Full-time MSc in Logistics and Supply Chain Management

Course structure and content 2015 - 2016

The course has been developed to produce expert logistics and supply chain professionals who can take the skills they develop here at Cranfield and make a significant difference in the marketplace.

Students will complete a series of core modules and then a selected amount of elective modules, which focus on the individual's personal career plan.

The culmination of the learning process features an optional logistics consultancy project. You will work on a real company project in teams, competing against your class colleagues to make the strongest logistics and supply chain management presentation to senior executives from partner firms. Previous projects have been conducted with organisations such as Tarmac Quarry Products, Guinness and Unipart.

2015 term dates

- Term 1: 28 September 2015 – 18 December 2015
- Term 2: 04 January 2016 – 24 March 2016
- Term 3: 11 April 2016 – 24 June 2016
- Term 4: 27 June 2016 – 09 September 2016

Term 1

Logistics and Supply Chain Concepts

The module will introduce the main concepts and principles that underpin logistics and supply chain management and will explore the ways in which good practice can contribute to achieving sustainable competitive advantage. You will also consider how the competitive landscape is constantly changing, and the role of logistics and supply chain management in meeting the challenges raised.

Procurement Management

The module will explore the subject of procurement and supply in the industrial and commercial context, explaining its role and purpose within the supply chain. You will learn how procurement has developed, the skills and information needed by procurement professionals, the academic theory and knowledge...
accumulated on the subject area and the use of specific techniques employed in managing the procurement function. In addition you will explore and use some of the recently emerged technologies within e-procurement which are designed to improve both process and cost management.

**Supply Chain Process Re-Design**

This module will address the re-design of supply chain processes. It focuses on the application of tools and techniques, introducing the participants to the concept of a systematic approach to supply chain re-design and process re-engineering.

**Freight Transport**

The module provides you with a comprehensive understanding of road, rail, air and sea freight transport. The focus is primarily from a user perspective in order to provide a logistics and supply chain management viewpoint. However, in road freight, the module also covers fleet management aspects, recognising that many organisations operate their own road transport fleets.

**Warehousing**

The module provides you with understanding of the range of storage and handling equipment available, the design of warehouses and the use of information technology within warehouses. It also focuses on methods of analysing the wide range of options available. This is undertaken within the wider context of an organisation’s supply chain strategy and equips you with the means to tackle the warehousing aspects of complex supply chain problems.

**Manufacturing and Operations Management**

The module will provide you with an understanding of manufacturing operations, transformation system design and materials management within the overall context of the supply chain. You will evaluate the spectrum of manufacturing resource planning as well as demand driven pull and hybrid philosophies. Models of capacity management and sequencing and scheduling rules are described and appraised. Through the use of taught lectures, case study, a business simulation game and class exercises, you will be able to recognise and describe key concepts within operations management and further be able to analyse, evaluate and appraise a range of operational characteristics.
Business Statistics and Forecasting

The module provides you with an understanding of the role and importance of statistical analysis and forecasting to logistics and supply chain management, and will grant you the transferable skills in the use of associated techniques to the practice of these disciplines. Emphasis will be placed upon appropriate application of methods and interpretation of output yet at the same time ensuring that students have an appropriate grounding in theory as it relates to statistics and forecasting.

Management Science Techniques

The module describes, demonstrates and critiques the application of a range of management science techniques, from simple graphs to deterministic and stochastic optimisation models. All of the techniques are described, demonstrated and appraised through interactive lectures. You will develop the ability to model realistic decision problems in the context of logistics and supply chain management by using software tools.

Supply Chain and Financial Performance

The module introduces you to a number of traditional and contemporary costing approaches that will increase the visibility of cost and aid decision-making in the supply chain.

Term two

Demand and Inventory Management

The module explores strategies, policies, tools and techniques used to improve the match between demand and supply. You will be provided with an integrated understanding of the theoretical concepts underlying: demand management techniques, demand forecasting methods, inventory control methods and supply chain coordination approaches.

Project Management

This module will focus on the processes, tools and techniques required to define, scope, plan, resource and then manage an individual project within the context of the enterprise. It will also cover the tools and techniques need to organise and manage an environment characterised by uncertainty.
Physical Network Design

The module introduces the concepts and techniques of network theory and analysis and utilises these to demonstrate how physical networks are designed, redesigned and optimised. All aspects of the module are illustrated by the use of practical examples, ranging from manual calculations through to computerised network optimisation software.

Information Systems and eBusiness

In this module you will explore the ways in which Information Technology can contribute to the efficient management of the supply chain, while also examining e-Business solutions in the context of supply chain management.

Supply Chain Sustainability

The module introduces you to the subject of sustainability and how supply chain operations are related to the sustainability of the overall supply chain. A range of factors including, global warming, depletion of natural reserves, waste management, emerging producer responsibility legislation, air transport, corporate social responsibility reporting are just a few examples of the complex nature of the module subject.

Research Methods

This module will equip you to design, conduct and report on your research project. You will learn to articulate and define management problems and design research that will help you to make informed management decisions.

