

TRIDENT ENGINEERING INSTITUTE PRIVATE LIMITED (202078704207)

Incorporated in the Republic of South Africa

The Watershed Workshop17

17 Dock Road

V&A Waterfront

Cape Town 8001

GPS Coordinates - 33.90705,18.41853

[www.trident.education](http://www.trident.education)



About Us



Nido Trust



Objectives



Building  
Information  
Modelling

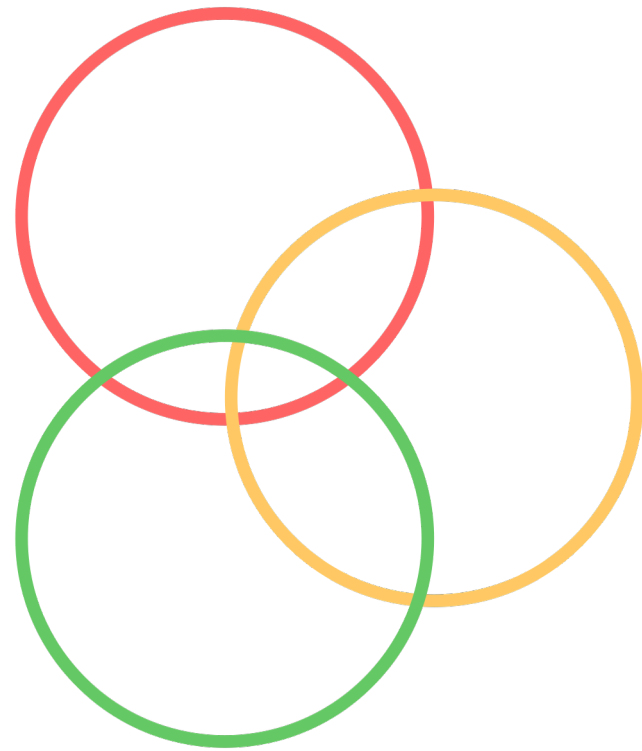


CPD UK  
Short Courses



Contact Us





Established in 2020, Trident Engineering Institute is a 21st Century Institute focusing on providing distance education. Established in 2020, Trident Engineering Institute is a 21st Century Institute focusing on providing distance education using technology as an academic support. It is an institute of high learning standards that addresses new and specific challenges.

Trident Engineering Institute contends that a higher education focusing on inventing new learning methods to address new challenges will be more than an academic institution. It will be a powerful economic engine.

When students begin their BIM programs, students will receive an integrated approach to support their theoretical learning and real-work experience. For businesses that recognize the value of having innovative and industry-specific programs in easily accessible ways, the Institute will be a powerful resource and research partner.

2020 Trident Engineering Institute was established  
Nido Trust established - a registered charitable trust (RSA)

2021 Nido (Canada) and Henry Lukenge committed R9 000 000 in grant funding to Nido Trust (RSA)  
Trident launched in Cape Town  
Trident entered into an agreement with Entimex (Pty) to use Edu Admin's Learning Management System  
Trident head office opened at the V&A Waterfront in Cape Town  
Trident secured insurance guarantees in line with the Higher Education Act (RSA)

2022 Trident filed for private owned higher education registration with DHET  
Trident regional office opened at The Bank - Rosebank in Johannesburg  
Trident enters into working relationship with Chartered Institute of Building (CIOB)

2023 Trident launched short courses with leading global partners  
Trident filed for CPD certification (UK) for short courses in BIM  
Trident pilots BIM programs (CPD UK Accredited)

2024 Trident filed BIM Programmes with CHE and SAQA (RSA) for Higher Certificates and Degrees  
Trident Programs Include:

- Specialisation A: Bachelor of Science in BIM Management & Application (Online)
- Specialisation B: Bachelor of Science in BIM for Facility Management (Online)
- Specialisation A: CPD Short Courses BIM Management & Application (Online)
- Specialisation B: CPD Short Courses BIM for Facility Management (Online)

