Swansea University
Prifysgol Abertawe

FACULTY OF SCIENCE AND ENGINEERING

POSTGRADUATE TAUGHT STUDENT HANDBOOK

MSc (FHEQ LEVEL 7)

MSc ENGINEERING LEADERSHIP AND MANAGEMENT DEGREE PROGRAMME

SUBJECT SPECIFIC
PART TWO OF TWO
MODULE AND COURSE STRUCTURE
2023-24

DISCLAIMER

The Faculty of Science and Engineering has made all reasonable efforts to ensure that the information contained within this publication is accurate and up-to-date when published but can accept no responsibility for any errors or omissions.

The Faculty of Science and Engineering reserves the right to revise, alter or discontinue degree programmes or modules and to amend regulations and procedures at any time, but every effort will be made to notify interested parties.

It should be noted that not every module listed in this handbook may be available every year, and changes may be made to the details of the modules. You are advised to contact the Faculty of Science and Engineering directly if you require further information.

The 23-24 academic year begins on 25 September 2023

Full term dates can be found here

DATES OF 23-24 TERMS

25 September 2023 – 15 December 2023

8 January 2024 – 22 March 2024

15 April 2024 – 07 June 2024

SEMESTER 1

25 September 2023 – 29 January 2024

SEMESTER 2

29 January 2024 – 07 June 2024

SUMMER

10 June 2024 – 20 September 2024

IMPORTANT

Swansea University and the Faculty of Science of Engineering takes any form of **academic misconduct** very seriously. In order to maintain academic integrity and ensure that the quality of an Award from Swansea University is not diminished, it is important to ensure that all students are judged on their ability. No student should have an unfair advantage over another as a result of academic misconduct - whether this is in the form of **Plagiarism**, **Collusion** or **Commissioning**.

It is important that you are aware of the **guidelines** governing Academic Misconduct within the University/Faculty of Science and Engineering and the possible implications. The Faculty of Science and Engineering will not take intent into consideration and in relation to an allegation of academic misconduct - there can be no defence that the offence was committed unintentionally or accidentally.

Please ensure that you read the University webpages covering the topic – procedural guidance here and further information here. You should also read the Faculty Part One handbook fully, in particular the pages that concern Academic Misconduct/Academic Integrity.

Welcome to the Faculty of Science and Engineering!

Whether you are a new or a returning student, we could not be happier to be on this journey with you.

At Swansea University and in the Faculty of Science and Engineering, we believe in working in partnership with students. We work hard to break down barriers and value the contribution of everyone.

Our goal is an inclusive community where everyone is respected, and everyone's contributions are valued. Always feel free to talk to academic, technical and administrative staff, administrators - I'm sure you will find many friendly helping hands ready to assist you. And make the most of living and working alongside your fellow students.

During your time with us, please learn, create, collaborate, and most of all – enjoy yourself!

Professor David Smith
Pro-Vice-Chancellor and Executive Dean
Faculty of Science and Engineering

Faculty of Science and Engineering	
Pro-Vice-Chancellor and Executive Dean	Professor David Smith
Director of Faculty Operations	Mrs Ruth Bunting
Associate Dean – Student Learning and Experience (SLE)	Professor Laura Roberts
School of Aerospace, Civil, Electrical, General and Mechanical Engineering	
Head of School	Professor Antonio Gil
School Education Lead	Professor Cris Arnold
Head of Civil Engineering	Professor Eduardo De Souza Neto
Civil Engineering Programme Director	Dr Clare Wood
Engineering Leadership and Management Programme Director	Dr Vasilios Samaras

STUDENT SUPPORT

The Faculty of Science and Engineering has two **Reception** areas - Engineering Central (Bay Campus) and Wallace 223c (Singleton Park Campus).

Standard Reception opening hours are Monday-Friday 8.30am-4pm.

The **Student Support Team** provides dedicated and professional support to all students in the Faculty of Science and Engineering. Should you require assistance, have any questions, be unsure what to do or are experiencing difficulties with your studies or in your personal life, our team can offer direct help and advice, plus signpost you to further sources of support within the University. There are lots of ways to get information and contact the team:

Email: studentsupport-scienceengineering@swansea.ac.uk (Monday–Friday, 9am–5pm)

Call: +44 (0) 1792 295514 (Monday-Friday, 10am–12pm, 2–4pm).

Zoom: By appointment. Students can email, and if appropriate we will share a link to our Zoom calendar for students to select a date/time to meet.

The current student **webpages** also contain useful information and links to other resources:

https://myuni.swansea.ac.uk/fse/

READING LISTS

Reading lists for each module are available on the course Canvas page and are also accessible via http://ifindreading.swan.ac.uk/. We've removed reading lists from the 23-24 handbooks to ensure that you have access to the most up-to-date versions.
We do not expect you to purchase textbooks, unless it is a specified key text for the course.

THE DIFFERENCE BETWEEN COMPULSORY AND CORE MODULES

Compulsory modules must be **pursued** by a student.

Core modules must not only be **pursued**, but also **passed** before a student can proceed to the next level of study or qualify for an award. Failures in core modules must be redeemed.

Further information can be found under "Modular Terminology" on the following link - https://myuni.swansea.ac.uk/academic-life/academic-regulations/taught-guidance/essential-info-taught-students/your-programme-explained/

MSc (FHEQ Level 7) 2023/24
Engineering Leadership and Management
MSc Engineering Leadership and Management

