

**General Guideline on Pre-Defined Learning Outcomes for [Project Management](#) Students Interning
in [Consultancy](#) 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*
-

2. COMMUNICATION SKILLS FOR WORK

- Learn formal report writing
 - Learn business email writing
 - Make oral presentation to seniors / management / clients
 - If others, please specify*
-

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*
-

4. EXPLOSURE IN FACILITY MANAGEMENT

❖ Programme Documentation

- Identify and review programme with end user/ department for approval
 - Communicate budget, schedule, programme assumption and constraints to users/ department
 - Ensure the requirement are being met
 - If other, please specify*
-

❖ Contracting and Purchasing

- Initiate inventory reporting
 - If other, please specify*
-

❖ Funding and Authorisation

- Establish project funding plan an monitor/track available project funds
 - If other, please specify*
-

❖ Budget Approval

- Review project budget of planned benchmarks
 - Review interim budget revisions as required
 - If other, please specify*
-

❖ Client/User Reviews and Approvals

- Coordinate review of design documents and submittals
 - Ensure formal acceptance of program documentation by client and user
 - If other, please specify*
-

❖ Building Information Modelling (BIM)/ Computer-Aided Design (CAD)

- Understand BIM/AutoCAD drawings
 - Familiarise the Building Information Model
 - Understand BIM visualization
 - If other, please specify*
-

❖ 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*
-

❖ 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*
-

❖ Project Coordination

- Manage vendors on the project and coordinate the activities with the project schedule
 - Provide detailed guidance to user and any other issues that arise
 - If other, please specify*
-

❖ Understand the Overview of Safety, Health & Environment Management

- Aware about Workplace Safety and Health (WSH) Management System
 - Understand the Workplace Risk Assessment (RA)
 - If other, please specify*
-

❖ Project Management

- Understanding the operation structure of organisation and project team
 - Understanding the contract procurement method used in the project
 - Coordination / execution of certain scope of works
 - If other, please specify*
-

❖ 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*
-

❖ 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*
-

❖ 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*