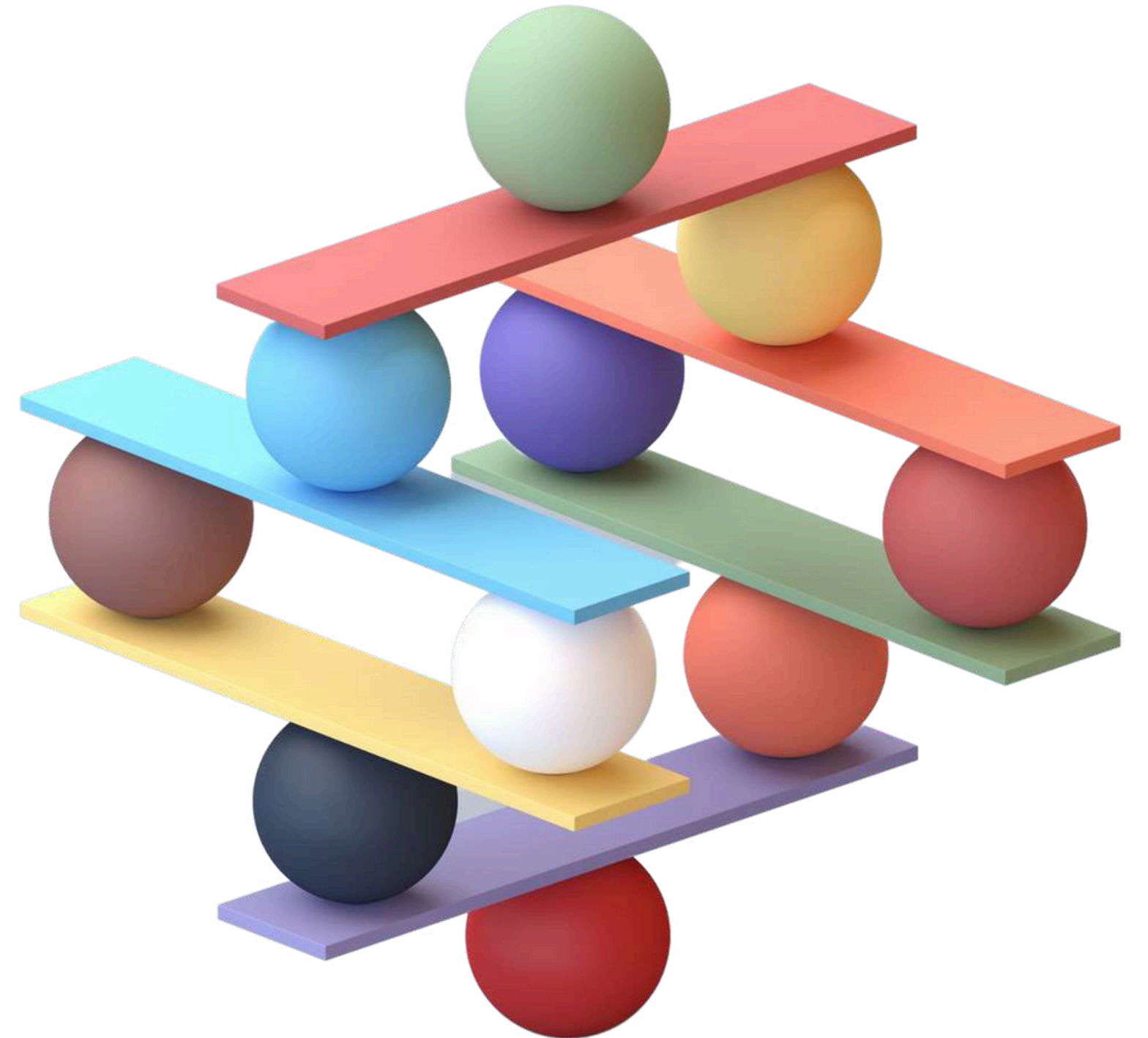
These programs are structured to provide an in-depth and enriched learning experience, aiming to equip our students with the skills and knowledge essential for the demands of the modern workplace in the fields of BIM Management and Facility Management.

Trident filed for Degrees with CHE/SAQA

# Nido Trust

NEXIM INTERNATIONAL DEVELOPMENT ORGANISATION TRUST (IT4422021C)  
Incorporated in the Republic of South Africa  
The Watershed Workshop17  
17 Dock Road  
V&A Waterfront  
Cape Town 8001

GPS Coordinates - 33.90705,18.41853



Nido Trust owns the Institute NIDO Trust (Nexim International Development Organization Trust) is a registered charitable trust in terms of South African laws. Henry Lukenge founded the Trust.

Revenue generated by the Institute from short and training courses will support the Nido Trust Bursaries and the Henry Lukenge Fellowship available to high school graduates who want to study for diplomas and higher certificates in Building Information Modelling in Africa.

The objects of the Trust are to: Engage in community development activities that support access to better education, job creation opportunities, advance wildlife conservation initiatives and green energy use on the continent of Africa. Implement, develop and promote the activities of ~~Trusts Engineering Institute~~ with civil societies, schools, colleges and universities.

#### Nido Trust Trustees

**Henry Lukenge** (Canada)

Fellow of Association of Chartered Certified Accountant (FCCA-UK) (England & Wales)

Certified Public Accountant (CPA) (Canada)

Master of Business Administration (MBA) (Oxford Brookes University) (UK)

Status: Non-independent

**Lungile Leonard Koti** (South Africa)

Shoprite/ Checkers Bursary Scheme Manager

Bachelor of Social Science (BSocSc) (UCT) (RSA)

Certificate in Finance for Non-Financial Managers

Status: Independent

**Patrick Obaloker Oketa** (United Kingdom)

Bachelor of Commerce (University of Barkatullah (India)

Master of Science in Management of Business

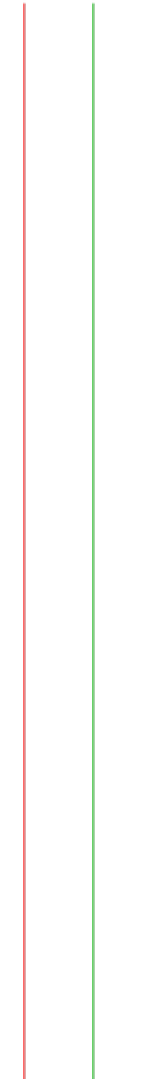
Information Technology (University of Greenwich)

Member in Good Standing with the CIMA-UK

Status: Independent

**Mission** The Institute's mission is to educate students on specific industry knowledge using innovative, technology-rich and interdisciplinary learning environments. The Institute will collaborate with industry partners to offer students real-world applied-research, work experience, leadership opportunities to achieve this mission.