Semester 1 Modules	Semester 2 Modules
MN-M050 **Foundations of Management** **20 Credits** **Mrs ET Spender/Dr PJ White** **CORE**	**EGSM36** **Circular Economy and Sustainable Engineering Technologies** **20 Credits** **Prof ML Davies** **CORE**
	MN-M043 **Operations Management (Engineering Leadership and Management)** **10 Credits** **Mr AH Price/Dr J Mulyata** **CORE**
	MN-M044 **Asset Management** **10 Credits** **Dr RA Thomas** **CORE**
	MN-M581 **Enterprise, Innovation and Intellectual Property** **10 Credits** **Prof GH Davies/Dr S Roderick** **CORE**
EGSM21 **Leadership and Complexity Management (ELM)** **10 Credits** **Dr V Samaras** **CORE**	
EGSM24 **Smart Manufacturing** **10 Credits** **Prof C Giannetti** **CORE**	
EGSM31 **Project Management** **10 Credits** **Prof AR Barron** **CORE**	
EGSM35 **Strategy** **20 Credits** **Mr I Hobson/Dr V Samaras** **CORE**	
EGSM37 **Community Engagement** **0 Credits** **Miss X Yin**	
Dissertation	
EG-D09 **MSc Engineering Leadership and Management Project** **60 Credits** **Mr I Hobson/Dr V Samaras** **CORE**	
Total 180 Credits	

EG-D09 MSc Engineering Leadership and Management Project

Credits: 60 Session: 2023/24 June-September

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Mr I Hobson, Dr V Samaras

Format: Typically 2 hours per week i.e 20-30 hrs total contact time. Each student is to be supervised in accordance with the University's Policy on Supervision, with a minimum of three meetings held. A careful record should be kept, agreed between supervisor and student, of all such formal meetings, including dates, action agreed and deadlines set.

Delivery Method: The module is delivered primarily as an individual research project, however a level of interaction with other team members is required allowing delivery of a strategic plan that encompasses all of the various aspects covered by the individuals. This approach ensures a level of authenticity complicit with the real world. As such students are also expected to liaise with various stakeholders including members of the team, academic supervisors and industrial contacts on a regular basis. A minimum University requirement of three formal meetings with academic supervisors will be in place for full-time students. In the case of part-time students it is recommended that a minimum of four meetings are held. Ideally, contact should be more regular, with at least one meeting a week to discuss the development and progress of the project. Depending on the project the student may have to complete the necessary risk assessments and training required to work on an industrial site or within laboratory facilities of the University. If required projects can be run independently of the rest of the team, should this be necessitated.

Module Aims: The module aims to develop the ability to construct a viable strategic plan as part of a group with the individual assessment being delivered in the form of a document covering one of the key aspects within the structure of that strategic plan. The final ambition of the strategic plan, i.e. the synopsis will be defined by industry seniors. There is an expectation that key research skills will be developed alongside personal and professional development skills and the utilization of knowledge gained throughout the taught elements.

Module Content: The overall objective of the project will be defined by industry. The expectation is that the team will deliver a complete strategy document (assessed as part of the Strategy module) however individual will be responsible for delivering specific aspects of the document in the form of their final dissertation. Study for the dissertation will commence after key modules have been completed and will be an extension of 'white papers' submitted during the taught modules.

NB - other modules will run alongside the longer dissertation period and flexible regulations will be followed.

The final paper will be submitted at the end of September as part of an overall strategy document completed by the team.

In conducting the research project and dissertation the student will be exposed to all aspects of modern information retrieval processes, the organisation and resourcing of research and the organising and presentation of research data. The student must make inferences on conclusions, based on the evidence provided and supported by the research work. Furthermore they must assess the significance of this work in relation to the field and make suggestions about how further work could improve or clarify the research problem. The results of the project will be disseminated in a substantial dissertation demonstrating the student's ability to research a subject in depth.

The student will meet regularly with the supervisor to ensure that the project is well developed and organised. Progress will be monitored.

Intended Learning Outcomes: On completion of this module, students should have the ability to:
• investigate a research topic in detail;
• formulate research aims;
• devise and plan a research strategy to fulfil the aims;
• carry out research work - undertake a literature search or computer based investigation (or a combination of these);
• gather, organize and use evidence, data and information from a variety of primary and secondary sources;
• critically analyse information;
• make conclusions supported by the work and identify their relevance to the broader research area;
• resolve or refine a research problem, with reasoned suggestions about how to improve future research efforts in the field; and
• produce a report (dissertation), with the findings presented in a well organised and reasoned manner.

Assessment: Report (100%)

Assessment Description: The research project and dissertation forms Part Two of the Masters degree.

Students should refer to:
https://www.swansea.ac.uk/academic-services/academic-guide/postgraduate-taught-awards-regulations/standard-taught-masters/

In particular, section 14 will provide further Information about dissertation preparation and submission.

Each student is to submit an electronic copy of their dissertation through the Turnitin link on Canvas by the deadline of 30th September. The online system will automatically check the similarity of the report. The dissertation must contain:

• a statement that it is being submitted in partial fulfilment of the requirements for the degree;
• a summary of the dissertation not exceeding 300 words in length;
• a statement, signed by you, showing to what extent the work submitted is the result of your own investigation. Acknowledgement of other sources shall be made by footnotes giving explicit references. A full bibliography should be appended to the work;
• a declaration, signed by you, to certify that the work has not already been accepted in substance for any degree, and is not being concurrently submitted in candidature for any degree; and
• a signed statement regarding availability of the thesis.

The dissertation is marked by the supervisor and another member of staff and sent to an External Examiner for moderation. An Internal Exam Board is then held to confirm the mark. Finally, all marks are ratified at the University Postgraduate Taught Examination Board.

Moderation approach to main assessment: Universal Double Blind Marking of the whole cohort

Assessment Feedback: Informal feedback will be given during regular meetings with supervisors. The supervisor will also provide an assessment of the project drafting skills during the planning of the dissertation. Work will be returned according to specified deadlines and accompanied by constructive comment.

A Feedback session will be given to any student who fails their dissertation and is permitted by the Award Board to resubmit their work.

Failure Redemption: Candidates who fail the dissertation are given an opportunity to resubmit the dissertation within 3 months of the result of the examination if a full-time student or 6 months for part-time students. Such students will be given one formal feedback session, including written feedback on the reasons for failure, immediately following confirmation of the result by the University Postgraduate Taught Examination Board. The opportunity to resubmit will only be offered to students who submit a dissertation and are awarded a fail. Those candidates who do not submit a dissertation will not be offered a resubmission opportunity.

