BSC (HONS) QUANTITY SURVEYING (PART-TIME, TOP- UP) – E 413

1. PROGRAMME DESCRIPTION

Quantity Surveyors are construction and cost managers for building and civil engineering projects. They are involved from the inception of a project to the final completion and provide clients with advice and services, associated with procurement, value and cost, contract administration and project management. Quantity Surveying needs a combination of technical, economic, legal and management skills and this top-up programme provides this diversity.

The BSc (Hons) Quantity Surveying is a top-up degree programme in Quantity Surveying for students who have already been awarded a Diploma in Quantity Surveying or equivalent.

2. AIM OF PROGRAMME

The programme aims at enhancing the knowledge of students with a thorough degree level education in Quantity Surveying, so as they achieve sound understanding of the principles and practices involved in the Quantity Surveying profession.

3. OBJECTIVES OF PROGRAMME

On successful completion of the programme, the students will

- acquire an understanding of the main theories relating to the key elements of the discipline and their applications;
- have an appreciation of the different needs of the employers, users and the stakeholders in the built environment;
- have a comprehension of the legal, financial and organisational structures relating to the construction procurement;
- have the basic skills in relation to all aspects of the construction process, namely project feasibility, the preparation of tender documents, the cost planning and cost control of construction works and the effective avoidance and resolution of construction disputes;
- develop research skills comprising; the handling of large volumes of information, the analysis of issues from various perspectives and a capacity for problem solving – the identification and analysis of a problem, the research and evaluation of appropriate data;
- have the capacity to identify and apply appropriate professional judgment, reasoning and critical thinking to more complex and unfamiliar problems;
- function and communicate effectively both individually and within multi-disciplinary teams,
- obtain a solid understanding of professional and ethical responsibility and a recognition of the need for and ability to engage in life-long learning; and
- experience an academic environment that facilitates and encourages learning and retention.

4. GENERAL ENTRY REQUIREMENTS

In accordance with the University General Entry Requirements for admission to undergraduate degree

Programmes.

5. PROGRAMME REQUIREMENTS

Applicant must have been awarded the Diploma in Quantity Surveying of the University of Mauritius or have an equivalent qualification acceptable to the Department of Civil Engineering, Faculty of Engineering, University of Mauritius. They should have relevant experience.

6. MINIMUM REQUIREMENTS FOR DEGREE AWARD

MODULES	CREDITS
Departmental Core (Including final Research Year Project)	42
Departmental electives	3
TOTAL	**45**

For the award of the **BSc (Hons) Quantity Surveying**, the student must obtain at least 45 credits including 42 credits from all the core modules prescribed by the department and at least 3 credits from the departmental elective modules.

7. PROGRAMME DURATION

	Normal (Years)	Maximum (Years)
BSc (Hons) Quantity Surveying	2	4
(Part-time, Top-Up)		

8. CREDITS PER SEMESTER

Maximum 24 credits, Minimum 3 credits, subject to section 7.

Semester modules to be registered on a semester basis.
Yearly modules to be registered only once, normally at the beginning of academic year.

9. ASSESSMENT

Each module will be assessed over 100 marks (i.e. expressed as %) with details as follows (unless otherwise specified):

Assessment will be based on written examination and continuous assessment. The written examination will be of 2-hour duration for semester modules.

The continuous assessment will count for 20-30% of the overall percentage mark of the module(s).

Continuous assessment may be based on field work and/or assignments and should include at least two class tests/assignments per module.

An overall total of 40% for combined continuous assessment and written examination components would be required to pass the module, without minimum thresholds within the individual continuous assessment and written examination.

Written examinations for the semester modules will be carried out at the end of the respective semester while for yearly modules they will be carried out at the end of the academic year.

10. PROGRAMME PLAN: BSc (Hons) QUANTITY SURVEYING

LEVEL 1

SEMESTER 1 **Core modules**		**L + P**	**Credits**	**SEMESTER 2** **Core modules**		**L + P**	**Credits**
CIVE 2107(3)	Civil Engineering Measurement	3+0	3	CIVE 2201(3)	Construction Management and Planning	3+0	3
CIVE 2112(3)	Quantity Surveying 3	3+0	3	CIVE 2212(3)	Town and Country Planning	3+0	3
CIVE 2113(3)	Construction Technology	3+0	3	CIVE 2216(3)	Quantitative Methods for Quantity Surveyors	3+0	3
CIVE 2114(3)	Development Economics and Process	3+0	3	CIVE 2217(3)	Project Management	3+0	3
	TOTAL CREDITS		**12**		**TOTAL CREDITS**		**12**