**Vision** The Institute aspires to be a national and international privately owned institution of higher learning serving Africa by preparing students to learn from industry-specific programmes.



ACADEMIC BOARD MEMBERS

**Henry Lukenge (Canada)**

Fellow of Association of Chartered Certified Accountant (FCCA-UK) (England & Wales)  
Certified Public Accountant (CPA) (Canada)  
Master of Business Administration (MBA) (Oxford Brookes University) (UK)  
Status: Non-independent

**Alice Mthembu, Pr. Eng. (South Africa)**

MSc Mechanical Engineering - University of Cape Town- specializing in Computational Fluid Dynamics. BSc Mechanical Engineering - University of Cape Town. Certified Data Centre Professional - Examination Institute for Information Science (EXIN) Registered Professional Engineer- Engineering Council of South Africa (ECSA) Member - South African Institution of Mechanical Engineering (SAIMechE) Member - American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)  
Status: Independent

**Hilda Forsythe (South Africa)**

Bachelor of Engineering in Mechanical Science (University of Johannesburg) Certificate in Artificial Intelligence (University of Johannesburg)  
Status: Independent

**Professor Dennis Selke (United States)**

Bachelor of Science(Architecture) (LawrenceTechnology University)(USA)  
Master of Architecture - NewSchool of Architecture and Design (USA)  
Associate in Architectural Technology (MiraCosta College) (USA)  
Building Information Modelling Computer Visualisation (BIM-CV) (Lawrence Technology University (USA)  
Status: Independent