Additional Notes: Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

The Faculty of Science and Engineering has a ZERO TOLERANCE penalty policy for late submission of all coursework and continuous assessment.
If an extension is deemed appropriate a Postgraduate Taught Masters 'Application for Extension to the Submission Deadline/ Period of Candidature' Form will need to be submitted as follows:
• 30 September – deadline for Part Two students (non-resit students)
• 15 December - deadline for Part Two Students (students who had resits)

EGSM21 Leadership and Complexity Management (ELM)

Credits: 10 Session: 2023/24 Academic Year

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Dr V Samaras

Format: A20 hrs workshops
5 hrs tutorials

Contact Hours will be delivered through a blend of live activities online and on-campus, and may include, for example, lectures, seminars, practical sessions and Academic Mentoring sessions.

Delivery Method: All Programmes will employ a blended approach to delivery using the Canvas Digital Learning Platform for live and self-directed online activity, with live and self-directed on-campus activities each week. Students may also have the opportunity to engage with online versions of sessions delivered on-campus

Lectures, workshops, seminar sessions

Module Aims: One of the key skills identified by employers in all sectors and for life in general is the ability to work in a team and to be able to lead! Additionally, there are a number of other skills and traits required or to at least be aware of, to be most effective in these capacities.

Effective communication will be promoted throughout the module, in terms of leadership and team work alongside engagement with internal and external stakeholders, to include such areas as sales, marketing and personal branding.

At the end of this course students will be able to recognise and understand key characteristics of leadership as well as a wide range of strategic business skills, ideas and theories with emphasis on innovation and “entrepreneurial thinking” which is essential for the current multidisciplinary engineering environment. The course delivery integrates practical project work and academic rigour.

Module Content: Introduction
Leadership
Team Formation, Development and Communication
Entrepreneurial Thinking
Change Management
Strategic Management
Innovation and Business Thinking, Group Assignment Part 1
Group Assignment Workshops

Intended Learning Outcomes:
Technical Outcomes
On successful completion of this module students will be expected, at threshold level, to be:

Demonstrate an understanding of current leadership issues. Critically appraise theories and approaches to leadership and at the same time reflect on personal leadership aspects.

Knowledge to assess the basic factors that must be considered for a business formation. Use of basic level strategy and innovation methods in order for an organisation to gain competitive advantage. Critically evaluate the rationale for utilising methods for idea generation/innovation.

Have awareness of theoretical perspectives and approaches to change management in organisational environments. Synthesise the relationship between the external context of an organisation and its internal context and their impact on its strategic direction.

Demonstrate and appraise, entrepreneurial way of working, team development and communication skills
Accreditation Outcomes (AHEP)
- Investigate and define the problem, identifying any constraints including environmental and sustainability limitations; ethical, health, safety, security and risk issues; intellectual property; codes of practice and standards (D2)
- Plan self-learning and improve performance, as the foundation for lifelong learning/CPD (G2)
- Exercise initiative and personal responsibility, which may be as a team member or leader (G4)
- Demonstrate the ability to generate an innovative design for products, systems, components or processes to fulfil new needs (D8m)
- Understanding of the key drivers for business success, including innovation, calculated commercial risks and customer satisfaction (EL7m)
- Awareness that engineering activities should promote sustainable development and ability to apply quantitative techniques where appropriate (EL11M)

Assessment:	Coursework 1 (20%) Coursework 2 (80%)
Resit Assessment:	Coursework reassessment instrument (100%)

Assessment Description: The group (5/6) assignment will require application of the "key skills" and innovation development tools to generate solutions for real-world scenarios – report (40 pages) and development of Business Canvas.

The individual assignment will focus on leadership, its main characteristics and entrepreneurial thinking.

Moderation approach to main assessment: Universal Double Blind Marking of the whole cohort

Assessment Feedback: Continuous group feedback on "out-comes" of workshops, after submission of coursework 1 at request during open-tutorials.

Failure Redemption: Exam resits according to University regulations.
100% coursework.

Additional Notes: Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

This module is not available to Visiting - Exchange students.

EGSM24 Smart Manufacturing

Credits: 10 Session: 2023/24 September-June

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Prof C Giannetti

Format: 25 hrs lectures
5 hrs tutorials

Contact Hours will be delivered through a blend of live activities online and on-campus, and may include, for example, lectures, seminars, practical sessions and Academic Mentoring sessions.

Delivery Method: All Programmes will employ a blended approach to delivery using the Canvas Digital Learning Platform for live and self-directed online activity, with live and self-directed on-campus activities each week. Students may also have the opportunity to engage with online versions of sessions delivered on-campus

Taught lecture and tutorial

Module Aims: Industrial production is entering a new and exciting era, called Smart Manufacturing that will bring a complete transformation in the way products are designed, manufactured and serviced through pervasive and ubiquitous use of ICT, sensors and intelligent robots. To fully exploit the potential of these new technologies there is the need to develop awareness of what Smart Manufacturing is and how organisations can embrace the necessary changes to drive efficiency and boost productivity. This module covers fundamental concepts, technologies and business strategies of Smart Manufacturing to equip the participants with the necessary interdisciplinary skills to become leaders and innovators in the design, deployment and operation of smart production systems or Factories of the Future.

Module Content: Smart Manufacturing: key concepts and business models
- What is Smart Manufacturing: historical context and recent developments
- Industrial Internet of Things
- End to End Engineering
- Horizontal and Vertical Integration
- Virtualisation and Decentralisation
- Customised Mass Production

Key Enabling technologies and systems
- Smart Manufacturing Reference Architecture
- Cyber Physical systems and Machine to Machine communication
- Sensor technologies
- Autonomous and collaborative robots and machine intelligence
- 3D printing
- Big data architecture and predictive analytics

Deployment and evaluation of smart production systems
- Examples of deployed smart production systems
- Investment required and return on investment
- Evaluating smart production systems
- Security and Privacy issues
- People and leading the changes
- Case studies

Intended Learning Outcomes: At the end of this module the participants will be able to critically appraise and effectively communicate the principles underlying the following key concepts:
• Smart Manufacturing and new approaches to ICT and media technologies that are changing production systems;
• the role that machines and robots play in digitalised production systems and new interaction models between machines and humans;
• Big Data technologies in manufacturing operations.

