NANYANG INSTITUTE OF MANAGEMENT 南洋管理学院

Abertay University

Module Synopses

Master of Science in Construction and Project Management

Awarded by Abertay University

Total numbers of Modules - 7

Module & Description	Hours	Credits
1. Environmental Management (EEM500) Provides students with a series of practical management tools with which environmental issues can be managed, within both the public and private sector. Students are enabled to examine the policy, legal and ethical framework in which projects operate and to develop the necessary skills to manage diverse teams in a sustainable manner. **Brief description:** Increasingly many organisations have recognised that the environment is a management issue and not just a matter of legislative compliance. This module presents a series of practical management tools with which environmental issues can be managed, within both the public and private sector. This module enables those interested in the role of project management to examine the policy, legal & ethical framework in which projects operate and to develop the necessary skills to manage diverse teams in a sustainable manner. **AIM:** The module aims to provide an understanding of the practical application of environmental management and its role in the strategic development and operation of organisations and activities; to provide an understanding of environmental assessment tools to support the decision-making process and provide the skills and knowledge required to manage the project development process effectively, safely and in a sustainable manner. **Learning Outcomes** By the end of this module the student should be able to: 1. Understand the policy, legal & ethical issues and critically evaluate the social, economic and technical factors, which influence environmental management to operate and plan sustainable projects. 2. Appraise the environmental performance of an organisation or activity and recommend appropriate measures to minimise pollution, in the short-term and long-term and design appropriate control systems 3. Undertake a project appraisal involving a range of investment and operational options and make judgments on priority; taking into account cost and environmental considerations. 4. Examine the leadership traits required to achieve successful project outcomes and evaluate the effectiveness of health and safety practices in reducing workplace risk.	45	20

Indicative Content: 1. Sustainable Development Definitions, approaches, assessment and enhancement frameworks. Policy, legal & ethical frameworks. Comparison of EU Environmental Legislation with other Zones, eg Asia, USA, Africa. 2. Management Systems Environmental Management Systems (EMS) Environmental Impact Assessment (EIA) Life Cycle Analysis or Assessment (LCA) Carbon management and carbon sequestration 3. Environmental decision support tools Environmental decision support tools such as economic evaluation, cost-benefit analysis, risk assessment, multi criteria analysis in the context of the development of priorities for sustainable development. 4. Planning and programming tools Planning and programming tools and techniques, cost estimation and cost control systems, Quality and Environmental Management systems. 5. Project Leadership Role of the project leader and making the difference as a project leader, effective decision making, solving complex problems, team development and leading people. 6. Health & Safety Duties and liabilities of employer and employees, purpose and role of health and safety risk assessments and method statements, ethical issues in managing health and safety. 7. Project and on-going management Project and on-going management, including business efficiency projects e.g. PPC Permitting, ISO14001		

Module & Description	Hours	Credits
2. Innovation in Design (EEM516) **Brief description:** This project module focuses on the theory and practice of identifying and implementing innovation of products and systems in organisations. It provides an opportunity for students to critically reflect on analytical, design, planning and evaluation tools that have been included in the programme and to apply these to the design and construction processes of a project that requires innovation and mimics the real-world feasibility design stage of a Civil and Environmental Engineering project. **Aims:** The aim of this Module is to provide the student with the opportunity to work with others as part of a professional team, integrating skills learned in previous modules, along with self-study, CPD events and informed research within the teaching team and using problem solving to produce innovative engineering design solutions. **Learning Outcomes:** By the end of this module the student should be able to: 1. Analyse and critique processes and practices that support innovation in design and construction. 2. Work as part of a professional design team to produce creative and innovative design	45	20