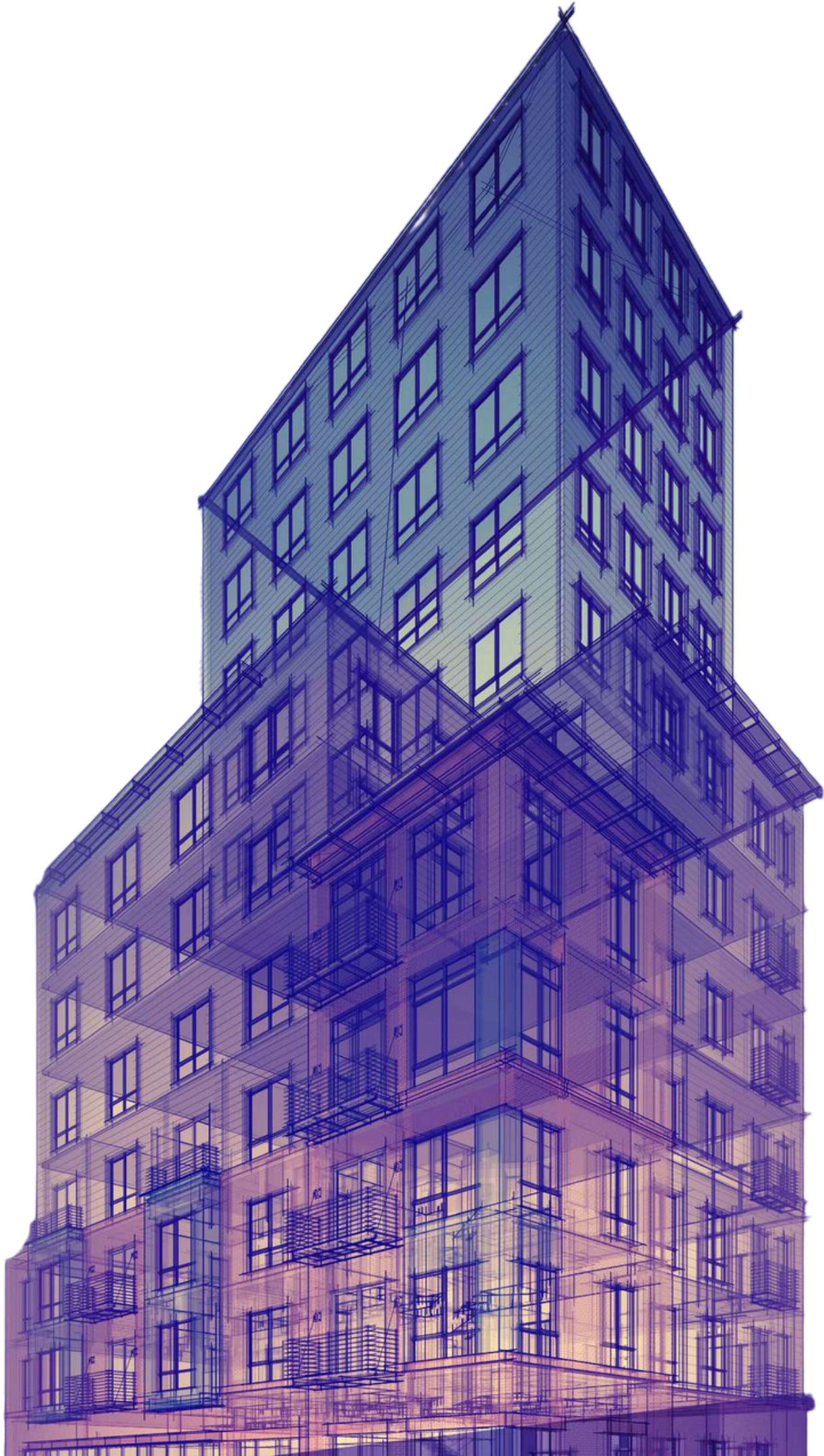
**Abdul Ddumba Yawe (Uganda)**

Diploma in Computer Science (Makerere University) (Uganda)  
Certificate in Interior Design and Architectural Visualisation (Kyambogo University) (Uganda)  
Bachelor of Architecture (Kyambogo University) (Uganda)  
Master of Interior Design (University of Nairobi) (Kenya)  
Status: Independent

**David M. Cunningham (United States)**

Associate Degree in Heating, Air conditioning and Refrigeration (Ivey Technical College) (USA)  
Machinist Mate A School (US Navy Reserves Great Lakes Naval Base) (USA)  
Drafting and Design Program (Central Texas College) (USA)  
Status: Independent





---

## What is BIM?

**BIM** is a process for creating and managing all of the information on a project through the whole life cycle of a built asset, from initial design to construction, maintaining and finally decommissioning, through digital modeling. BIM is all about collaboration - between engineers, owners, architects and contractors in a three-dimensional virtual construction environment (shared data environment), and it shares information across these disciplines.

**BIM** allows design and construction teams to communicate about design and coordinate information across different levels that has been unseen before. This information remains with the project, from before beginning construction, right throughout its lifetime. It also helps to analyse any potential impacts.

A wide range of projects such as a new building or railway infrastructure uses **BIM**. The use of **BIM** goes beyond the planning and design phase of the project, extending throughout the building life cycle, supporting processes including cost management, construction management, project management and facility operation.

Source: BSI Group 2021

---

**BIM Management & Application Short Courses**  
**CPD UK/ ECSA/ SAIMEche**

BIM allows architects, engineers and construction professionals the ability to predict and prevent them by adjusting the design. Contractors can also lead their teams safely through every step in the workflow and document the process to meet safety regulations and pass on-site evaluations. One significant benefit of BIM is that it provides reliable construction cost estimates long before the construction phase begins. BIM also helps architects and engineers discover ways to reduce costs.

**BIM For Facility Management Short Courses**  
**CPD UK/ ECSA/ SAIMEche**

A digital twin is a 3D digital map of a physical building that creates the baseline model for a building information modeling record. A facilities manager uses a digital twin to see specific parts of a building and make decisions based on the relationship of that section to the rest of the building and its systems. BIM provides proactive insight into vital systems and can model the effects and changes affiliated with upkeep, repair, or improvement. In a practical sense, it delivers real-time insight into how facilities currently operate, right down to the system level.

# BUILDING INFORMATION MODELLING LIFECYCLE



programming



conceptual design



detailed design



analysis



documentation



fabrication



construction



construction  
logistics



operation and  
maintenance



management



---

Programmes  
[www.trident.education](http://www.trident.education)

## Short Courses

Accreditation	Yes
NQF Level	Varies (Typically 5-7)
Credits	40
Duration	8 Weeks
Ownership	Trident
Availability	Yes

## Degree

Accreditation	Filed	7
NQF Level	360	3
Credits	Years	
Duration	Trident	
Ownership	Pending	
Availability		

TRIDENT ENGINEERING INSTITUTE PRIVATE LIMITED (202078704207)  
Incorporated in the Republic of South Africa  
Programmes

[www.trident.education](http://www.trident.education)



Our short courses will be delivered virtually.



Our short courses run for 8 weeks. Excluding orientation.



Effort ranges from 6 - 7 hours per week.



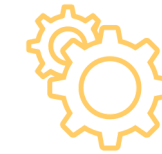
Lectures will be recorded and made available to learners if they cannot make the lecture time.



Learners will need access to a computer or laptop as well as a stable internet connection.



Lecturers will deliver the content virtually. Tutors will assist students and provide feedback.



Software information will be provided once the learner is enrolled.



Learners will receive a certificate of attendance upon successful completion of the course.

## SHORT COURSES



Our accredited programmes will be delivered as a distance education programmes supported by technology.



