

Bachelor of Building and Project Management Programme – Courses at a Glance

Level 1 Courses

BPM101e INTERDISCIPLINARY STUDIES IN CONSTRUCTION

BPM101e Interdisciplinary Studies in Construction provides students an insight into the roles and responsibilities of the main players in a construction project, from the developer, to the statutory board, planner, landscape architect, building architect, civil and structural engineer, mechanical and electrical engineer, quantity surveyor, contractor, subcontractor, supplier, specialist and project manager. Their job-scopes are identified so as to remove functional silos between the professions, and to facilitate interdisciplinary integration for construction projects.

BPM105 CONSTRUCTION LAW

BPM105 Construction Law covers the essential principles relating to law and the legal system, the law of torts, the role of statutory law, the law of contract and relevant aspects of land and property law. It explains the various legal relationships in a construction project; laws relevant to procurement, contract administration, termination and insolvency; and professional negligence and concurrent liability, and also discusses the practices adopted to fulfill the requirements specified in the Factories (Building Operations and Works of Engineering Construction) Regulations, Building Control Acts and Regulations, Buildable Design Appraisal System, Construction Quality Assessment System and other relevant codes of practice.

BPM107e CONSTRUCTION IT & BUILDING INFORMATION MODELING

BPM107 Construction IT & Building Information Modeling will give undergraduates an insight of construction IT and BIM used in construction project management. The course sets to equip them with essential knowledge in construction IT, ability to read and navigate in BIM software, knowledge of best modeling practice, and being able to apply modeling techniques.

FEM101e BUILDING SERVICES

FEM101e Building Services provides an insight into the principles and design of mechanical and electrical building services systems. Building services include plumbing (hot and cold water supply), sanitary and gas system, fire protection system, air-conditioning and mechanical ventilation system, lifts and escalators, high and low tension system, standby system etc. Relevant local standards and regulations will also be covered in this module.

FEM103e CONSTRUCTION TECHNOLOGY

FEM103e Construction Technology provides an insight into building components and construction methods. The course contents include structural systems, architectural components and finishes, construction sequence and building erection. The undergraduate will appreciate how a building is put together or erected and why the type of structural system and architectural components selected, be it vertical or horizontal members, influences operation, maintainability, and future upgrading.

FEM105e MATERIALS TECHNOLOGY

FEM105e Materials Technology provides an insight into material properties and their applicability in different building/ facility and event types. Undergraduates will learn about building failures, and the importance of quality assurance and control. The course also discusses the main considerations for material selection such as the speed of construction, balancing durability with expediency and even corporate image. On top of these, undergraduates learn to evaluate each material that forms a component, and several sub-systems that form a system to serve a function within a building/ facility or during an event.

FEM109e CONTRACT ADMINISTRATION

FEM109e Contract Administration provides undergraduates an overview of the difference types of contract such as the PSSCOC, SIA and REDAS contracts, where they will learn how to administer building, maintenance, servicing, operations and refurbishment contracts. In addition, they will be equipped with knowledge of payment procedures, variation, extension of time, liquidated damages, final accounts, subcontracting and insurance, performance bond, key performance indicator and indemnity clauses.

SST101e PRINCIPLES OF PROJECT MANAGEMENT

SST101 Principles of Project Management will provide both theoretical and practical insights on the management of projects. Students will be taught the characteristics of different industries, and how project management skills apply in them. These give undergraduates a solid foundation in the appreciation and application of project management. It prepares them for an in-depth understanding of project management in science and technology.

SST102e HUMAN FACTORS AND SYSTEMS DESIGN

Human factors is about understanding human strengths and limitations and designing systems that fit them. SST102e Human Factors and Systems Design gives students an overview of the underlying philosophy, aims and approaches of human centered systems design. Students are introduced to the human sensory and physiological systems and cognitive processes. They are exposed to basic principles of designing and evaluating workplaces and interfaces. Issues on accidents, human error and designing for safety are also covered in this course.

Level 2 Courses

BPM201e CONSTRUCTION ECONOMICS

BPM201e Construction Economics provides students the theoretical and practical knowledge, and the analytical skills necessary to understand the key events that shape or affect the property markets and construction activities. The principles of economics and the rationalities behind the production, distribution, and consumption of goods and services are explained. These are then related to construction economics, the study of how individuals and groups make decisions with limited resources as to best satisfy client's wants, needs, and desires in property and construction businesses.

