

International Exchange Class List 2024-25

Information is correct at the time of publishing but may be subject to change

Notes

- A full workload at Strathclyde is 60 credits (30 ECTS) per semester
- The minimum workload expected of exchange students is 40 credits (20 ECTS) per semester
- Semester 1 classes run from September to December (including exams)
- Semester 2 classes run from January to May (including exams)
- A maximum of two level 5 modules can be taken during the exchange.

Semester 1 Classes

56324 Engineering Innovation and Management	Level 3 10 Credits (5 ECTS)
<p>This module aims to provide engineering students with an understanding of the importance of innovation in today's business environment. The module aims to also develop understanding and skills in the area of innovation management. It aims to develop practical skills for the students to integrate a number of themes including product development, IP, product finances, project management and market analysis with a view to successfully exploiting new ideas.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Appreciation of innovation, innovative activities and commercial approaches to product development. • Demonstrate knowledge and understanding of product innovation, intellectual property and its protection. • Appreciation of key commercialisation topics including business and project planning, market research, sales and financial planning. 	
Pre-requisites : An understanding of basic product design and Business Management.	

DM300 Design Emotion and Experience	Level 3 20 Credits (10 ECTS)
<p>This module aims to develop student knowledge and skill concerned with contemporary form and aesthetic design, working from concept to detail, in reference to specific aspects of everyday human emotion and experience.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Understand and evaluate the aesthetic, emotional, experiential and morphological issues in product design and relevant philosophies, socio-cultural factors, ethical issues, approaches and methods through engagement with literature, information and reflection on project work. • Investigate and define a direction and develop creative conceptual designs with consideration of perceptions, aesthetics, emotions, experience and morphology (form) in collaboration with class peers and developing individual focus. • Develop quality detailed design forms using advanced digital modelling (e.g. surface modelling) and define precise aesthetic specifications within the context of an experience design framework which includes engagement with branding, commercial, economic and socio-cultural contexts. • Communicate design work through quality visuals, making and interpersonal skills and engage in critical dialogue, dealing with uncertain design issues and demonstrating effective project management. 	
Pre-requisites : Previous experience of product design, including sketching, CAD & model making.	

DM303 Engineering Design	Level 3 20 Credits (10 ECTS)
<p>This module aims to provide knowledge and understanding of engineering design principles, and application of these principles to the detailed and conceptual design of mechanical components and assemblies.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Carry out analysis of indeterminate systems. • Carry out basic FEA analysis using 3D geometry defined in a CAD system. • Carry out analysis of structures for buckling and instability. • Carry out motion analysis of mechanisms. • Carry out stress analysis for components (i.e. shafts) subjected to fatigue loading. • Perform selection procedures for common components such as gears and bearings. • Carry out stressing of common fastening and fabrication methods 	
Pre-requisites : Mechanical Engineering Modules	

DM305 Innovation Management	Level 3 20 Credits (10 ECTS)
<p>This module aims to provide engineering students with an understanding of the importance of innovation in today's business environment. The module aims to also develop understanding and skills in the area of innovation management, including the management of the innovation process, intellectual property, financial decision-making and commercialisation of ideas.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Appreciation of the innovation process, management activities and economically sound decision making • Demonstrate knowledge and understanding of routes to market, commercialisation and intellectual property management • Understand financial statements and cost models as they relate to product, service and process innovations • Appreciate the role of leadership and decision making with multiple stakeholders in ensuring an effective path through the innovation process 	
Pre-requisites : None	

DM400 Advanced Design Methods	Level 4 20 Credits (10 ECTS)
<p>This module builds upon the knowledge of Design Methods acquired in DM306 and will develop knowledge and understanding of the integration, development and application of design methods in the areas of design for manufacture and assembly, sustainability, cost and design for X's at embodiment and detail design level.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Evaluate advanced product designs based on a sound knowledge of Design for Manufacture and Assembly, Sustainability Design principles. • Utilise design methods to improve the manufacturability, assembly and sustainability aspects of a product design in an economic and marketable manner. • Identify, develop and integrate design methods or DFX strategies as appropriate for a given design scenario. 	
Pre-requisites : An understanding of the Product Development Process	

DM401 Advanced Product Design and Manufacture	Level 4 20 Credits (10 ECTS)
<p>This module aims to introduce design and manufacturing techniques and systems at an advanced level, enabling students to understand the application of advanced product design engineering and manufacturing techniques/systems in product development (in particular in mechatronic systems), including developing manufacturing plans for product realisation, and provide opportunities for students to develop technology focused products/systems within the class supervised environment as well as to generate plans for the manufacture of these products/systems for volume production.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Demonstrate knowledge and understanding of generating an optimised design solution against given design criteria; • Design a mechatronic system; • Demonstrate skills and techniques in evaluating a product behaviour in physical prototyping; • Demonstrate knowledge and understanding of manual and computer aided process planning in modern manufacturing; • Demonstrate knowledge and understanding of part programming and Computer-Aided Manufacture (CAM); • Demonstrate awareness and know-how on a complex CAD/CAM system and discuss complex issues relating to implementation of a CAD/CAM system. 	
Pre-requisites : Previous experience or knowledge in design, validation and testing of a system (preferably mechatronic).	

