

General Guidelines on Pre-Defined Learning Outcomes for Quantity Surveying Students Interning in Contractor Built Environment Firms

1. UNDERSTANDING INDUSTRY DOCUMENTATION/ DRAWING STANDARD

- Interpret as-built drawings
 - Understand the functions of common BIM/CAD softwares (such as Xref, block tools, layer system and etc.)
 - Interpret the scale, dimension, text and annotation in civil engineering drawings
 - If other, please specify*
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2. COMMUNICATION SKILLS FOR WORK

- Learn formal report writing
 - Learn business email writing
 - Make oral presentation to seniors / management / clients
 - If others, please specify*
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3. SUPERVISION SKILL AT WORK

- Observe actual site condition
 - Approach and propose solution to resolve error without compromising the quality of design
 - If other, please specify*
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4. CONTRACT DOCUMENTATION AND QUANTITY SURVEYING SKILLS

❖ **Tender Stage**

- Observe on the selection and roles for sub-contractors
 - Understand the types of contractual agreement
 - Understand the procedures for sub-contracting
 - Understand the tender document, including bills of quantities architects or client
 - Understand on the preparation of specification when required
 - Expose to the expenditure statements for tax and accounting
 - Observe the undertaking of cost analysis for repair and maintenance work
 - Analysing outcome and writing detailed progress reports
 - Understand the term of delay, extension of time and liquidated damages
 - If other, please specify*
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❖ **Construction Stage**

- Familiarise with the contract documentation
 - Understand the allocation of works to sub-contractors
 - Observe how to provide advice on contractual claims
 - Observe the evaluation of variations which is differ from contract documents
 - Expose to the valuing of completed work and arranging payments
 - If other, please specify*
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❖ **Building Information Modelling (BIM)/ Computer-Aided Design (CAD)**

- Understand BIM/AutoCAD drawings
- Familiarise the Building Information Model

- Understand BIM visualization
 - If other, please specify*
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❖ Integrated Digital Delivery(IDD)

- Understand the concept and objectives of IDD
 - Understand the scope of IDD in digital design/digital manufacturing and fabrication/digital construction/digital asset delivery and management
 - Understand the roles and responsibilities of project facility manager in IDD
 - Understand the roles and responsibilities of team members from other disciplines in IDD
 - Carry out / support collaborative and coordinated design via BIM/Virtual Design & Construction (VDC) and other computation tools. Understand how digital design tools help to optimise downstream process (manufacturing, fabrication, construction and maintenance)
 - If other, please specify*
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❖ Design for Manufacturing and Assembly (DfMA)

- Understand the concept and objectives of DfMA
 - Understand the DfMA continuum and different DfMA construction technologies from prefabricated components to fully-integrated assemblies such as (Prefabricated Prefinished Volumetric Construction (PPVC))
 - Application of DfMA construction technologies to different types of developments
 - Understand design considerations and limitations for different DfMA technologies
 - Identify the suitable type of DfMA modules to be considered and the choice of material (e.g. reinforced concrete PPVC module or Steel PPVC Module)
 - Assist in development of design options for the modules and estimate the size and number of modules
 - Explore different design layout and module configuration to meet design objectives and user requirements
 - Understand project management consideration in site planning (e.g. staging areas for hoisting machinery and modules) and construction sequencing
 - If other, please specify*
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❖ Safety, Health & Environment Management

- Conduct WSH Inspection
 - Conduct WSH incident reporting
 - Conduct Workplace Risk Assessment (RA) and compile RA Register
 - Compile WSH related records
 - Write minutes for WSH Committee Meeting
 - Conduct WSH Training
 - Aware about Safety and Health Management System (S&HMS)
 - Others _____
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❖ Design for Maintainability

- Understand the basic principles of design for maintainability
 - Plan for downstream maintenance
 - Acquire knowledge on the different material and system types to reduce downstream maintenance
 - Account for early access for maintenance
 - Understand design for simple maintenance
 - Identify maintenance issues associated with lack of considerations at design and implement possible corrective measures
 - Carry out Life cycle costing justify the case for maintainable designs
 - If other, please specify*
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❖ Smart FM

- Understand the basic principles of Smart FM
 - Understand the concepts of IoT, Sensor/Transducer for air/fluid temperature
 - Identify the potential areas for integration of the various building services
 - Understand the various sensors and various building services (i.e. ACMV, Fire Protection, Plumbing, Lift and Escalators, Surveillance etc.)
 - If other, please specify*
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❖ Digital Asset Delivery

- Understand the concepts of Digital Asset Delivery and benefits in integrating BIM data
 - Basic understanding of BIM modelling concepts
 - Understand the Asset Information Model (AIM)
 - If other, please specify*
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