LEVEL 2

SEMESTER 1 **Core modules**		**L + P**	**Credits**	**SEMESTER 2** **Core modules**		**L + P**	**Credits**
CIVE 3002Y(5)	Research Project		-	CIVE 3201(5)	Professional Development Project	3+0	3
CIVE 3101(5)	Construction Law	3+0	3				
CIVE 3112(5)	Contract Administration	3+0	3	CIVE 3002Y(5)	Research Project		6
	Elective	3+0	3	CIVE 3203(5)	Health and safety Management and Costing	3+0	3
TOTAL CREDITS			**9.0**	**TOTAL CREDITS**			**12**

11. LIST OF MODULES

CORE MODULES			HRS/WK L+P	CREDITS
ENGINEERING				
CIVE	2107(3)	Civil Engineering Measurement	3+0	3
CIVE	2112(3)	Quantity Surveying 3	3+0	3
CIVE	2113(3)	Construction Technology	3+0	3
CIVE	2201(3)	Construction Management and Planning	3+0	3
CIVE	2212(3)	Town and Country Planning	3+0	3
CIVE	2216(3)	Quantitative methods for Quantity Surveyors	3+0	3
CIVE	2217(3)	Project Management	3+0	3
CIVE	2114(3)	Development Economics and Process	3+0	3
CIVE	3002Y(5)	Research Project		6
CIVE	3101(5)	Construction Law	3+0	3
CIVE	3112(5)	Contract Administration	3+0	3
CIVE	3201(5)	Professional Development Project	3+0	3
CIVE	3203(5)	Health and Safety Management Costing	3+0	3
ELECTIVE 1				
ENGINEERING				
CIVE	3116(5)	Integrated Infrastructure Planning and Development	3+0	3
CIVE	3119(5)	Environmental Management and Technology	3+0	3

12. OUTLINE SYLLABUS

CIVE 2107(3) - CIVIL ENGINEERING MEASUREMENT (3 CREDITS)
Measurement practice in: Complex earthworks measurement utilising grids & levels and balanced cut and fill. Roads. Structural steelwork. Structural timber structures. Fire protection. Insitu concrete, formwork and reinforcement to frames and upper floors. RC concrete – beams, slabs, columns, Retaining walls, Foundations. Blockwork. Doors and door adjustments.

CIVE 2112(3) - QUANTITY SURVEYING 3 (3 CREDITS)
Design influences on construction costs; Measurement of large-scale and high rise construction projects. Waterproofing. Measurement of Building Services with particular regard to large scale, complex installations, commercial and industrial buildings. Extension and Innovation works. Comparative measurement exercises, utilising the current SMM, CESMM, SMMIEC and Approximate Quantities. The production and analysis of computer generated quantities with regard to the different measurement conventions, use of software.

CIVE 2113(3) – CONSTRUCTION TECHNOLOGY (3 CREDITS)
Advanced building techniques; technological change and innovation; alterations and upgrading of existing buildings; property maintenance; advanced building services and control systems - the principal technologies involved, with particular regard to the implications of large scale and complex installations; advanced technological solutions appropriate to commercial and industrial buildings, civil engineering technologies in application for: Advanced foundation construction, and ground water control. Deep basement excavation and construction & waterproofing. Multi-storey framed construction. Specification and construction techniques with regard to high rise buildings. Upper floor construction. External envelope construction. Accommodation of building movement. Active and passive fire protection.

CIVE 2114(3) - DEVELOPMENT ECONOMICS AND PROCESS (3 CREDITS)
General economic theory The assumptions underlying the equilibrium model. Indifference curves, the types and sources of data available. Investment in property Performance of property as a medium for investment. Development, appraisal and evaluation. DCF techniques in property investment appraisal. Property and the economy. Growth theory and property within a global setting. Welfare economics Public & private sector distinction. Profit maximisation Vs Welfare maximisation, Cost benefit analysis (CBA) Value management Value management (VM) concept and techniques, and process, application of VM in construction projects, Functional

Analysis, tools and techniques Life cycle costing and Whole life costing. The concept of total cost of buildings, concept of obsolescence, relationship between life of building and components to cost, initial, running and maintenance costs, applications in building projects Cost modelling, The concept of cost modelling, developing the theory of cost modelling, the historical development, future of cost modelling, applications in cost planning and control.

CIVE 2201(3) - CONSTRUCTION MANAGEMENT AND PLANNING (3 CREDITS)
Composition and Dynamic nature of the construction environment, industry development. Structure and nature of the industry. Project Definition and establishment of client objectives. Feasibility studies· Risk analysis and management, Organisation structures of construction firms.· Management of the construction process.· Planning, critical path network, programming, method statement.· Site organisation-function, layout, problems of constricted sites.· Material Management, Plant Management. Quality Assurance as a management concept. Strategies for Building Maintenance.