BPM203e CONSTRUCTION PROJECT MANAGEMENT

BPM203e Construction Project Management covers the fundamental concepts of project management, explains the project manager's role in the construction process, and highlights strategies to effectively control the teams, equipments and resources to complete a construction project that fulfills its requirements on scope, time, cost and quality.

BPM205e PRODUCTIVITY MANAGEMENT

BPM205e Productivity Management enables undergraduates to develop knowledge of the role of management in improving productivity in construction projects or at the work-site. Major topics covered include management principles, models and tools to enhance productivity. Undergraduates will also be taught to identify bottle- necks in work-flow and other potential problem areas in construction projects.

BPM207 COST MANAGEMENT FOR ARCHITECTURAL WORKS

BPM207 Cost Management for Architectural Works covers the fundamental principles and methodologies for the cost management of architectural work items on projects. It develops undergraduates' skills in the application of cost management principles and techniques to implement cost estimation, cost control, business planning, profitability analysis and project management. It also covers the conventional and e-measurement of architectural works and writing of specifications for such items.

BPM209 COST MANAGEMENT FOR C&S WORKS

BPM209 Cost Management for C&S Works discusses the responsibilities of the cost engineer/ quantity surveyor and covers the fundamental principles for the cost management of civil and structural work items on projects. It covers the measurement and writing of specifications for such items. It also develops students' skills in conventional and e-measurement of building works covering foundations, frame and building envelope.

FEM203e PROCUREMENT MANAGEMENT

FEM203 Procurement Management provides an understanding of the procurement process. The course covers concepts of procurement strategies and management, procurement methods, contractual arrangements such as design & build and management contracting, tender methods, tender evaluation methods, specification writing for descriptions of works and services and trends and developments in procurement.

SST201e SUSTAINABLE SOCIETY THROUGH INNOVATIVE TECHNOLOGY

SST201e Sustainable Society Through Innovative Technology introduces students to sustainability and explores how today's human societies can prevail in the face of global change, ecosystem degradation and resource limitations. It will focus on key knowledge areas of sustainability theory such as population growth, climate change energy, agriculture, water and food production. In each Unit, students will learn how technological innovation can solve the different types of resource limitations and pollution problems to create a sustainable ecosystem on Earth.

QSM201 CONSTRUCTION MEASUREMENT (1 OF 4) CIVIL & STRUCTURAL WORKS

Construction Measurement (1 of 4) Civil and Structural Works explains the roles of the quantity surveyor in the construction process, covers the fundamental principles for construction measurement and focuses on the measurement of Civil and Structural works in projects. It also develops students' understanding and skills in the measurement of building works involving general site clearance and excavation, reinforced concrete works below ground, structural steelwork, piling and general external works.

QSM202 CONSTRUCTION MEASUREMENT (2 OF 4) ARCHITECTURAL AND M&E WORKS

Construction Measurement (2 of 4) Architectural and M&E Works focuses on the measurement of Architectural and Mechanical & Electrical works. It develops students' understanding and skills in the measurement of building works involving wall, floor and ceiling finishes, doors and windows, roof structures & coverings, and general mechanical, electrical and plumbing installation works.

Level 3 Courses

BPM301e LCC AND SUSTAINABLE DESIGN AND CONSTRUCTION

BPM301 LCC and Sustainable Design and Construction provides an understanding in sustainable design and construction, the usefulness of life cycle analysis, illustrates the various renewable energy as well as its applications. It also covers the principles and techniques of sustainable design and construction. The course also develops students' knowledge in appraising a design or construction for its sustainability.



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BPM303 PROJECT DEVELOPMENT AND FINANCE

BPM303 Project Development and Finance covers the process of developing a project from its inception to its commissioning, and the financing of projects. The topics include: land use planning process, property/ project development process, and roles of governments and parties involved in the built environment. The course also covers the fundamental issues relating to project feasibility studies, investment criteria, capital budgeting, use of projects as investment instruments, cash flows, cost of capital, and how various types of projects are financed.

BPM305 PROJECT SCHEDULING AND CONTROL

BPM305 Project Scheduling and Control provides an insight into the break-down of a project into the different activities and cost components and estimate/determine their requirements on resources, time and costs. Undergraduates will also learn to prepare and control project schedules and budgets, taking into consideration the materials, labor and machinery outsourcing, manpower and management etc available and required.

BPM307 COST PLANNING AND ESTIMATION

BPM307 Cost Planning and Estimation covers the basic principles relating to estimation of items for the work to be undertaken on projects and tendering. Major topics are quantitative techniques in cost analysis, cost planning, approximate estimating and tendering procedures.