Our degree courses will run for 16 weeks. There are 21 courses per degree (incl. work experience)



Effort ranges from 8 - 20 hours per week.



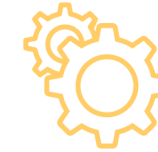
Lectures will be recorded and made available to students for future reference.



Students will need access to a computer or laptop as well as a stable internet connection.



Lecturers will deliver the content virtually. Tutors will assist students and provide feedback.



Software information will be provided once the student is enrolled.



Students will receive NQF Level 7 Certificate upon successful completion.

Degrees

# DETAILS OF ONLINE SHORT COURSES

## **Autodesk Revit Fundamentals - TBM-MAN1101**

Duration: 8 weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6 - 7 Hours Per Week

Language: English

### **Short Course Overview**

This short course introduces learners to Understanding the purpose of Building Information Management (BIM) and applying it in the Autodesk Revit software. Learners will be introduced to aspects of architectural documentation. The course further expounds on the transformation of architecture from hand drawing to Computer-Aided Design (CAD). The use of CAD has enabled architects to venture into risky scenarios in design through experimentation with new shapes and materials without making prototypes or undertaking structural analysis not until they reach higher phases of risk. This transformation will come with innovations in making architectural statements for a building project. The trend will see gradual changes. Next to images, drawings, blueprints, and scale models, 3D - CAD and 2D drawing files, BIM models, videos, digital visuals, and documents are emerging. Learners will be exposed to essential inventories of the site before carrying out the first visual attempt.

### **Module breakdown**

#### **Orientation Module**

Welcome to your Online Campus

#### **Module 1: Introduction to BIM and Autodesk Revit**

**AIM:** To introduce Building Information Modeling (BIM) principles and provide an overview of Autodesk Revit, focusing on the interface and navigation

#### **Module 2: Basic Drawing Tools**

**AIM:** To explore and practice with basic drawing tools in Revit, focusing on creating simple architectural elements like walls, doors, and windows

#### **Module 3: Editing Tools and Techniques**

**AIM:** To introduce editing tools and techniques for modifying elements in Revit, focusing on hands-on exercises to edit and manipulate drawn elements.

#### **Module 4: Basic Modeling Tools**

**AIM:** To learn basic modeling tools in Revit for creating architectural models, focusing on floors, ceilings, and roofs.

#### **Module 5: Introduction to Architectural Plans**

**AIM:** To introduce the creation and understanding of architectural plans using Revit, focusing on plan views and sections.

#### **Module 6: Detailing and Annotation**

**AIM:** To introduce the basics of detailing and annotating architectural plans in Revit, including adding text, dimensions, and other annotations to enhance understanding and communication of the design.

#### **Module 7: Revit Project Management**

**AIM:** To introduce project management features in Revit, emphasizing how to efficiently organize and manage a Revit project using tools like the project browser, view templates, and project settings.

#### **Module 8: Final Project and Assessment**

**AIM:** To apply the skills learned throughout the course in a comprehensive project, and to assess participants' understanding and proficiency with Autodesk Revit through a final assessment.

# DETAILS OF ONLINE SHORT COURSES

## Basic Drawing & Modelling - TBM-MAN1103

Duration: 8 Weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### Short Course Overview

This short course introduces the learner to working with the basic drawing and editing tools in Revit Architecture. It introduces learners to fundamental concepts in modelling intricate systems using hands-on activities and participatory simulations. The short course further deals with the basics of the modelling methods used in CAD and BIM. A simulation employs a mathematical language or model of accurate coordination in a computer program. The course is designed to introduce computer modelling and simulations in BIM.

### Module breakdown

#### Orientation Module

Welcome to your Online Campus

#### Module 1: Introduction to 2D Drawing in Revit

**AIM:** To introduce participants to the basics of 2D drawing in Revit, covering essential drawing tools and techniques for creating architectural layouts.

#### Module 2: Advanced 2D Drawing Techniques

**AIM:** To dive deeper into 2D drawing techniques in Revit, focusing on precision drawing and manipulation of drawn elements. Introduction to using constraints and dimensions for accurate drawings.

#### Module 3: Basic 3D Modeling Concepts

**AIM:** To introduce 3D modeling in Revit, focusing on basic modeling tools for creating simple architectural elements such as walls, floors, and roofs.

#### Module 4: Developing 3D Architectural Models

**AIM:** To expand on basic 3D modeling concepts by developing more complex 3D architectural models, including creating and modifying custom components.

#### Module 5: Detailing and Annotation in 2D and 3D

**AIM:** To introduce techniques for detailing and annotating both 2D drawings and 3D models in Revit, focusing on adding dimensions, text, and other annotations to enrich models and drawings.

#### Module 6: Applying Materials and Textures

**AIM:** To introduce the process of applying materials and textures in Revit to enhance the visual appearance of 3D models.

#### Module 7: Introduction to Rendering Techniques

**AIM:** To introduce the basics of rendering in Revit, focusing on setting up and executing simple renderings to effectively visualize projects.