options to a given brief, undertaking appropriate research activities to access and apply information. 3. Work as part of a professional design team to develop and apply a decision support framework to appraise design options, giving due regard to sustainability and health and safety aspects. **Indicative Content:** 1. Innovation Practice Understanding the construction market, PEST and SWOT; role of PEST and SWOT in delivering business strategy; business models that support innovation; learning from innovation failure. 2. Case Study Brief Meeting with practitioners and academic supervisors/researchers to review case study briefs and other available information. 3. Development of Options Group synthesis of innovative options, including self study and research as required. 4. Option Appraisal Review and assessment of options using an integrated decision support framework that includes sustainability indicators.		
3. Project Management (BMT530) The complexity of project management and the tools and techniques to support successful management. Carry out an investigation into a project failure and recommend alternative actions which could have been taken. Module content: Project analysis and planning; Managing projects; Project management methodologies. **Brief description:** Increasingly many organisations have recognised that the environment is a management issue and not just a matter of legislative compliance. This module presents a series of practical management tools with which environmental issues can be managed, within both the public and private sector. This module enables those interested in the role of project management to examine the policy, legal & ethical framework in which projects operate and to develop the necessary skills to manage diverse teams in a sustainable manner. **Aims:** This module introduces the student to different tools techniques and practices used within project management. It also examines the complexity of managing projects and reason for project failure. The module will be heavily influenced by the internationally recognised professional project management standards developed by the Project Management Institute and PRINCE2. **Learning Outcomes:** By the end of this module the student should be able to: 1. Integrate a wide knowledge of management theories and practices within the area of project management to solve problems. 2. Demonstrate a critical understanding of project management theories, concepts and principles. 3. Apply a wide range of professional project management skills, techniques and practices.	45	20

Indicative Content: 1. Managing Change Why projects fail; developing a change strategy management; impact of organisational culture on change; Roles and responsibilities within project management; Governance; 2 Development approaches Traditional approaches: lifecycle models, Prince2, iterative approaches; Newer PM approaches: SCRUM; rapid applications development; Project phases in PMBOK 4 3. Project Initiation Developing and interpreting specifications and project objectives; Understanding the relationship between quality, cost and time; Stakeholder analysis and management; aligning to the organisations strategy and project justification 4. Project Planning Analysing project requirements and sub-tasks; Estimating timelines; deadlines and milestones and activity durations; Constructing a project schedule; Resourcing projects; Allocating and smoothing resources; Using Gantt charts to allocate and monitor resource allocation; Using project management software. 5. Project Execution Client and supplier management; monitoring progress; Quality management; Leadership and team management 6. Project Control Dealing with project risk; Evaluating the probability and potential impact of risk; contingency planning for risk management; project tracking and revision to completion; Evaluating project delivery and management: Analysing the effectiveness of project management processes and the impact of project delivery and non-delivery. Reporting progress. 7. Project Closure Evaluating project delivery and management: Analysing the effectiveness of project management processes and the impact of project delivery and non-delivery; Learning lessons; project acceptance		

Module & Description	Hours	Credit
4. International Business and Management (BMT406) The different approaches to management of organisational resources in different international settings and of the practical challenges of cross-cultural management. Module content: Introduction: The theoretical background; International business strategies; International and cross-cultural management; Managing in international context - culture and communications; Contemporary issues in managing international business. **Brief description:** This module provides a framework for the study of the challenges of managing in complex international business environments. **AIM:** The aim of this Module is to provide the student with an understanding of the different approaches to the management of organisational resources in different international settings and of the practical challenges of cross-cultural management.	45	20

Learning Outcomes: By the end of this module the student should be able to: 1. Analyse the relationship between national culture, organisation behaviour, and management practice 2. Evaluate the effects of globalisation / internationalisation of business 3. Analyse the recent trends and development of international business and their impacts on managing multiple context organisations 4. Evaluate contemporary issues in the management of international business **Indicative content:** 1. Introduction: The theoretical background Globalization and international business; Analysis of international external business environment; political factors; economic factors; social factors; technological factors and implications for international managers; International trade theories and practices. 2. International Business Strategies Strategy and international business; Country evaluation and selection; Export and Import strategies; Direct investments and collaborative strategies. 3. International and cross-cultural management International Dimensions of Culture: Understanding various dimensions of culture; Hofstede's (1980) National Culture Approach and Trompenaars (1993) Cultural Dimensions. Implications for International Managers. Managing employee relations in multiple contexts 4. Managing in international contexts Culture and Negotiations: Understanding the relationship between culture and negotiations; how to reconcile possible conflicts regarding differences in culture and negotiations. 5. Contemporary issues in managing international business. Managing international work assignments, Understanding the implications of CSR on MNE decision making.		