They will be able to
• use novel real time data-driven approaches to improve profitability and efficiency;
• implement decentralised production models and end to end engineering to drive optimal production;
• critically evaluate and measure effectiveness of smart manufacturing systems;
• reflect on the 'human factor' and training requirements necessary to push their organisation towards the new developmental stage of industrial production

Assessment: Coursework 1 (20%)
Online Class Test (30%)
Coursework 2 (50%)

Assessment Description: Coursework 1 – part I – short report on lab activity 20%
Coursework 1 – part II - online class test 30%
Coursework 2 - report (2000 words) – 50%

Moderation approach to main assessment: Moderation of the entire cohort as Check or Audit

Assessment Feedback: Feedback will be provided for the project plan and will inform the project report.

Constructive feedback will also be provided during tutorials.

Detailed feedback will be provided with the mark of the final report.

Student will be able to present their work and formative feedback will be given.

Failure Redemption: Project re-submission. Resubmission will be at the next available assessment period following marking and feedback.

Additional Notes: Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

Not available to visiting and exchange students

EGSM31 Project Management

Credits: 10 Session: 2023/24 Academic Year

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Prof AR Barron

Format: 21 Lectures and workshops
4 tutorials
Contact Hours will be delivered through a blend of live activities online and on-campus, and may include, for example, lectures, seminars, practical sessions and Academic Mentoring sessions.

Delivery Method: All Programmes will employ a blended approach to delivery using the Canvas Digital Learning Platform for live and self-directed online activity, with live and self-directed on-campus activities each week. Students may also have the opportunity to engage with online versions of sessions delivered on-campus

Series of Lectures, workshops and tutorials. Team development of solutions to in-class problems. Team presentation of Project.

Module Aims:

At the end of this course, students will be able to recognise and define the key characteristics and components of a
project. Understand the advantages/disadvantages associated with the management of both small and large
projects. Have an appreciation of the strategic tools and techniques available to enable "Effective Project Management" as well as the concepts leading to the creation of a high performance team.

Module Content: Project Management
What is a Project
Stakeholders
What is a Project Manager
Triple constraint
Scope Creep
Project Life Cycle
Project Initiation
SMART objectives
Objective Statement
Prohject Planning
Scope Statement
Project Requirments
Work Breakdown Structure
Network Diagram
Estimation
Critical Path
Gantt Chart
Planned value and costs
Project Close

Background reading
Merrie Barron, PMP, CSM; Andrew R. Barron, Project Management. OpenStax CNX. Jul 24, 2014 http://cnx.org/contents/5e9177d7-9998-43d0-9b98-91a369c6a371@8.1.

Intended Learning Outcomes: After completing this module students should be able to:
1. Define a project clearly and optimise the balance among the three-fold spectrum of Scope (quality), Cost (budget)
and Time (schedule).
2. Evaluate the nature of both small and large projects, the issues related to both scale and the tools available to
manage the project and apply the same tools effectively.
4. Plan a project, identify the high level key work elements required and assemble them in to a project road map.
5. Create a comprehensive project plan containing the project aims, expected timelines, estimated costs, key risks
to success.

Assessment:	Coursework 1 (20%) Presentation (16%) Group Work - Project (31%) Coursework 2 (17%) Participation Exercise (16%)

Assessment Description: coursework 1 = multiple choice questions = 3 sets of 12 questions
coursework 2 = series of documents each about 200 words x 4 sets of questions
group work project = powerpoint with about 12 slides
presentation = 20 minute presentation + 10 min questions

Moderation approach to main assessment: Moderation of the entire cohort as Check or Audit

Assessment Feedback: Informal feedback is given during lectures, examples classes, group presentations, and at group work meetings. Formal feedback is given via standard College of Engineering feedback protocols.

Failure Redemption: A supplementary examination will form 100% of the module mark..

Additional Notes: Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

Penalty for late submission of work: ZERO TOLERANCE.

Not available to visiting - exchange students

Office hours, lecture notes and other teaching materials will be posted on Canvas.

EGSM35 Strategy

Credits: 20 Session: 2023/24 Academic Year

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Mr I Hobson, Dr V Samaras

Format: Lectures/workshops/tutorials
Contact Hours will be delivered through a blend of live activities online and on-campus, and may include, for example, lectures, seminars, practical sessions and Academic Mentoring sessions.

Delivery Method: All Programmes will employ a blended approach to delivery using the Canvas Digital Learning Platform for live and self-directed online activity, with live and self-directed on-campus activities each week. Students may also have the opportunity to engage with online versions of sessions delivered on-campus

Group workshops and lectures

Module Aims: The module will give an insight into the origins of strategy formation using examples where success has followed and perhaps those that have not. Clearly Strategy has military connotations and history is peppered with classic examples.
Moving then onto modern day organizations, the module will walk the candidates through all the key elements associated with effective design, management and deployment of strategy. As potential Leaders, it is important that an understanding of the likely roles they will play in the future is delivered. This will be effected by a program that has sound theoretical anchors and uses real life examples through case studies of organizations to explore and critique the plans.

Module Content: Building context into the debate
In terms of context is important to understand exactly where strategy fits in the hierarchy of organizational design, and that strategy alone will not provide any traction. Strategy is targeted at organizational mission and vision and underpinned by robust plans and actions. What is often overlooked and provides, in most cases, the reason for failure is effective deployment.

Building organizational Strategy
There are many techniques that are used to help organizations design strategy and those elements that will form the component parts, one of the most basic being the SWOT, and derivatives of. Assuming that an organization has a vision of where it wants to be in the near, medium and long term then identifying those elements of Strategic intent can be readily identified and defined.

Reviewing organizational Strategy
Strategic review will depend on the type and health of the organization it serves. For example, an organization operating in a mature market scenario whose threats have been identified as slow moving and having little impact on performance can open out review frequencies. In today's world, however, those organization will be few and far between and limited most probably to public service organizations and those organizations that are heavily linked to legal and legislative frameworks.
In the competitive world, which is getting geographically smaller and with the tsunami of technological advancement, compounded by environmental and socio economic factors the frequency of review needs to be significantly increased.

