

# MSc Project Management - E501

## 1. Aim and Objectives

The aim of this Programme is to provide the private and public sectors with effective Project Leaders and Managers. Successful Project Managers will have demonstrated the ability to:

- a) write project definitions, including its requirements, risks and specifications, identify possible problems, quality requirements and decision making criteria;
- b) generate ideas in order to solve problems, seeking expert advice including information sourcing;
- c) plan and control all project activities and resources; and
- d) communicate and work effectively with people to a good professional standard.

## 2. General Entry Requirements

Successful completion of an undergraduate degree with

- at least a Second Class or 50%, whichever is applicable or
- a GPA not less than 2.5 out of 4 or equivalent, from a recognised higher education institution.

**OR** alternative qualifications acceptable to the University of Mauritius.

## 3. Programme Requirements

Preference will be given to candidates having at least two years of relevant work experience.

## 4. General and Programme Requirements – Special Cases

The following may be deemed to have satisfied the General and Programme requirements for admission:

- (i) Applicants who do not satisfy any of the requirements as per Regulations 2 and 3 above but who submit satisfactory evidence of having passed examinations which are deemed by the Senate to be equivalent to any of those listed.
- (ii) Applicants who do not satisfy any of the requirements as per Regulations 2 and 3 above but who in the opinion of Senate submit satisfactory evidence of the capacity and attainments requisite to enable them to pursue the programme proposed.
- (iii) Applicants who hold a full practising professional qualification obtained by examination.

## 5. Programme Duration

The Programme will be offered on a part-time basis. The duration of the Graduate Programme should normally not exceed 4 years (8 semesters).

	<b>Normal</b>	<b>Maximum</b>
Master's Degree:	4 Semesters	8 Semesters
Postgraduate Diploma:	4 Semesters	8 Semesters

## 6. Credits per Semester: Minimum 3 credits subject to Regulation 5.

## 7. Minimum Credits Required for the Award of

Master's Degree: 36  
Postgraduate Diploma: 24

Breakdown as follows:

	<b>Core Taught Modules (Minimum)</b>	<b>Project</b>	<b>Electives/ Optional Modules</b>
Master's Degree:	18 credits	9 credits	9 credits
Postgraduate Diploma:	18 credits		6 credits

## 8. Assessment

Each module will carry 100 marks and will be assessed as follows (unless otherwise specified):

Written examination of 3-hour duration and continuous assessment of 10% to 30% of total marks.

Continuous assessment can be based on laboratory work, assignments and/or 1 class test.

For a student to pass a module, a minimum of 30% should be attained in both of Continuous Assessment and Written Examination separately, with an overall total of a minimum of 40% in that module.

All modules carry equal weighting.

The Project carries 9 credits.

### **Submission Deadlines for Dissertation:**

First Draft: End of July of Final Year.

Final Copy: Last working day of August of Final Year.

## 9. Plan of Study

Students are required to submit at the end of Semester 1 a Plan of Study for their whole Programme of Studies, indicating the list of elective modules and in which semester each of them will be taken.

The University reserves the right not to offer a given elective module if the critical number of students is not attained and/or for reasons of resource constraints.

## 10. Important Note

The rules as stipulated in this Programme Structure and Outline Syllabus will replace all other rules and regulations found in previous Programme Structures.

## 11. List of Modules

<b>Code</b>	<b>Module Name</b>	<b>Hrs/Wk L+P</b>	<b>Credits</b>
<b><u>CORE MODULES</u></b>			
ENGG 6101	Principles of Project Management	3+0	3
ACT 5112	Project Economics and Finance	3+0	3
CSE 6005	Management Information Systems	3+0	3
ENGG 6202	Research Methods	3+0	3

ENGG 6305	Procurement Management	3+0	3
MGT 5212	Human Resources & Quality Management	3+0	3

### **PROJECT**

ENGG 6000	Research Project	-	9
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### **ELECTIVES**

LAW 5401	Legal Aspects of Project Management	3+0	3
MECH 6101	Managing Quality	3+0	3
MECH 6306	Production and Operations Management	3+0	3
ENGG 6410	Asset Management	3+0	3
MECH 6409	Maintenance Management	3+0	3
CIVE 6207	Construction Management	3+0	3
MECH 6410	Energy Management	3+0	3
CIVE 6402	Integrated Infrastructure Planning and Development	3+0	3
ENGG 6411	Concession Projects	3+0	3