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5. BIM & Asset Management (EEM508) This module examines BIM principles investigating the: 1) discipline-specific BIM perspectives and 2) digital tools for central, efficient, and secure sharing of data/information on physical and functional characteristics of a structure, forming a reliable basis for decisions from earliest conception to demolition. **Aims:** The aim of this Module is to provide the student with an understanding of the different discipline-specific BIM perspectives, as well as available digital tools for central, efficient, and secure sharing of data/information on physical and functional characteristics of a structure. **Learning Outcomes:** By the end of this module the student should be able to: 1) Discuss the benefits and limitations of Building Information Modelling (BIM) 2) Understand discipline-specific BIM perspectives 3) Use digital tools for central, efficient, and secure sharing of data/information on physical and functional characteristics of a structure, forming a reliable basis for decisions from earliest conception to demolition. 4) Demonstrate a sophisticated level of knowledge and understanding of the engineering methodologies and tools in the field of BIM	45	20

Module & Description	Hours	Credit
6. Research Methods (GRS501) **Brief description:** This module is designed to introduce postgraduate students to research methods and statistical analysis. Theoretical, historical and statistical concepts are taught in lectures with hands on practical lab sessions using both quantitative and qualitative techniques that allow students to put theory into practice **Aims:** The aim of this module is to provide the student with a critical understanding of theories, concepts and principles of research methodology and the range of methods used in conducting research in different disciplines; and, to give the student the skills and knowledge necessary to undertake an original in-depth investigation in those fields **Learning Outcomes:** By the end of this module the student should be able to: 1. Critically review current knowledge in a specified area, and establish its status and limitations 2. Identify, conceptualise and define a research question(s) and justify its relevance to practice and its significance as a potential contribution to existing knowledge. 3. Select and justify a research methodology to meet specified research aims and objectives. 4. Critically analyse and interpret primary/secondary research data (quantitative and/ or qualitative), testing for validity and reliability of the results. **Indicative content:** 1. Introduction to Research The nature and purpose of research; different types of research (quantitative qualitative, mixed methods, developmental, practice based) and their mapping within different philosophical paradigms (positivism, interpretivism, pragmatism); strengths and weaknesses. 2. Dealing with Practical Issues, Ethics The research process; identifying a research topic and setting research objectives; developing a research strategy; characteristics of a good research project; ethical issues in conducting research. 3. Searching and Reviewing the Literature The purposes and main steps of a literature review; searching, evaluating, organizing and synthesizing the relevant literature; and, writing a literature review and managing bibliographic records. In addition, developing research questions for qualitative and quantitative research; and identifying characteristics/attributes 4. Data Collection and Analysis Approaches to data collection and analysis (quantitative, qualitative, mixed-methods, iterative); questionnaire design; populations, samples, and sampling methods; data Mining. 5. Writing your Research Proposal Identifying a research problem or issue, the purpose of the research and the main research question(s); choosing the research strategy and methods; writing a research proposal. In addition: discussing findings, formulating conclusions, making recommendations, and reporting; planning, executing, writing up, and submitting a dissertation.	45	20

6. Descriptive Statistics for Quantitative and Qualitative D Summarizing and visualizing data sets; finding trends in data and formulating a research hypothesis. 7. Introduction to Probability and Statistical Inference Basic concepts of probability and probability distribution; discrete and continuous random variables; basic probability distributions; introduction to the hypothesis testing procedure. 8. The Hypothesis Testing Procedure Parametric and non-parametric tests; Chi-squared Test for Association; Independent Sample t-Test; One and Two Way Analysis of Variance ANOVA; power calculation and sample size estimation. 9. Correlation and Regression Relationship between two numeric variables, dependent and independent variable; Pearson's Correlation Coefficient; Simple Linear Regression. 10 Multiple Regression Multiple Regression Analysis and introduction to the General Linear Model.		

Module & Description	Hours	Credit
7. MSc Dissertation (EEM517) **Brief description**: Individual in-depth investigation of a particular aspect of their own specialism. **Aims:** To provide the student with: An opportunity to undertake individually an in-depth investigation in a relevant area of interest within an applied context in industry, consolidating theory and examining practice and providing a basis for the writing of a substantial dissertation **Learning Outcomes:** By the end of this module the student should be able to: 1. Critically evaluate and select an appropriate area of investigation 2. Plan, design and undertake a programme of research in the selected subject area, working individually, demonstrating time and goal management 3. Gather, collate, present and analyse information and use the information to make deductions 4. Demonstrate an ability to communicate the findings and implications of the research programme in a written thesis and during a Viva Voce examination Indicative Content ● Nature of project (1): Projects may be based on any aspect of technical and operations, management, economics, environmental or social impact ● Nature of project (2): Projects may involve: an experimental investigation; a dissertation involving survey, collation and critique of collected information ● Nature of project (3): Projects may involve modelling or simulation of data, development of frameworks or systems to improve practice	24	60