#### Module 8: Final Project and Review

**AIM:** To apply the skills learned throughout the course in a comprehensive final project, culminating in a review and feedback session to assess participants' understanding and proficiency with Autodesk Revit.

# DETAILS OF ONLINE SHORT COURSES

## Advanced Modelling Techniques - TBM-MAN1104

Duration: 8 Weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### Short Course Overview

Creating Levels and Grids as datum elements for the model in Revit software is a succession of visualising techniques made and employed in the construction industry to assist in comprehending projects' documents and support decision-making and facility management. This course initiates learners into various visualisation techniques used to actualize architectural concepts. Learners will be exposed to movable graphics involving animation and putting all visuals into reality using rendering techniques. Here, preliminary comparisons between external visualisation and BIM visualisations will be dealt with throughout the course.

### Module breakdown

#### Orientation Module

Welcome to your Online Campus

#### Module 1: Review of Basic Modeling Techniques

**AIM:** To review basic modeling principles in Revit, ensuring a solid foundation for all participants before moving on to more advanced techniques.

#### Module 2: Introduction to Parametric Families

**AIM:** To introduce the basics of creating and manipulating parametric families in Revit, emphasizing the principles of parametric design.

#### Module 3: Advanced Parametric Families

**AIM:** To delve deeper into the creation of complex parametric families in Revit, focusing on utilizing formulas and nested families for dynamic and customizable models.

#### Module 4: Custom Components and Advanced Geometry

**AIM:** To explore techniques for creating custom components and manipulating advanced geometry in Revit, enabling the creation of sophisticated architectural elements.

#### Module 5: Integrating Models with Other BIM Software

**AIM:** To explore strategies for integrating Revit models with other BIM software, focusing on interoperability, data exchange, and optimizing workflows between different platforms.

#### Module 6: Optimization Techniques for BIM Workflows

**AIM:** To introduce advanced techniques for optimizing BIM workflows, including model simplification, data management, and performance enhancement strategies.

#### Module 7: Real-World Application and Case Studies

**AIM:** To examine real-world case studies showcasing advanced modeling techniques, focusing on problem-solving and innovative applications of Revit in professional projects

#### Module 8: Final Project and Assessment

**AIM:** To synthesize and apply all the advanced Revit techniques learned throughout the course in a comprehensive final project. This week also includes a final assessment through project presentation and critique to evaluate participants' proficiency.

# DETAILS OF ONLINE SHORT COURSES

## Construction and Beyond - TBM-MAN1106

Duration: 8 Weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### Short Course Overview

This short course introduces learners to adding floors, ceilings, and roofs to the building model in virtual realities and the natural environment using Revit software. The fundamental nature of BIM implementation is supporting teamwork at all stages of work. The idea of working as a team is good to emerge from the software originates from an increase in teamwork and leads to excellent communication. If there is communication within the system among the construction team members, it will increase efficiency. The short course will further deal with computerised techniques that elevate efficiency and minimise the dangers of coordination errors.

### Module breakdown

#### Orientation Module

Welcome to your Online Campus

#### Module 1: Introduction to Construction & Beyond

**AIM:** Understand the construction phase, learn the basics of design presentation, and gain an overview of computational design.

#### Module 2: In-depth Study of Construction Phase

**AIM:** Learn planning and scheduling, site preparation and management, construction techniques, and best practices.

#### Module 3: Presenting Your Design - Part 1

**AIM:** Learn to develop strong design concepts, create effective visuals and layouts, and use storytelling in design.

#### Module 4: Presenting Your Design - Part 2

**AIM:** Learn to communicate with clients and stakeholders, prepare and deliver design presentations, and receive and incorporate feedback.

#### Module 5: Computational Design with Dynamo - Part 1

**AIM:** Learn the basics of visual programming in Dynamo, data manipulation and geometry creation, and parametric design and performance optimization.

#### Module 6: Computational Design with Dynamo - Part 2

**AIM:** Learn advanced geometry techniques and analysis, automating design iterations, and integrating Dynamo with BIM software.

#### Module 7: Construction and Design Integration

**AIM:** Learn about coordination between construction and design teams, applying computational design to construction processes, and leveraging technology for enhanced collaboration.

#### Module 8: Wrap-up and Future Trends

**AIM:** Review key concepts and techniques, discuss emerging trends in construction and design, and prepare for a career in construction & beyond.

# DETAILS OF ONLINE SHORT COURSES

## Architectural Visualisation - TBM-MAN2101

Duration: 8 Weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### Short Course Overview

This short course introduces learners to the fundamentals of making architectural visual statements. Creating a visual statement in architecture implies that one is documenting visually using agreed basics and regulations of the architectural discipline. Instructors will introduce learners to aspects of architectural documentation. The short course further discusses architecture transformation from hand drawing to Computer-Aided Design (CAD). The use of CAD has enabled architects to venture into risky scenarios in design through experimentation with new shapes and materials without making prototypes or undertaking structural analysis not until they reach higher phases of the risk. This transformation will come with innovations in making architectural statements for a building project. The trend will see gradual changes. Next to images, drawings, blueprints, and scale models, 3D -CAD and 2D drawing files, BIM models, videos, digital visuals, and documents are emerging. Learners will be exposed to essential inventories of the site before carrying out the first visual attempt.