### **SPECIALISED ELECTIVES**

MGT 5111	Marketing Management	3+0	3
SCDV 5101	Perspectives on Social Development	3+0	3
CIVE 6102	Environmental Management I	3+0	3
CSE 6105	Computer Organisation and System Software	3+0	3
CSE 6006	Knowledge Based Systems & Expert Systems	3+0	3
ELEC 6422	Communications Systems Management	3+0	3
CSE 6209	Software Project Management	3+0	3
CIVE 6403	Applications of GIS	3+0	3

## **12. Programme Plan - MSc Project Management**

YEAR 1							
Semester 1				Semester 2			
Code	Module Name	Hrs/Wk L+P	Credits	Code	Module Name	Hrs/Wk L+P	Credits
CORE				CORE			
ENGG 6101	Principles of Project Management	3+0	3	ACT 5112	Project Economics and Finance	3+0	3
MGT 5212	Human Resources and Quality Management	3+0	3	ENGG 6202	Research Methods	3+0	3
CSE 6005	Management Information Systems	3+0	3				
YEAR 2							
Semester 1				Semester 2			
Code	Module Name	Hrs/Wk L+P	Credits	Code	Module Name	Hrs/Wk L+P	Credits
CORE				CORE			
ENGG 6000	Research Project	-	-	ENGG 6000	Research Project	-	9
ENGG 6305	Procurement Management	3+0	3				

**ELECTIVE****ELECTIVES**

One Elective Module

3+0

3

Two Elective Modules

6

**NOTE:**

Only one General Education Module may be taken in lieu of any one of the 3 Elective Modules.

Each module will consist of 45 contact hours (this includes lectures, tutorials, seminars, workshops, external visits, etc.). The total contact (taught) hours of the course therefore will be 405 hours. The Research Project will involve 180 working hours including direct supervision by a member of academic staff and/or an external supervisor.

A minimum of 6 contact hours is scheduled per week (3 hours on a weekday and 3 hours on Saturday). However, candidates are expected to attend on a daily basis, for a period of two weeks, normally after 4 p.m., those modules which are taught by visiting lecturers.

The Faculty reserves the right to change the order in which the modules are offered.

**13. Outline Syllabus****ACT 5112 - PROJECT ECONOMICS AND FINANCE**

Introduction to the Mauritian Economy - Major Projects in the Economy - Economics of Projects - Costing - Projects and Productivity - Estimating and Competitive Tendering - Investment Appraisal - Cash Flow and Financing Projects.

**CIVE 6102 - ENVIRONMENTAL MANAGEMENT 1**

Concept of sustainable development; Environmental management tools; EIA; EMS; Environmental legislation; Environmental audits; Waste audits; Risk assessment; Case studies; Environmental problems in Mauritius; Economic Tools to encourage pollution control.

**CIVE 6207 - CONSTRUCTION MANAGEMENT**

Planning and Programming - Temporary works layout, Construction Methods and Sequence, Work breakdown structure - Estimating duration, CPA - Cost estimating, Monitoring and Control - The tender process, rate build up, system relationships - Alternative estimating models - Construction productivity measurement and improvement - Risk Management in Construction - Construction safety - Site layout, Site security.

**CIVE 6402 - INTEGRATED INFRASTRUCTURE PLANNING AND DEVELOPMENT**

Importance of Infrastructure Planning and Management. Systems Approach to Infrastructure Planning. Primary and Secondary Effects of Infrastructure Development. Demand Analysis and Economic Activity. Spatial Organisation and Multipurpose Infrastructure Planning. Regional Infrastructure Development. Energy Implications. Objectives, Economics and Multiobjective Evaluation Criteria. Environmental Planning in Infrastructure Development. Project Funding Schemes/Alternatives. Issues in Infrastructure Management. Social Aspects. Economic Impact of Infrastructure. Orienting Infrastructure towards Demand. Case Study.

