

# **Master of Science/Postgraduate Award in Engineering Business Management**

*Developed and awarded by The University of Warwick, UK*

## **MODULE OUTLINES**

### **Business Strategy and Strategic Management**

The primary purposes of this module are to build on the strategic planning and implementation elements of the MSc programme and to enable participants to understand how they can contribute to the development and/or implementation of their company's business and operational strategies.

### **Financial Analysis and Control Systems**

This module provides an understanding of basic accounting principles, terminology and techniques; so that in their work, participants can interpret financial reports and appropriate management accounting practices, and contribute to departmental financial planning and control.

### **Innovation**

Many organisations are finding that in order to succeed in increasingly competitive markets they need people who can manage innovation. Although useful insights abound within literature, the body of knowledge on the subject remains disjointed and the adoption of the appropriate skills within industry has been slow. This module aims to help participants develop new skills and knowledge about innovation that will enhance their ability to contribute to the long term competitiveness of businesses.

### **International Joint Ventures**

This module will provide an understanding of the reasons why joint ventures and other collaborative associations now form an increasingly important part of business and commercial activity. It will identify the many types of collaborative ventures now in common use and provide guidelines on the selection of the most appropriate formats to suit particular business needs. The module will also provide an overview of the practical, cultural, legal and financial aspects of joint ventures which can be critical in ensuring successful project implementation.

### **Leading Change**

Critical to successful organisations and the achievement of continued high standards of operation, is the ability of managers to introduce successful change that yields benefits. In recent years most companies have, with varying degrees of success, introduced new initiatives in areas such as Total Quality, Planning and Control and Continuous Improvement. More recently Business Process Re-Engineering (BPR) has been a favoured vehicle for achieving step change improvements in customer service and business efficiency.

Whatever the approach and however big or small the desired change, successful and outstanding results are only achieved when managers have a clear understanding of how individuals are motivated and how groups of people work as a team and react to one another. This module will provide participants with this knowledge.

## **Lean Principles and Applications**

This module examines the principles, techniques, key tools of "Lean" and how they might apply in a variety of processes and sectors. The strategic importance of creating "lean enterprise" is explored as well as the challenges associated with achieving and sustaining this. The module also provides scope for participants to explore how they might appropriately apply Lean in their own organisations.

## **Legal Aspects of Global Business**

In response to a changing competitive environment, the flexible employee is a valuable asset to the business. As a consequence, their skills, knowledge and decision making are widening. The module addresses the areas of law applicable to businesses operating in engineering and manufacturing, thus providing an awareness of the many aspects of the law that are relevant to the management task. This awareness is developed sufficiently to allow the appropriate initial action to be taken when an event occurs, calling on specialist legal support whenever necessary and to introduce methods of best practice to minimise problems of a legal nature.

## **Logistics and Operations Management**

Effective logistics management is a critical factor in improving corporate profitability. The module introduces the concept of logistics and provides a comprehensive framework of tools to improve logistics and operations management performance.

## **Managing the Multi-Project/Programme Environment<sup>^</sup>**

This module will build upon the knowledge of the essentials of project management established by the Project, Planning Management and Control module. In particular, the application of management tools and techniques in a single project will now be extended to give participants an ability in the larger, more complex scenario of multiple projects where the interactions and risks present a further dimension of challenges to success.

<sup>^</sup> *Pre-requisite module: Project Planning, Management and Control*

## **Manufacturing Process Technology**

This module provides an appreciation of the application capabilities and limitation of primary and secondary manufacturing processes. Participants will gain the capability to recognise key drivers for process selection and applying basic principles to the solution of shape/property/cost problems and understand the influence on engineering properties of different processes.

## **Materials Engineering**

This module provides a practical understanding of the processing/structure/property relationships and costs of commonly used metals and polymer materials by reviewing the range available, their properties and board areas of application. Participants will understand the interface between materials technology and other engineering functions.

## **Organisations, People and Performance**

This module introduces engineers and technical people to the 'people' aspects of an organisation. The emphasis is on increasing the participant's knowledge and understanding of strategic human resource issues that affect operations on a daily basis. Organisational, behavioural and management concepts will be explored with the objective of providing participants with a theoretical foundation sufficient to evaluate the Human Resource Strategies of their own organisation. Module delivery is interactive and draws upon the participant's organisational experience as much as possible.

## **Procurement and Inventory Management**

This module puts emphasis on the design and management of processes and control systems of the inbound supply chain. The content that is covered in this module includes procurement processes and strategies, risk pooling and multi-stage inventory control systems, value of collaboration and streamlined information and financial flow in supply chains, supplier relationship management as well as elementary and advanced methods for analysis and planning.

## **Product Design and Development Management**

Innovation and introduction of new products to the market is one of the fundamental processes in the industry. Design and development and introduction of new products is hence the key to renewal and regeneration of industry and the long term competitiveness and survival of manufacturing companies. This module concentrates on the management of the processes of product design, development, and introduction as an integrated whole from ideas and concept stage to customer, and in service.

## **Programme and Project Strategy**

This module extends and enhances knowledge in the derivation, from corporate strategy, of business change programmes and their comprising projects, and then the chartering, structuring, and governance of those collections of projects. This will include exploration of stakeholders' perceptions of benefits, their decision-making processes, their criteria for measuring success of these enterprises, and connection of all of these to the strategies for the management of the interlinked projects.

## **Project Planning, Management and Control**

This module treats the management of "projects" in the widest context of a business activity with specific limited objectives and timescale, and encompasses both product development and "change" projects. It provides an appreciation of the issues and current techniques for successful project planning and control, including the selection and motivation of project teams.

## **Quality Management and Techniques**

This module treats quality and reliability as an integral part of all functions of both manufacturing and service organisations. It shows how philosophies, systems, legal aspects, employee involvement and techniques should all contribute to improving quality, reliability and safety and reducing costs.

## **Storage and Warehousing Techniques**

A well-managed warehouse is now recognised as a potential major source of competitive advantage as opposed to just another source of cost within the supply chain. To achieve this competitive advantage, it is important to choose the right type of operation, processes and equipment, and then understand and continuously improve performance through appropriate measures and controls. Staff motivation and safety is also seen as important aspects within today's warehouse. This module will provide an overview of all these areas.

## **Supply Chain Management**

This module covers a wide range of topics in supply chain strategies, design, planning, operations and development. Emphasis has been mainly on the perspective of integrated supply process. Releasing value in business through relationship management, cost reduction and lean supply have been the key considerations. The module also provides real world cases of supply chain management, which illustrate ways of achieving enduring competitiveness.

## **Transport Techniques and Management**

This module aims to give participants an understanding of the basic techniques used in freight transportation. All major techniques in the areas of road transport, airfreight, rail-freight and water borne freight are discussed. It will examine the increasing use of intermodal transport and the growth in information technology usage. The module discusses the theory behind route planning and distribution optimisation with a demonstration of software in this area and the effects of the various transport modes on the environment and the latest research in sustainable distribution.

## **MSc Dissertation**

Dissertation should relate to the management of companies in the engineering sector, the engineering function within a non-engineering company, or the supply chain within the engineering sector. It will address aspects such as operational, financial, human resourcing or strategic management issues.

The individual MSc Dissertation comprises 50% of the assessed marks for the MSc degree. Participants are expected to devote an appropriate portion of time and intellectual effort to the programme equivalent to approximately 900 hours for the MSc dissertation. Participants must successfully complete the MSc dissertation to be awarded a Master's Degree.