Linking Strategy to plans
The organization and its stakeholders needs line of sight of the strategic targets normally provided by daily, weekly and annual planning processes, this will be covered as we discuss the Hierarchy of design.

Strategy Deployment /Organizational Health
This is an area that is often overlooked which will ultimately determine success or failure. Much work and research has been carried out in this area and is a subject on its own. It is however fundamental to the design. The organization's ability to align with a strategy and change with the factors affecting it is key. How to engage with an organization, in the right way at the right frequency, communicating the right messages and allowing meaningful debate are amongst the softer elements. Perhaps more tangible, but equally important would be an organizations ability to match its capability with its aspirations. The learning vehicle used to explore this area will examining reasons for failure when organizations embark on transformational change, which equally apply to effective deployment of strategy.

Preparing candidates for organizational challenges
It is likely that the aspirations of the candidates on this program aspire to leadership roles within their chosen profession. Experience tells us that having an understanding of how organizations work, what drives them, how they manage targets and objectives, and ultimately performance will help meet those aspirations. In terms of an individual's personal development being equipped with this knowledge will help differentiate themselves as individuals by helping then understand how their activities fit in the overall Business plans.

Intended Learning Outcomes: 1) To be able to critically review an existing organisational strategy
2) To be able to develop an organisational strategy considering all internal and external factors
3) To be able to critically appraise all internal and external factors that may affect an organisational strategy
4) To be able to modify an existing strategy to bring it into line with the changing environment

Assessment: Coursework 1 (50%)
Coursework 2 (50%)

Assessment Description: CW 1: Group project with report and presentation 1: Organisational health
CW 2: Group project: Critical evaluation of the UK energy strategy

Moderation approach to main assessment: Moderation by sampling of the cohort

Assessment Feedback: Constructive feedback will be provided by the Lecturer on work in progress during tutorials. Feedback on individual contributions to group work (including peer review) will be provided in 1 to 1 feedback sessions. Written group feedback after the report marking will be given via Canvas as well as in face-to-face meetings.

Detailed feedback on the presentation will be provided during and after the presentation sessions.

Failure Redemption: Re-submission of failed components: Individual re-submission following feedback in next available resit period (January or April)
Additional Notes: Delivery of both teaching and assessment will be face to face on campus. Not available to Visiting - Exchange students

EGSM36 Circular Economy and Sustainable Engineering Technologies

Credits: 20 Session: 2023/24 January-June

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Prof ML Davies

Format: 6-8 days of in-person lectures over a 4-week period with additional drop in/tutorial sessions as needed.

Delivery Method: 6-8 days of in-person lectures over a 4-week period with additional drop in/tutorial sessions as needed. Module will be supported by additional resources on canvas.

Module Aims: This module will provide fundamental knowledge on renewable energy technologies including wind, solar, biomass and discuss the need for clean storage of energy. It will outline the current trends of deployment and renewable generation, the state of the climate and progress towards net zero. It will detail the need for a holistic and inclusive approach to mitigate the current climate crisis and developing the correct technological solutions for a given country/environment. It will detail the linear vs circular economy and the importance of the circular economy in sustainable development. The module has been designed to promote the role of circular economy and sustainable engineering within industry, commerce, and society. It will equip graduates with the knowledge and skills to help industry and commerce to reduce their environmental impacts and support the objectives of sustainable development.

Module Content: - life cycle analysis,
- Photovoltaics and renewable systems
- climate change and importance of circular economy for renewable technologies -circular economy,
- Sustainable business practices,
- design for disassembly/re-use/re-manufacture/recycling
- financial costs/benefits of sustainability

Intended Learning Outcomes: After completing this module student should be able to:
• Determine the best renewable energy solutions for use in a particular environment and/or location
• Evaluate and apply the theory and principals of circular economy and sustainable engineering to problems within international development.
• Evaluate current research and methodologies in Circular Economy and sustainable engineering.
• Demonstrate engagement with the holistic and multidisciplinary engineering context and its underlying principles.
• Demonstrate high level professional and ethical conduct in engineering with relation to a sustainable engineering future.

Assessment: Other (100%)

Assessment Description: Poster presentation and defense. Poster focused on circular economy aspects of a particular renewable energy technology with appropriate technical background and balanced argument on the drivers and barriers for circular aspects of the given technology.

Moderation approach to main assessment: Moderation by sampling of the cohort

Assessment Feedback: Oral and written feedback on defense and poster.

Failure Redemption: Submission of an essay on circular economy/renewable energy topics.

Additional Notes: Delivery of both teaching and assessment will be blended including live and self-directed activities online and on- campus.

Not available to Visiting & Exchange students

EGSM37 Community Engagement

Credits: 0 Session: 2023/24 Academic Year

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Miss X Yin

Format: 20 hours lecture
4 hours workshop exercise

Contact Hours will be delivered through a blend of live activities online and on-campus, and may include, for example, lectures, seminars, practical sessions and Academic Mentoring sessions.

Delivery Method: All Programmes will employ a blended approach to delivery using the Canvas Digital Learning Platform for live and self-directed online activity, with live and self-directed on-campus activities each week. Students may also have the opportunity to engage with online versions of sessions delivered on-campus

Teaching of this module is by cognitive apprenticeship (working alongside a professional team), problem-based (contribution to an engagement project), and problem-based (student reflection report).

Module Aims: In the last 50 years community groups have demanded and increasingly been offered an important role in planning and designing new developments and large scale engineering projects. Today, in an environment of localism and nimbyism, with local residents increasingly seen as ‘experts’ in their own right, community engagement has become a crucial part of any development process. The module will introduce the role and importance of engaging communities, teaching various techniques of consultation and engagement, placed in a framework from top-down to bottom-up. These techniques will be placed against a range of critiques of engagement that have emerged in recent years, from the accusation that engagement silences, co-opts or manipulates local people. The module will include evolving examples of engagement such as the ‘charrette’, ‘Enquiry by Design’ and others, and will include a practical project in which students take part in engagement exercises.