DM404 Quality Management	Level 4 20 Credits (10 ECTS)
<p>This module aims to equip the students with a critical understanding of Quality Management and Quality Control principles, concepts, tools and techniques. The module also aims to introduce students how to statistically plan, design and execute industrial experiments for process understanding and improvement in both manufacturing and service environments.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Demonstrate the differences between different levels of quality maturity and illustrate the prerequisites (or inputs) to total quality. • Construct quality strategies based on a broad understanding of quality models and standards. • Apply different Quality Management tools and techniques in a particular context. • Apply Reliability Engineering tools and techniques in a particular context. • Demonstrate knowledge and understanding of Classical Design of Experiments (DoE) for process. Optimisation and demonstrate knowledge and understanding of Taguchi's approach to quality improvement. 	
Pre-requisites : None	

DM920 Strategic Technology Management	Level 5 10 Credits (5 ECTS)
<p>This module provides a series of strategic frameworks for managing high-technology businesses. The emphasis throughout the module is on the development and application of conceptual models which clarify the relationships between a firm's strategy, patterns of technological and market change and the processes for the development of organizational capabilities.</p> <p>This module is not about how to manage product or process development. The main focus of this module is on the acquisition of a set of powerful analytical tools, which are critical for the development of a technology strategy as an integral part of business strategy. These tools can provide a guiding framework for deciding which technologies to invest in, how to structure those investments and how to anticipate and respond to the behaviour of competitors, suppliers, and customers. The module should be of particular interest to those interested in managing a business for which technology is likely to play a major role, and to those interested in consulting or venture capital.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Demonstrate a comprehensive understanding of the role and importance of technology in business strategy formulation process. • Develop the ability to critically assess concepts, tools and techniques of managing technology for both stable and turbulent business environments. • Evaluate complexity and develop appropriate technology strategy models for specific cases. 	
Pre-requisites : None	

DM926 Supply Chain Operations	Level 5 10 Credits (5ECTS)
<p>The module aims to provide students with an in-depth knowledge and understanding of those key concepts, methods, tools and techniques that are fundamental to effective and efficient running of supply chain operations from suppliers' suppliers to customers' customers. On completion the participants will be able to design and manage operational supply chain planning, monitoring and control systems for complex and disparate operations.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Understand the basics of supply chain operations in relation to planning, operating, scheduling and controlling. • Identify and assess different methods, tools and techniques for managing plans, operations and materials of end-to-end supply chains. • Demonstrate the ability to apply those methods, tools and techniques in different contexts, including manufacturing and service sectors. 	
Pre-requisites : Good knowledge of operations management and business management. Prior knowledge of statistics is desirable.	

DM927 Strategic Supply Chain Management	Level 5 10 Credits (ECTS)
<p>This module aims to provide students a critical understanding of the fundamental building blocks of Supply Chain Management from a strategic perspective with a view to developing their capabilities in modelling, analysing, diagnosing and re-designing/improving supply chains.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Display an understanding of the fundamental building blocks of supply chain management. • Demonstrate a critical understanding of how to model, analyse and diagnose supply chain performance and practices. • Display an understanding of sustainability issues in modern supply chains. 	
Pre-requisites : Knowledge and understanding of operation and business management.	

DM934 Design Methods	Level 5 10 Credits (5 ECTS)
<p>This module aims to enable students to select and apply appropriate design methods as part of the design process.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Select and apply appropriate design methods to a design problem. • Integrate appropriate design methods into a design process to ensure fitness of purpose of all aspects of the problem/context. • Analyse literature sources to identify design methods suitable for a particular design problem. 	
Pre-requisites : None	

Semester 2 Classes

DM102 Introduction to Production Engineering and Management	Level 1 20 Credits (10 ECTS)
<p>This module aims to provide students with an overview of the manufacturing industry and an appreciation of: (1) the range of processes and materials employed in production, and (2) operations management theory and practice, emphasising the key role of managers and engineers within organisations.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Demonstrate an understanding of the nature of Operations Management • Demonstrate an understanding of the basis of competition and the basic principles of designing and operating business • Describe the meaning of the term “manufacturing” and the scope of manufacturing industry. • Identify the basic stages in transforming raw material into a useable end product. • Discuss the principle factors involved in material and process selection and environmental and legislative considerations 	
Pre-requisites : None	