### Module breakdown

#### Orientation Module

Welcome to your Online Campus

#### Module 1: Introduction to Architectural Visualization and BIM

**AIM:** To introduce participants to the fundamentals of architectural visualization and Building Information Modeling (BIM), including the role and responsibilities of a BIM Manager.

#### Module 2: Fundamentals of BIM Software

**AIM:** To familiarize participants with common BIM software, basic navigation, interface, and file handling techniques.

#### Module 3: 3D Modeling and Visualization Techniques

**AIM:** To introduce 3D modeling basics, best practices, and visualization techniques using BIM software.

#### Module 4: Advanced Visualization Techniques

**AIM:** To teach advanced lighting, material techniques, rendering settings, and post-production in image editing software.

#### Module 5: Integration with External Visualization Programs

**AIM:** To teach participants how to integrate BIM models with external visualization software for enhanced design presentations.

#### Module 6: Creating Animations and Virtual Reality Experiences

**AIM:** To teach participants how to create animations and virtual reality (VR) experiences using BIM models, enhancing design visualization and presentation.

#### Module 7: Collaboration and Project Management

**AIM:** To teach participants effective collaboration and project management techniques using BIM tools, ensuring efficient team communication and project execution.

#### Module 8: Portfolio Development and Industry Trends

**AIM:** To guide participants in developing a professional architectural visualization portfolio and understanding future trends in BIM and visualization.

# DETAILS OF ONLINE SHORT COURSES

## Fundamentals in BIM - TBM-MAN2102

Duration: 8 Weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### Short Course Overview

Building Information Modelling (BIM) offers digital possibilities in the built environment for the engineering, architecture, and construction (AEC) industry. BIM is a workflow essentially; BIM is a process for saving time and money and achieving high confidence outcomes during the design and construction process. Per ISO 19650, Building Information Modelling (BIM) is about getting benefits through better specification and delivery of just the right amount of information concerning the design, construction and management of buildings and infrastructure and using appropriate technology tools. The preamble to this course presents a hands-on contrast of BIM with other computer-aided design approaches and how it is employed in the built environment. Then, the short course further outlines the benefits of BIM to the built environment.

### Module breakdown

#### Orientation Module

Welcome to your Online Campus

#### Module 1: Introduction to BIM and its Role in the AEC-FM Industries

**AIM:** To introduce participants to Building Information Modeling (BIM) and its significance in the architecture, engineering, construction, and facility management (AEC-FM) industries, covering its evolution, benefits, and importance.

#### Module 2: BIM Software and Tools

**AIM:** To familiarize participants with popular BIM software, their features, and capabilities, providing a hands-on introduction to selected tools and basic modeling and editing techniques.

#### Module 3: BIM Standards and Best Practices

**AIM:** To introduce BIM standards, industry-wide protocols, and best practices, emphasizing execution planning and documentation for effective project management.

#### Module 4: BIM Management and Coordination

**AIM:** To explore the role of BIM managers, coordination and communication strategies, collaborative workflows, and conflict detection in BIM projects.

#### Module 5: BIM Data and Information Management

**AIM:** To teach the principles of BIM data structures, data exchange, interoperability, and best practices for data management and storage.

#### Module 6: BIM Integration with Other Technologies

**AIM:** To explore the integration of BIM with other technologies such as GIS, VR/AR, sustainability analysis tools, and building performance simulations.

#### Module 7: BIM for Facility Management and Lifecycle Management

**AIM:** To teach the application of BIM for facility management, asset tracking, renovation projects, and lifecycle management, enhancing operational efficiency and decision-making.

#### Module 8: BIM Career Opportunities and Future Trends

**AIM:** To provide an overview of career opportunities in BIM, professional development options, and future trends in BIM technology, wrapping up the course with a review and feedback session.

# DETAILS OF ONLINE SHORT COURSES

**Computer Simulations TBM-MAN2103** Duration:8Weeks–  
Excluding Orientation Delivery Method: Virtually  
Effort: 6-7 Hours Per Week  
Language: English

## Short Course Overview

Designing, constructing, and maintaining structure is not simple and requires collaboration across all stakeholders. The architect is the axis of this message dissemination process and takes up the role of broadcasting the building information using a BIM model. In this regard, architects take centre stage in communicating to all individuals participating in the building process. The short course points out the extent to which BIM tools sustain diverse means of communication in the architect's office. The short course further provides a general idea of the most extensively used file procedures, with an extraordinary emphasis on the IFC standard.

## Module breakdown

### Orientation Module

Welcome to your Online Campus

### Module 1: Introduction to Computer Simulations in BIM

**AIM:** To provide an overview of computer simulations and their significance in the BIM process, introducing the types of simulations that will be covered in the course.

### Module 2: Energy Modeling Basics

**AIM:** To introduce energy modeling concepts and tools, with initial exercises in creating simple energy models and analyzing their output.