**CIVE 6403 - APPLICATIONS OF GIS**

Fundamental concepts of GIS. Spatial Data Structures. Referencing. Vector and Raster Analysis. Geographic Data Processing and Reporting. Applications of GIS in Domains such as Water Resources, Solid Waste Management, Agriculture, Land Use Planning, Transport. GIS as a Decision-making Tool, based on Statistical Analysis.

**CSE 6005 - MANAGEMENT INFORMATION SYSTEMS**

Introduction to Information Systems and their requirements. Early development in IS, conventional systems analysis, comparisons and problems. IS Methodologies. Systems approaches, planning approaches, participation, prototyping, structural methodologies, data analysis. Tools. Databases management systems, Query language, project management tools, expert systems. Methodologies - SSADM, SSM, etc. Selection and use of systems. Decision support systems, distributed computing and autonomous agent technology. Databases.

**CSE 6006 - KNOWLEDGE BASED SYSTEMS & EXPERT SYSTEMS**

Introduction to Artificial Intelligence. Knowledge representation: formal and non-formal problem solving strategies. Dealing with uncertainty. Expert system development process. Expert system tools.

**CSE 6105 - COMPUTER ORGANISATION AND SYSTEM SOFTWARE**

Digital Logic. Components of Computer. Evolution of Computers. Operating Systems. Computer Networks.

**CSE 6209 - SOFTWARE PROJECT MANAGEMENT**

Introduction to Software Project Management. Nature of Software Production. Software Measurement. Effective Management. Role of Software Project manager. Planning the Software Project. Business Planning. Technical Planning. Managing the Software Project. Project Control. Quality Control & Quality Assurance. Risk Management. Team Management. Maintenance Management. Evaluating the Project.

**ELEC 6422 - COMMUNICATIONS SYSTEMS MANAGEMENT**

Concept and Theory. Switching. Channels. Protocols. Topologies. Network Management. Planning. Security. Operational Management. Telecoms Policy Issues. Regulatory Issues. Convergent Technology. Legislation. Communication Services. ISDN. Mobile. Cable Based. Features (Tariff). Criteria for Selection. Emerging Technologies. E-commerce. ATM. Frame Relay. Multimedia Communication. Standards. Integration. Human Computer Interaction. Human Interface Features. Response. Optimal Information Handling. Managing Groupware Products and Services.

**ENGG 6000 - PROJECT**

The objectives:

1. to develop an ability to undertake research, analysis or design given an appropriate level of supervision;
2. to develop objectives and program of work;
3. to collect information, assess it and present it in an orderly and coherent form; and
4. to be able to work a document which presents clearly findings related to the study.

**ENGG 6101 - PRINCIPLES OF PROJECT MANAGEMENT**

Introduction to Principles of Project Management. Planning and Programming. Procurement Budgeting and Estimating. Project Control. Quality Management. Risk Management. Strategic Management. Project Appraisal. Project Completion Report. Case Studies.

**ENGG 6202 - RESEARCH METHODS**

The Research Concept. The Research Process. Surveys and Sampling Design. The Choice of Analysis, review of basic statistics, regression analysis, analysis of variance, multiple regression, hypothesis testing, dummy variable in regression, one way ANOVA, theory and application of maximum likelihood methods.

**ENGG 6305 - PROCUREMENT MANAGEMENT**

Basic steps in procurement, purchase planning, partners in a supply chain. Supplier audit and ethics in procurement. Public Procurement, Transparency and Equity. Risks and Relationships in Procurement Management. Cost reduction techniques including tendering procedures and negotiation. Supply contracts and common supply chain problems. Market information and sourcing for goods and services. Quality control and relevant regulations for ensuring safety in procurement. Environmentalism and green-purchasing. Product cycles and extended product responsibility.

**ENGG 6410 - ASSET MANAGEMENT**

Defining the position of asset management within the corporate business - Establishing an asset maintenance policy - Role of the asset manager - Selecting appropriate maintenance management strategies - Techniques for predicting and minimising operating costs - Choosing a suitable procurement option - Information management and feedback.

**ENGG 6411 - CONCESSION PROJECTS**

The BOT Concept. Characteristics of BOT Projects. Economic Framework for BOT Schemes. Government's Role: Legal and Administrative Framework. Technology Transfer and Capacity Building. Procurement Issues and Selection of Sponsors. Financial and Economic Appraisal. Risk Identification and Management. Financial Structuring. The Concession Agreement for the Project, for Construction, for Operation & Maintenance and for Transfer. Case Studies.

