristics of a land/sea/air vehicle. To understand the potential consequences of gross and detail changes. To understand the influence of the physical environment on the performance and dynamics of the vehicle.

Key learning points:

- Fundamental dynamics
- Point mass and rigid body dynamics
- Loads and operational environment
- Vehicle response and control
- Vehicle dynamics and design.

Principles of Materials (0LLP2)

Learning outcomes: To make initial material selections for a trade study exercise, taking into account processing and joining routes and lifecycle considerations. Debate material related issues with experts from a position of sound basic knowledge.

Key learning points:

- Materials properties and selection
- Primary metal processing
- Composites and their processing
- Non-metallic materials
- Joining, assembly and repair.

Principles of Mechanical Systems (0LLP3)

Learning outcomes: To be able to specify a simple mechanical system to meet basic requirements and some necessary broader considerations. To debate mechanical systems, systems engineering and control related issues with experts from a position of sound basic knowledge. To demonstrate an understanding of the installation aspects of a system whilst respecting the top level system requirements.

Key learning points:

- The systems engineering process
- Basic principles of mechanical systems
- Control basics.

Principles of Structures and Design (0LLP4)

Learning outcomes: To be able to design and stress a simple structural assembly such as part of a mechanism. To debate structural issues with experts from a position of sound basic knowledge.

Key learning points:

- Standards and definitions of structures and materials
- Stress analysis
- Detail design.

Principles of Design for ... (0LLP5)

Learning outcomes: To understand the major factors which influence the engineering design of any component. To enable delegates to form a story board life-cycle model identifying the important phases of a system's life, to identify key information sources for each phase and the imperatives for each stakeholder.

Key learning points:

- Design for human factors
- Design for sustainability and the environment
- Design for cost
- Design for manufacture, assembly and test
- Design for supportability.

Principles of Cost Engineering (0LLP6)

Learning outcomes: Cost awareness is essential for a broad range of personnel in the company, its partners and its supply chain. Delegates will develop an understanding and knowledge of cost and the collective responsibility for cost, the ability to describe each stakeholder's influence and an understanding of the impact of design, systems engineering and whole life cost.

Key learning points:

- Cost as a business driver
- Understanding cost
- Target costing
- Costs of supply
- Whole life cost and systems engineering.

Principles of Engineering Integration (0LLP7)

Learning outcomes: Understanding of the basic principles of engineering integration issues as applied within businesses and to be applicable in all sub-disciplines regardless of core product.

Key learning points:

- What is integration? The role of the integrator
- Integration in the development process
- Documentation and process leading to system clearance
- Configuration control
- Skills and competencies
- Tools and processes.

"This was the first time I have experienced this type of online learning. I found it an enjoyable experience for a short course such as this. I liked the presentations and can relate this to some of the bid work I have been involved with and will use this information on future bids. The group project was interesting. All in all an enjoyable experience which has taken away that fear of an online learning for the future. Thank you."

Ed Ridgment, BAE Systems

Online learning programmes:

- Principles of Vehicle Dynamics
- Principles of Materials
- Principles of Mechanical Systems
- Principles of Structure and Design
- Principles of Design For...
- Principles of Cost Engineering
- Principles of Engineering Integration

How to book a place

For more details about the course or to register for a place please contact:

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Cranfield University
Cranfield
Bedfordshire
MK43 0AL
T: +44 (0)1234 758284
E: k.brennan@cranfield.ac.uk

Course Title **Tutored Online Learning Programmes**

Course Dates from _____ to _____

Fee Payable **£1250**

Delegate's details

Title Mr Mrs Miss Dr Other, *please specify* _____

First name _____ Surname _____

Job title _____

Email _____ Nationality _____

Organisation's details

Organisation name _____

Organisation address _____

Town _____ County/Region _____

Country _____ Postcode/Zipcode _____

Direct line telephone number and fax:

Country code	Area code	Telephone number	Ext. no.	Fax no.
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Cancellations and substitutions

All cancellations must be notified in writing to the Academic Operations Unit 2 weeks prior to start date and will be refunded in full. After that date, refunds will only be issued in exceptional circumstances. However, the organisers will accept substitutions provided that written notification is received.

Data protection

Please tick this box if you do not wish your details to be held by Cranfield University for the purpose of marketing courses, conferences, research programmes and other associated activities.

Authorisation of Payment/Invoice details (if different from the above)

I have read and I accept the Booking Conditions and understand that upon confirmation of this booking I/ the organisation will become liable for all charges including cancellation and transfer charges if applicable.

Contact name _____ Purchase order no (if applicable) _____

Full Address _____

Address _____

Postcode (if in UK): _____ Email: _____

Telephone (inc code): _____ Fax: _____

CREDIT CARD PAYMENT If you would like to pay by credit card, please complete the following:

Card type: MASTERCARD / VISA / AMERICAN EXPRESS *
* delete as appropriate

Expiry date: _____ / _____

Card number: _____

3-digit security code (on reverse of card): _____

Cardholder name: _____

Cardholder address: _____

Cardholder or authorised signature: _____