BPM309 COST MANAGEMENT FOR M&E WORKS

BPM309 Cost Management for M&E Works covers the fundamental principles for the cost management of mechanical and electrical work items on projects. It also covers the writing of specifications for such items. It develops students' skills in conventional and e-measurement of mechanical and electrical works.

SST301e STRATEGIC MANAGEMENT OF TECHNOLOGY

SST301e Strategic Management of Technology introduces the concepts of Systems Thinking to students, and then through their subsequent progression how to infuse Systems Thinking Concepts into their analyses of strategic management case studies. The rest of the course covers the general management perspective on integrating technology and strategy, the design and implementation of technology strategy viewed from an evolutionary perspective, identification of key issues in the development of a company's innovative capabilities to implement a technology strategy, as well as the creation and implementation of a development strategy. The course concludes with a discussion on generating new ideas through case studies on how to increase a company's capacity for the management of technological innovation.

QSM301 CONSTRUCTION MEASUREMENT (3 OF 4) ADVANCED CIVIL & STRUCTURAL WORKS

Construction Measurement (3 of 4) Advanced Civil & Structural Works focuses on the measurement of more advanced Civil & Structural works in projects. It develops students' understanding and skills in the measurement of building works involving site preparation work, excavation of reinforced concrete framed & load-bearing structures and reinforced concrete



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super-structure works, including staircases and specialized piling in projects.

HONOURS Courses

EMT311 GEOSPATIAL APPLICATION AND ANALYSIS

EMT311 Geospatial Application and Analysis conveys geospatial principles and the practical applications of Geographic Information Systems (GIS). It provides an understanding of how GIS applications may be developed, managed and implemented. The objective of the course is to enable the undergraduates to appreciate the deployment of GIS applications in various environments and the future trends of GIS.

HFS353 INCIDENT AND ACCIDENT INVESTIGATION

HFS353 Incident and Accident Investigation is a practical course that teaches undergraduates the practice of investigating accidents at workplaces. The course takes them through a step-by-step accident investigation procedure and describes workplace accident analysis techniques. Undergraduates will have to conduct a project that mimics investigating an incident at work to fully appreciate the complexities of interacting variables at play that contribute to accidents. Corrective action methods to prevent future accidents and incidents will also be covered.

HFSY357 ENVIRONMENTAL MANAGEMENT AND SUSTAINABLE DEVELOPMENT

HFSY357 Environmental Management and Sustainable Development introduces undergraduates to the Environmental Management System and the set of international standards required to bring a world-wide focus to the environment, encouraging a cleaner, safer, healthier world for us all. The existence of the standards allows organizations to focus environmental efforts against an internationally accepted criterion. This course covers environmental systems, environmental audit, environmental management principles, environmental labeling, environmental performance evaluation and life cycle assessment.

BPM401 PROFESSIONAL PRACTICES AND CASE STUDIES IN CONSTRUCTION PROJECT MANAGEMENT

BPM401 Professional Practices and Case Studies in Construction Project Management uses case studies to illustrate the various challenges of project management so that undergraduates could synthesize topics that have been learned in the programme. A variety of relevant cases in Singapore and the region/ world, pertaining to contemporary issues in project management, occupational health and safety in construction, sustainable construction, construction crisis, mega-scaled and exemplary construction are used.

BPM403 INTERNATIONAL CONSTRUCTION PROJECT MANAGEMENT

BPM403 International Construction Project Management gives an understanding of the global construction markets and characteristics of mega-scale projects. Undergraduates will be exposed to the challenges and management of international projects. They will also learn about the internationalization strategies that construction multi-national companies use to venture into markets overseas, in addition to the pitfalls they should avoid and critical success factors to succeed.



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BPM405 ADVANCED CONSTRUCTION TECHNOLOGY

BPM405 Advanced Construction Technology provides undergraduates an insight into how advanced construction technologies and systems such as precast technology and systems construction are used to enhance productivity and performance in construction projects. They will be given an understanding of the advantages of rapid and lean construction, and how precast technology and systems construction can help to reduce wastages, improve safety and quality and save on time and cost.

EMT403 QUALITY MANAGEMENT

EMT403 Quality Management will discuss issues pertaining to quality standards, service and performance management. Undergraduates will gain an insight into Quality Management concepts such as Total Quality Management and Six Sigma Management, as well as Quality Management Systems such as ISO 9000 and Quality Marks. They will also be introduced to Construction Quality Management Systems such as CONQUAS.

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