Module Content: ‘Communities’ & ‘stakeholders’
Community engagement principles
Methods of engagement
Engagement in the global South
The design “charrette” and Enquiry by Design
Online consultation methods
Critiques of engagement

Intended Learning Outcomes: On successful completion of this module, students will be able to:

1. Critically appraise the role of public engagement in developing countries, derive principles for public consultation, and discuss methods of public engagement.
2. Evaluate a complex range of community inputs into a design process and derive principles to inform a design brief.
3. Organise and manage public meetings and community engagement events, negotiate and handle conflicts, synthesise findings and implement group decisions.
4. Assess a community’s needs and desires using a variety of techniques, critically evaluate and report from a possibly conflicting range of inputs, synthesise, and evaluate them as a series of options.

Assessment: Attendance (100%)

Assessment Description: The student will produce an analytical business-style report of circa 2,000 words reflecting on the process, indicating the following (at least):

- The nature of problems tackled through community engagement
- The different actors and their roles in the process
- A detailed analysis of the process itself
- An critical account of the process of finalisation of the engagement
- A critical analysis in comparison with other public engagement processes
- A discussion and conclusion.

Moderation approach to main assessment: Universal Double Blind Marking of the whole cohort

Assessment Feedback: Formative:

The student's participation will be directly observed by teaching staff, who will give students continuous feedback on their progress during the module.

Summative:

The student will produce an analytical business-style report of at least 3,000 words reflecting on the process, indicating the following (at least):

¿ The nature of problems tackled through community engagement
¿ The different actors and their roles in the process
¿ A detailed analysis of the process itself
¿ An critical account of the process of finalisation of the engagement
¿ A critical analysis in comparison with other public engagement processes
¿ A discussion and conclusion.

Failure Redemption: Write an essay on a subject to be set by the module leader.

Additional Notes: Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

Module is not available to visiting and exchange students.

MN-M043 Operations Management (Engineering Leadership and Management)

Credits: 10 Session: 2023/24 January-June

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Mr AH Price, Dr J Mulyata

Format: 7 x 2 hour lectures
6 x1 hour seminars

Delivery Method: All Programmes will employ a blended approach to delivery using the Canvas Digital Learning Platform for live and self-directed online activity, with live and self-directed on-campus activities each week. Students may also have the opportunity to engage with online versions of sessions delivered on-campus

Module Aims: For an organisation to produce and deliver goods and / or services, efficient management of resources is a key aspect. Operations management is paramount to equip management with the techniques necessary to manage resources, for an effective functioning of manufacturing, technology production and services delivery organisations, particularly within high tech organisations. This module introduces key principles, conceptual tools and qualitative as well as quantitative techniques that can be applied to a variety of organisational contexts.

Module Content: Indicative Syllabus:
1. Overview of history and development of Operations Management; Business Operations within the technology space, Service Operation and Quality aspects (tools, Improvement)
2. Process design, improvement and mapping
3. Improvement programmes (TQM, Lean, etc.)
4. Planning: Capacity Management and Inventory Management
5. Enterprise Resource Planning, Materials Requirement Planning, Kanban
6. New Product Development; cross functional operations
7. Supply chain management

Intended Learning Outcomes: On completion of this module students should be able to:

1 Critically evaluate roles and principles of Operations Management in the management of processes associated with the production and delivery of goods and services.
2 Critically appraise process management issues faced by organisations within a global business environment
3 Critically appraise and review scenarios and apply the acquired knowledge and know-how to tackle scenarios and propose potential solutions within such scenarios
4 Apply learning, understanding and awareness of the qualitative and quantitative techniques introduced, to solve process management related problems

Assessment: Coursework 1 (70%)
Presentation (30%)
Resit Assessment: Coursework reassessment instrument (100%)

Assessment Description: One Narrated Presentation (PowerPoint) (30% weighting)
One written Assignment of 2000 words (70% weighting).

Moderation approach to main assessment: Moderation by sampling of the cohort

Assessment Feedback: Coursework: Written feedback via Canvas
Presentation: Verbal feedback on the day

Failure Redemption: To redeem failure in this module students will be expected to resit the individual coursework component at the next assessment point and this will be weighted at 100%.

Reading List: Slack, Nigel; Brandon-Jones, Alistair; Johnston, Robert, Operations management Nigel Slack., Pearson Education, 2013.ISBN: 9780273776208

Additional Notes: Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

This module aims to students an appreciation of both qualitative and quantitative aspects of operations management.

This module is available to incoming exchange/visiting students, if there are any linked pre-requisites students will need to provide a copy of their transcript to assess suitability. Please email employability-management@swansea.ac.uk for more information.

Please note - SOM Postgraduate taught modules are not available to undergraduate study abroad exchange or visiting students.

MN-M044 Asset Management

Credits: 10 Session: 2023/24 January-June

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Dr RA Thomas

Format: 7 x 2 hour lectures,
6 x1 hour seminars

Delivery Method: All Programmes will employ a blended approach to delivery using the Canvas Digital Learning Platform for live and self-directed online activity, with live and self-directed on-campus activities each week. Students may also have the opportunity to engage with online versions of sessions delivered on-campus

Module Aims: For an organisation to produce and deliver goods and / or services, efficient management of resources – or its tangible and intangible assets - is a key aspect. Asset management is therefore an essential management skill that extends beyond core kills such as operations and financial management. It facilitates the skills of value capture and creation, as well as effective value maintenance.

This module introduces key principles, conceptual tools and qualitative as well as quantitative techniques that can be applied to a variety of organisational contexts.