**LAW 5401 - LEGAL ASPECTS OF PROJECT MANAGEMENT**

Introduction to Law. Brief Overview of Sources of Law and the Mauritian Legal System. Environmental and Safety Law. Contract. Formation and Conditions of Validity of a Contract. Effects of a Contract. Inexecution of a Contract. Alternative Dispute Resolution. Arbitration.

Le Contrat d'Entreprise. Les Obligations de l'Entrepreneur. La Sous-Traitance. La Co-Traitance. Les Obligations du Maître de l'Ouvrage.

Terms and Conditions of a Few Standard Contracts.

Brief Overview of Labour Law. Types of Contract. Rights and Duties of Employers and Employees. Disciplinary Measures including Dismissal.

**MECH 6306 - PRODUCTION AND OPERATIONS MANAGEMENT**

The Production and Operations function - Production Planning and Control, Scheduling, Loading, Forecasting - Work Study, Ergonomics and plant Lay-out - Materials Management: Deterministic and Probabilistic Models, MRPI, MRPII, JIT - Decision-making Techniques: Linear Programming & Sensitivity Analysis, Transportation, Queuing and Simulation - New trends in Production and Operations Management.

**MECH 6409 - MAINTENANCE MANAGEMENT**

Overview and Historical Development of Maintenance. Maintenance Strategies. Maintenance Engineering (Plant Availability, Reliability, Reliability-Centred Maintenance, Rehabilitation). Plant Maintenance. Maintenance Costs. Management of Maintenance. Condition Monitoring Concepts. Principles and Economics. Vibration Based Condition Monitoring. Oil Based Condition Monitoring. Life Cycle Costing. Design and Manufacture Considerations. Non-Destructive Testing Techniques. Failure Mechanisms and Safeguard against them.

**MECH 6410 - ENERGY MANAGEMENT**

Fundamental principles of energy management. Auditing including: Energy Auditing, Energy Technologies, Cogeneration, Waste Heat Recovery, Economic Analysis and Methods of Energy Project Evaluation, Energy Management Systems.

Case Studies dealing with initiating, organising and managing energy management programs.

**MGT 5111 - MARKETING MANAGEMENT**

The module introduces the foundation of marketing management and its key concepts: the Marketing Concept, Customer Satisfaction and Customer Value. Topics covered will include: evolution in Marketing Management philosophy; the marketing environment (Internal and External environment); the marketing research process; Consumer and Business buying behaviour; Market segmentation, positioning and targeting; The Marketing mix: product, price, promotion and distribution strategy of firms; Social Responsibility and green marketing.

### **MGT 5212 - HUMAN RESOURCES AND QUALITY MANAGEMENT**

Managing and the Environment: the Management Challenge, the Evolution of Management Environment, Social Responsibility, and Ethics, the Global Management Environment. Planning: Decision Making, Planning, Strategy. Organising: Organisational Structure and Design, Job Analysis, Design, and Redesign Human Resource Management. Leading: Group Dynamics and Team Building, Motivation, Leadership, Interpersonal and Organisational Communication. Controlling: Control Systems, Managing Production and Operations, Managing Services, Managing Organisational Change. Growth, Technology and Innovation: Entrepreneurship and Growth, Technology and Innovation. Behavioural Issues in Quality Management: The role of management in sustaining continuous quality improvement, Culture Change & Quality, Building Commitment for Quality, Teamwork & Total Quality, Employee Involvement & Empowerment for Quality, Communication for Total Quality, Quality Training.

### **SCDV 5101 - PERSPECTIVES ON SOCIAL DEVELOPMENT**

Concepts: Social Evolution and Change. Under-development and Development; Causes and consequences of under-development and development. Obstacles to development. Dimensions and indicators: Social, economic and human development. Major theories of economic growth and development. Capitalist, Market, Mixed and Socialist form of economies. State and Social Welfare. Social Planning: National, Sectoral and Decentralised planning. Governance. People and Development: Participation, Capacity building and Empowerment.