Global Supply Chain Game

The module provides you with an understanding, through an interactive and competitive business game, the principles of building an efficient global sourcing and supply chain under conditions of uncertainty so as to achieve high levels of profit and product availability.
Electives

Marketing

The module examines marketing as a key business activity in the wider organisational context, its evolution in various industries, and its contribution to business planning and strategy. You will gain understanding of the strategic, analytical and practical aspects of marketing through a combination of lectures and case studies. Throughout the module you will examine the inter-relationship between marketing and supply chain management and the role of the various organizational functions in the development and implementation of the marketing strategy.

Master Data and Data Standards in the Supply Chain

The module has been developed in association with GS1 UK. GS1 UK is a not-for-profit organisation working to make organisations more efficient in adopting a common language for locating, transporting and trading goods. GS1 UK set standards using unique numbers for global use which makes the reliable identification of products and assets possible. The course will introduce you to common supply chain standards and the methods of managing supply chain data. You will also gain an understanding of the technologies and approaches used within the supply chain to enhance the effectiveness of data management.

Upon completion of this module, students will receive a GS1 certificate.

Students are also able to complete additional online modules with GS1, in order to gain further GS1 certifications.

Simulation

The module will provide you with an appreciation of the application, strengths and weaknesses of simulation modelling techniques and the software that can be used to support decision-making in logistics and supply chain management. You will gain hands-on experience of using spreadsheet models, general purpose simulation software, and special purpose simulation software to solve familiar decision problems in logistics. By the end of the module you will have the skills and confidence to apply or recommend the use of simulation methods to address decision problems in your future career and, if needed, in your thesis project.
**Distribution Design Centre**

The module is designed to develop the students’ ability to discern and use appropriate techniques from the design methodology introduced in the Warehousing module. It is based on group working on a fictitious, but realistic, distribution centre design project.

**Performance Measurement in the Supply Chain**

The module focuses on the types and structures of performance measurement systems such as the balanced scorecard and the performance prism. You will also look at the design of appropriate strategy and success maps, performance targets, and indicators.

**Logistics Outsourcing**

Third party logistics has become a very competitive and dynamic industry over the last ten years and this module will take you through the various aspects related to selecting and working with a third party logistics contractor. Additional aspects will cover the use of third party logistics in international logistics and the development of fourth party logistics will also be covered.

**Demand Chain Management**

The module explores the disconnect between the supply chain and the customers it is supposed to serve. As the biggest inhibitor to the successful deployment of supply chain strategy, the module aims to help overcome this by exploring how the demand fulfilment process can align successfully with the demand creation process, in order to achieve greater customer responsiveness.

**Road Freight Transport**

The module addresses road freight and its importance in modern logistics and supply chain management. It merits focused study from a user perspective in order to provide a clear operational and commercial logistics management viewpoint. To gain a full understanding of factors that affect a successful road freight operation, recognising that many organisations operate their own road transport fleets, you will cover costs, vehicle selection, regulation, legislation, fleet management, alternative fuels and road transport in e-business.
Planning and Resourcing for Road Freight Transport

The module will reinforce the planning steps to determine resource requirements, and give you hands on experience of the UK’s leading vehicle routing and scheduling software package – Paragon. In addition, the module will provide an insight into the key planning elements for road freight transport including the main steps in the determination of resource requirements.

Six Sigma in the Supply Chain

The module provides an understanding and practical utilisation of the Six Sigma methodology following the define-measure-analyse-improve-control approach. You will be able to combine theory with practical case work which will experiment with quantitative and qualitative techniques employed in the solving of typical supply chain problems. The elective is designed to bring students to the equivalent level of a 6 Sigma ‘Green Belt’, enabling them to design solutions to organisational issues.

Terms 3 and 4

International Study Tour

This is a unique opportunity to experience a differing economic region in the world from a logistics and supply chain perspective.

You will gain first-hand experience of how supply strategies in the region are influenced by different pressures (both internal and external) and you will gain a rich understanding of the differences between logistics and supply chain practices.

The tour normally takes place over five days. Each day you will take part in formal class sessions, group discussions and site visits.

On your return you will have gained valuable experience and will appreciate the diverse nature of logistics and supply chain management in the specified region.

Thesis Preparation and Development

The culmination of the learning process is your opportunity to undertake a thesis which will be either research or company based.
A research based thesis encourages you to develop a topic that is practical, innovative and of particular interest to you. You will be supported by staff whose expertise lies in your chosen area, and will be assisted in developing and following a research plan. This will enable you to formulate the problem, undertake necessary empirical analysis and draw appropriate conclusions.

The company-based thesis takes place within a real organisation where a relevant individual project will have been identified through our close links with industry and commerce. Each project is discussed with the organisation during the spring term. You will then carry out sufficient research to identify the terms of reference and objectives, and a project plan will be agreed.

Although you will have an academic advisor at Cranfield, you are encouraged to work closely with the sponsoring organisation. Recent project sponsors have included: Shadow Strategic Rail Authority, Eurovos XL bv, Tarmac Quarry Products, Guinness, Unipart and Exel Logistics Automotive Europe.

**Personal and professional development runs throughout the year**

To prepare you for your future career and support you throughout your studies at Cranfield, a series of personal development workshops will be offered to help you to develop your skills in areas such as study skills, effective writing, presentation skills, working in teams and problem solving in unstructured environments. You will also enhance your skills in project planning, skills which will help with your CV preparation, interviewing skills, assessment centres and networking.