Module Content: Indicative Syllabus:

1. Overview of Asset Management; Tangible and intangible assets and Value creation, capture and maintenance; Asset management Standards (ISO55000)
2. Firm Infrastructure and Strategy; Asset Management life cycle stages (planning, design, development, operation, maintenance, EOL and obsolescence management)
3. Human and non-human resources and their services;
4. Enterprise Asset Management: Physical, Infrastructure, Fixed Assets, ITSM;
5. Asset Performance Management
6. Technology and innovativeness; Culture, Leadership and Behavior as enablers of effective Asset management
7. Declaring and extracting value from Asset Management: Life Cycle cost analysis, Unit cost economies/returns to scale; Asset management Decision making

Intended Learning Outcomes: On completion of this module students should be able to:

1 Critically evaluate roles and principles of Asset Management in the management of processes associated with the production and delivery of goods and services.
2 Critically appraise the value of life cycle management within an enterprise context
3 Critically appraise asset management issues faced by organisations within a global business environment
4 Critically appraise and review scenarios and apply the acquired knowledge and know-how to tackle scenarios and propose potential solutions within such scenarios
5 Apply learning, understanding and awareness of the qualitative and quantitative techniques introduced, to solve process management related problems

Assessment: Coursework 1 (70%)
Presentation (30%)

Resit Assessment: Coursework reassessment instrument (100%)

Assessment Description: Assessment 1 - Individual presentation: Project Plan (30%) – 20 minutes (approx. 15 slides)
Assessment 2 - Assignment – Industrial Evaluation and Impact Analysis (70%) - 2500 words

100% Individual Coursework resit - 3000 words

Moderation approach to main assessment: Moderation by sampling of the cohort

Assessment Feedback: Coursework: Written feedback via Canvas
Presentation: Verbal feedback on the day

Failure Redemption: To redeem failure in this module students will be expected to resit the individual coursework component at the next assessment point and this will be weighted at 100%.

Reading List: Paulien Herder, Ype Wijnia and Telli Van, Asset Management: The state of the Art in Europe from a Life Cycle perspective, Springer, 2012.ISBN: 978-9400727236
The (New) Asset Management Handbook Revised - A Guide to ISO55000.
Telli van der Lei editor.; Paulien Minke Herder 1971- editor.; Ype Wijnia editor.; Kari Komonen author of introduction, etc., Asset management : the state of the art in Europe from a life cycle perspective / Telli van der Lei, Paulien Herder, Ype Wijnia, Editors ; Foreword by Kari Komonen., Dordrecht : Springer, 2012.ISBN: 9789400727236
Roderick Thomas 1, Achieving Optimised Infrared Thermography in Innovative Asset Management.
Roderick Thomas, Progress in Predictive Asset Maintenance Management.

Additional Notes: Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

This is a module for the MSC Engineering Leadership and Management programme, and aims to give students an appreciation of both qualitative and quantitative aspects of asset management.

This module is available to incoming exchange/visiting students, if there are any linked pre-requisites students will need to provide a copy of their transcript to assess suitability.

Please note - SOM Postgraduate taught modules are not available to undergraduate study abroad exchange or visiting students.

MN-M050 Foundations of Management

Credits: 20 Session: 2023/24 September-January

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Mrs ET Spender, Dr PJ White

Format: 16 x 2 hour lectures
8 x 1 hour seminars
Contact Hours will be delivered through a blend of live activities online and on-campus, and may include, for example, lectures, seminars, practical sessions and Academic Mentoring sessions.

Delivery Method: All Programmes will employ a blended approach to delivery using the Canvas Digital Learning Platform for live and self-directed online activity, with live and self-directed on-campus activities each week. Students may also have the opportunity to engage with online versions of sessions delivered on-campus

A blended teaching and learning approach delivered over 4 weeks involving intensive learning and teaching with assessment after each block of lectures (Accounting, Finance, Economics, Organisations. This module will be delivered by academics primarily, with the possibility of guest speakers (expert witnesses in the industry area), under the oversight and assistance of the academic team.

Module Aims: This module introduces learners to the key tools that a manager should possess within their arsenal in order to actively contribute to an organisation, enable effective decision making within global market dynamics, monitor and report on its performance, and capitalise on its greatest assets – its people, by understanding, nurturing, listening to and fostering their development. The module will explore the principles of financial planning and control and reporting of results in accordance with IFRS, to then move to the analysis of financial statements and the key financial ratios for performance management, monitoring and strategic decision making, including company valuations and business development considerations. The basic economics concepts will be introduced; supply an demand, markets structure and dynamics, pricing and currency, to enable the evaluation of strategic options to achieve competitive advantage within a global marketplace. The Management of Human resources and the organisational behaviour theories and key concepts will be introduced and critically evaluated, to understand the individual and their relationship within organisations and to substantiate the claim of sustained competitive advantage that the implementation of HRM within firms can bring. Key functions of HRM will be introduced and considerations specific to international organisations will be made.

Module Content: Indicative Syllabus:

1. Introduction to financial systems and financial markets, Intermediaries and Institutions.
2. Financial planning and control (the financial dimension, cost estimation, cash budgets and forecasting, projected P&L and balance sheet)
3. Costing approaches and analysis, introduction to life cycle costing, pricing decisions, cost volume profit analysis, standard costing and basic variance analysis
4. Reporting results (preparation of financial statement, accounts structure and interpretation) within IFRS
5. Financial aspects relating to scaling up and internationalisation
6. Decision making: Performance measurement key concepts (share price, EPS, P/E ratios etc.), Time value of money, asset valuation and Investment decision (NPV, IRR, etc.)
7. Decision making: Budgeting and Dealing with risk and uncertainty in decision making
8. The demand and supply framework
9. The invisible hand and how markets clear
10. Market structure: competition vs. monopoly; Pricing and price discrimination;
11. The monetary system and operation of central banks; Exchange rates and the operation of international currency markets
12. Individuals, groups and market behaviour, and the employee/manager’s perspectives
13. Introduction and analysis of emotional factors, conflict, accountability and governance
14. Strategic HRM and HRM challenges.
15. Recruitment and Selection, Training, Performance appraisal and development (for local and Multinational Corporations – MNCs)
16. International HRM and specific challenges and opportunities (M&As, cross cultural implications, repatriation, etc.) within MNCs.