56213 Engineering Design and Manufacture	Level 2 10 Credits (5 ECTS)
<p>This module aims to introduce students to concepts and methodology required to undertake effective design and development of engineering systems. The product development process will be introduced and through practice, a working knowledge of appropriate engineering design processes, tools and techniques will be gained. An overview of manufacturing and the manufacturing industry will provide a general appreciation of the range of processes employed in manufacturing together with an understanding of how components can be manufactured economically and reliably.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Demonstrate an understanding of a number of engineering design processes and the role of the engineering designer within them. • Demonstrate knowledge of the Total Design process including the selection and application of appropriate design tools and methods. • Demonstrate a practical understanding of the role that materials play in the design process, what structural properties of materials are, their use for materials selection, how defects and microstructure control such properties. • Explain the meaning of the term “manufacturing” and demonstrate an appreciation of the basic stages in transforming raw material into a useable end product. • Demonstrate an understanding of a number of manufacturing processes, their process parameters and their limitations. 	
Pre-requisites : None	

DM306 Product Development	Level 3 20 Credits (10 ECTS)
<p>This methods-based module aims to develop and enhance students' knowledge of the issues, concepts, methodologies and methods involved in product design and development.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Demonstrate knowledge and understanding of the Product Development Process and related methodologies and methods. • Select and apply appropriate design methods for a product development project. • Demonstrate knowledge and understanding of product development coordination and information management methods and technologies. 	
<p>Pre-requisites: A basic knowledge of the product development process or the design process in an engineering discipline.</p>	

DM308 Production Techniques 2	Level 3 20 Credits (10 ECTS)
<p>This module aims to provide students with a knowledge and understanding of modern and non-traditional manufacturing techniques and with the ability to apply this knowledge to the design of tooling and the selection of the appropriate manufacturing techniques for creating components and products. It also aims to provide students with an understanding of the role of manufacturing processes in converting advanced materials into modern products.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Demonstrate knowledge and understanding of material properties, processing parameters, manufacturing steps, machinery used and costs involved in converting advanced materials into products. • Demonstrate knowledge and understanding of non-traditional manufacturing techniques and their applications to general manufacturing and micro-manufacturing. • Demonstrate a working knowledge of the principles of jig and fixture design in machining. • Demonstrate a working knowledge of numerical control in machining. • Able to explain meaning of rapid-prototyping and identify and select key techniques for rapid prototyping. • Understand the process and considerations for material selections for design and manufacturing. 	
<p>Pre-requisites : Knowledge of primary processes for metal and polymer production, metal cutting theory, secondary manufacturing processes, engineering metrology, and the manufacture of electronic components and products.</p>	

DM918 People, Organisation and Technology	Level 5 10 Credits (5 ECTS)
<p>This module aims to introduce students to the “softer” aspects of engineering management. Given some key organisational and technological issues, the main focus is to examine the relationship between "human" elements and change management from an engineering-orientated perspective.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Discuss key issues in organisation and technology. • Understand modern people management concepts and practices. • Identify the challenges and consequences of change. • Understand the impact of organisational and technological issues on people when making changes. 	
Pre-requisites : Basic knowledge of Engineering Management. Prior working experience is desirable.	

DM923 Product Modelling and Visualisation	Level 5 10 Credits (5 ECTS)
<p>This module aims to enable students to understand the concepts of multi-perspective product modelling and techniques used to visualise better products before they are fully designed and manufactured.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Demonstrate the ability to use a commercially available CAD system. • Demonstrate knowledge and understanding of product modelling and visualisation. • Describe and discuss the functionality and benefits that CAD systems can bring to product development. 	
Pre-requisites : Awareness of basic CAD modelling and design process.	

DM945 Systems Thinking and Modelling	Level 5 10 Credits (5 ECTS)
<p>The objective of this module is to introduce the participants to the theories and principles behind Systems Thinking. The module will also introduce the participants to the methods, tools and techniques for modelling, analysing, improving and designing systems in a variety of organisations, including industrial, commercial and public sector.</p> <p>On completion of the module the student is expected to be able to:</p> <ul style="list-style-type: none"> • Discuss and critically evaluate various organisational and engineering systems across a variety of organisations, including industrial, commercial and public sector. • Model, analyse and design various organisational and engineering systems across a range of organisations. • Carry out systems based forms of organisational analysis and intervention in a complex organisational problem situation. 	
Pre-requisites : None	