CIVE 2212(3) - TOWN AND COUNTRY PLANNING (3 CREDITS)
National, regional and local planning. The origins of planning in Mauritius. Planning procedures, preparation of plans for development and development control. Planning Legislations and organisations.

CIVE 2216 (3) - QUANTITATIVE METHOD FOR QUANTITY SURVEYORS
This module will equip students with the underpinning skills necessary for them to undertake a project dissertation. It also provides students with the understanding of processes and statistical tools to plan, implement and evaluate a research based study. Sessions looking for computing skills, questionnaire design, amongst others will be covered. Students will be expected to formulate their project ideas at the end of the module.

Data collection Sources of error - Effective presentation of data, using a spreadsheet Tabulation Pictorial representation - Descriptive statistical measures Central tendency (mean, median, mode) Dispersion (standard deviation, range, inter-quartile range) Interpretation of Data Linear Regression Probability Models Correlation

CIVE 2217(3) - PROJECT MANAGEMENT (3 CREDITS)
The challenges of managing people in the construction industry considering team composition and the dynamic nature of the construction environment. Managing and leading effective construction project teams whilst considering the cultural and behavioural implications. Managing human resources, project participants and stakeholders in the construction project. Project Management as a process to include the systems and strategies required to successfully manage construction projects. The professional practice of managing project lifecycle in accordance to standardised guidelines such as CIOB or Prince2. Managing Risk as a live and ongoing process as part of a project team. Establishing Value Drivers as part of project objectives and identifying opportunities to enhance value.

CIVE 3002Y(5) – RESEARCH PROJECT (6 CREDITS)
This is a 6 credit module that is designed to allow a student to learn and apply the independent research skills that are expected from an honours degree graduate when investigating a relevant issue of their own choice. The student will be required to undertake a piece of critical, reflective academic research that will result in the production of a dissertation relevant to their chosen honours degree. Supporting guidance and personal support will be provided by the module project supervisor. Assessment will be through the finished written dissertation
The research dissertation is seen as the critical indicator of attainment of the BSc (Hons) degree as distinct from the Diploma.
Students will be expected to conduct either field study or survey type questionnaire based research involving data collection analysis and interpretation.

CIVE 3101(5) - CONSTRUCTION LAW (3 CREDITS)
Legal principles underpinning construction contracts; contribution of form of contract to alternative forms of procurement; application of legal principles to contract administration, including regulations and case law related to – • letters of intent • insurances • agency • occupier's liability • determination • expert witness •& to solution of construction contract problems; dispute resolution including litigation, arbitration and adjudication • alternative dispute resolution methods, with emphasis on mediation.

CIVE 3112(5) - CONTRACT ADMINISTRATION (3 CREDITS)
Selection of contractor and subcontractors. Selection of consultants. Interim Valuations & Stage Payments. Fluctuations. Delays, extensions of time and loss and expense. Variations & Final Accounts. Income, expenditure and cash flow for the contractor and the client. Post contract cost control. International contracting issues.

CIVE 3116(5) - INTEGRATED INFRASTRUCTURE PLANNING AND DEVELOPMENT (3 CREDITS)
Importance of Infrastructure Planning and Management. Systems Approach to Infrastructure Planning. Primary and Secondary Effects of Infrastructure Development. Spatial Organisation and Multipurpose Infrastructure Planning. Regional Infrastructure Development. Issues in Infrastructure Management. Social Aspects.

CIVE 3119(5) - ENVIRONMENTAL MANAGEMENT AND TECHNOLOGY (3 CREDITS)
Environmental Problems in Mauritius - Impacts of development on coastal zones - Air Pollution Control - Solid Waste Management - Industrial Wastewater Management - Wastewater Treatment Process - Noise Pollution Control**;** Global Environment Concern - Environmental Policies - Environmental Aspects and Impacts Evaluation - Environmental Management Framework (ISO 14000, Green Globe, etc) - Environmental Auditing - Integrating EMS with Health, Safety and Quality Systems; Environmental Protection Act - Environmental Impact Assessment.

CIVE 3201(5) - PROFESSIONAL DEVELOPMENT PROJECT (3 CREDITS)
This module consolidates a range of Q.S. skills through the media of an integrated project. Students are allocated to teams, each of which works on a "live project". The module aims to support the teaching of other modules by providing for practical application of taught/learnt material within realistic project situations within an international environment. Assessment is via written reports, both individual and group- based as well as through a group presentation to an external panel of professionals drawn from industry.

CIVE 3203(5) - HEALTH AND SAFETY MANAGEMENT AND COSTING (3 CREDITS)
Construction plant and equipment; Construction Hazards and their safety measures;
Strict health and safety rules and legislation governing the construction industry. Costing for health and safety. Ways of managing cost effectively within budget.