Intended Learning Outcomes: On completion of this module students should be able to:

1. Understand how accounting and financial management serves the purpose of developing and operating a business
2. Appreciate the regulatory environment in which financial statements are prepared and presented
3. Demonstrate ability to solve problems in finance applied to practical business scenarios
4. Apply learning to the preparation and analysis of financial statements
5. Demonstrate an understanding of the role of management accounting information
6. Appraise the role of management accounting information in planning and control and demonstrate skills in budget preparation and capital management, and their evaluation
7. Critically evaluate complex theoretical and practical issues in finance, with specific relation to investment appraisals and valuation
8. Evaluate and discuss the core principles of economics that determine how markets operate;
9. Identify and discuss how government and commercial activities impact upon the monetary system;
10. Apply microeconomic principles to reflect upon the determination of exchange rates.
11. Understand the foundations of organisational behaviour, theories and the individual / group relationship within organisations
12. Critically evaluate the role of HRM and associated policies and practices in the workplace
13. Apply key HRM theories to business scenarios
14. Demonstrate awareness of the complexities of HRM in companies operating within diverse contexts
15. Apply key theories to in international HRM to human resources issues associated with international activities

Assessment:
Online Class Test (25%)
Online Class Test (25%)
Presentation (25%)
Coursework 1 (25%)

Assessment Description: Economics - Essay 1500 words worth 25%

People and Organisations - Presentation worth 25%

Accounting - In class test worth 25%

Finance - In class test worth 25%

Moderation approach to main assessment: Moderation by sampling of the cohort

Assessment Feedback: In class test: Verbal feedback through seminars and individual written feedback

Essay: Written feedback via Canvas

Presentation: Verbal feedback and written comments

Failure Redemption: To redeem failure in this module students will be expected to resubmit a piece of coursework weighted at 100% at the next assessment point

Reading List: Collinson, David, 'Engineering Humour': Masculinity, Joking and Conflict in Shop-Floor Relations, Sage Publications Ltd., 1988-04-01.ISBN: 01708406
Fine, Gary Alan ; Corte, Ugo, Group Pleasures: Collaborative Commitments, Shared Narrative, and the Sociology of Fun, 2017.ISBN: 07352751
Roy, Donald F., "Banana Time" Job Satisfaction and Informal Interaction, The Society for Applied Anthropology, 1959-12-01.ISBN: 00187259

Additional Notes: Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus.

This is a module for the MSc Engineering Leadership and Management programme, but it may also be accessed as a stand-alone option for continued professional development and visiting/exchange students.

MN-M581 Enterprise, Innovation and Intellectual Property

Credits: 10 Session: 2023/24 January-June

Pre-requisite Modules:

Co-requisite Modules:

Lecturer(s): Prof GH Davies, Dr S Roderick

Format: 7 x 2 hour lectures
6 x 1 hour seminars

Delivery Method: A blended teaching and learning approach delivered over 2 weeks involving intensive learning and teaching and the production and presentation of an assessed white paper assignment. In Week 1 there will be a series of masterclass lectures followed by workshop and tutorial based seminars. In week 2, the focus will be on student group learning and reflection, culminating in the production of the white paper assignment for presentation. This module will be delivered by academics and guest speakers (expert witnesses in the industry area), under the oversight of the academic team.

Module Aims: This module will explore the key concepts of innovation as applied to the creation, development and operation of an organisation, with particular focus on tech, high tech small as well as large firms. Legal (principles and purpose of company law) and financial (an understanding of strategic financing and the structuring of engineering entities) frameworks associated with the commercialisation of products will be introduced. Creativity within the context of new venture/division development, and the concept of entrepreneurial leadership will be explored.

Module Content: Indicative Syllabus:
1. Introduction to theory of Innovation and enterprise
2. Introduction to entrepreneurship and entrepreneurial leadership and related concepts (entrepreneurial mindset)
3. Introduction to company law and defining principles and awareness of company law, and legal frameworks surrounding tech entrepreneurship
4. Introduction to the legal and financial frameworks around related issues to company formation, tax and financial reporting
5. Appraising and critiquing case studies encompassing strategic approaches to company formation and financing, and to established organisations.
6. Introduction to Intellectual Property (IP), related issues and managing IP
7. Theoretical underpinnings and critical application of value creation through IP and commercialisation
8. Theoretical underpinnings and practical application of realising value through Innovation

Intended Learning Outcomes: On completion of this module students should be able to:

1. Critically evaluate principles, processes and frameworks linked to adoption of innovation principles and of translating innovation in technology organisations
2. Critically appraise and discuss views and opinions relating to entrepreneurial values development, values, skills, and their application to real world problems
3. Evaluate the function of entrepreneurship within the employed environment (discussing the nature of intrapreneurship)
4. Critically evaluate the principles and purpose of company law
5. Critically review the legal and financial frameworks linked to company formation
6. Appraise strategic approaches to company financing
7. Critically appraise strategic approaches to intellectual property (IP) generated from the exploration, technical development and application of technology endeavours
8. Critically review start-up enterprise in the technology space
9. Critically review global acquisition and mergers in the technology space
10. Critically review the development of a shared services model for innovation
11. Critically review the application of commercialisation within the technology space
12. Apply learning, understanding and awareness to a critical appraisal of the value created and realised through enterprise and innovation in the organisations

Assessment: Coursework 1 (100%)
Resit Assessment: Coursework reassessment instrument (100%)

Assessment Description: 100% individual assignment (2500 words made up of 7 tasks to be completed)
Moderation approach to main assessment: Moderation by sampling of the cohort
Assessment Feedback: Coursework: Written feedback via Canvas Presentation: Verbal feedback on the day
Failure Redemption: To redeem failure in this module students will be expected to resit a piece of individual coursework (2500 words) and this will be weighted at 100%
Additional Notes: Delivery of both teaching and assessment will be blended including live and self-directed activities online and on-campus. This is a module for the MSC Engineering Leadership and Management programme, but it may also be accessed as a stand alone option for continued professional development and visiting/exchange students. This module is available to incoming exchange/visiting students, if there are any linked pre-requisites students will need to provide a copy of their transcript to assess suitability. Please email s.l.lacey@swansea.ac.uk for more information. Please note - SOM Postgraduate taught modules are not available to undergraduate study abroad exchange or visiting students.