### Module 3: Advanced Energy Modeling Techniques

**AIM:** To delve deeper into advanced strategies for energy modeling, incorporating the use of detailed weather data and simulation of advanced HVAC systems.

### Module 4: Structural Analysis Fundamentals

**AIM:** To introduce the basics of structural analysis within BIM, focusing on tools and methods for assessing structural integrity and performance.

### Module 5: Advanced Structural Analysis

**AIM:** To explore advanced techniques for structural analysis, focusing on dynamic analysis and the simulation of complex structures.

### Module 6: Environmental Impact Simulations

**AIM:** To introduce simulations aimed at assessing environmental impacts, such as daylighting, ventilation, and thermal comfort, enhancing building sustainability

### Module 7: Integrating Simulations with BIM Workflows

**AIM:** To explore strategies for effectively integrating simulation results into BIM workflows, focusing on collaboration, documentation, and decision-making based on simulation data.

### Module 8: Capstone Project and Assessment

**AIM:** To apply the skills learned throughout the course in a comprehensive project that requires conducting multiple simulations and integrating their results into a coherent design solution. This week also includes a presentation and critique of projects to evaluate participants' proficiency.

# DETAILS OF ONLINE SHORT COURSES

## **BIM for Messaging - TBM-MAN2105**

Duration: 8 Weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### **Short Course Overview**

Designing, constructing, and maintaining structure is not simple and requires collaboration across all stakeholders. The architect is the axis of this message dissemination process and takes up the role of broadcasting the building information using a BIM model. In this regard, architects take centre stage in communicating to all individuals participating in the building process. The short course points out the extent to which BIM tools sustain diverse means of communication in the architect's office. The short course further provides a general idea of the most extensively used file procedures, with an extraordinary emphasis on the IFC standard.

### **Module breakdown**

#### **Orientation Module**

Welcome to your Online Campus

#### **Module 1: Introduction to BIM Communication Tools**

**AIM:** To provide an overview of BIM and its significance in project communication, introducing various BIM tools that facilitate messaging and collaboration.

#### **Module 2: Coordination Techniques Using BIM**

**AIM:** To explore BIM tools for project coordination, focusing on techniques for model coordination, clash detection, and resolving conflicts.

#### **Module 3: Documentation and Information Management**

**AIM:** To present strategies for managing documentation within BIM, focusing on creating, organizing, and sharing project documentation and information efficiently.

#### **Module 4: Enhancing Collaboration through BIM**

**AIM:** To explore techniques for enhancing team collaboration using BIM, focusing on collaborative platforms and workflows that integrate with BIM.

#### **Module 5: Real-Time Communication Strategies**

**AIM:** To explore real-time communication features within BIM tools, focusing on the use of communication platforms that integrate with BIM for instant messaging and updates.

#### **Module 6: Advanced Messaging Techniques in BIM**

**AIM:** To introduce advanced techniques for project messaging and communication within BIM, including the exploration of case studies on effective messaging strategies that have enhanced project delivery.

#### **Module 7: Integrating BIM Messaging with Project Workflows**

**AIM:** To explore strategies for integrating messaging and communication tools into standard BIM workflows, ensuring seamless communication across all project stages.

**Module 8: Capstone Project and Review AIM:** To apply the skills learned throughout the course in a comprehensive project, demonstrating the ability to use BIM for effective messaging and collaboration in a simulated project environment. This week also includes a review and feedback session.

# DETAILS OF ONLINE SHORT COURSES

## **BIM as a Means of Supporting Teamwork - TBM-MAN2106**

Duration: 8 Weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### **Short Course Overview**

This short course introduces learners to the collaborative nature of BIM. It further emphasises how construction integrates various disciplines to build a structure in virtual realities and the natural environment. The fundamental nature of BIM implementation is supporting teamwork at all stages of work. Working as a team means that emerging from the software originates from increased teamwork and leads to excellent communication. If there is communication within the system among the construction team members, it will increase efficiency. The short course will further deal with computerised techniques that elevate efficiency and minimise the dangers of coordination errors.

### **Module breakdown**

#### **Orientation Module**

Welcome to your Online Campus

#### **Module 1: Introduction to BIM and FM**

**AIM:** Gain a foundational understanding of the role of BIM in Facility Management, the impact of BIM on the FM industry, and BIM maturity levels and standards.

#### **Module 2: BIM for Facility Management Planning**

**AIM:** Learn how to use BIM for space programming and optimization, asset tagging, tracking, and lifecycle management, and maintenance forecasting using BIM data.

#### **Module 3: BIM for Building Systems Management**

**AIM:** Understand the use of BIM for MEP coordination, integration with building automation systems, and facility condition assessment.

#### **Module 4: BIM for Energy Management**

**AIM:** Learn how to use BIM for energy modeling and simulation, monitoring and optimizing energy performance, and achieving energy efficiency.

#### **Module 5: BIM for Operations and Maintenance**

**AIM:** Explore how to use BIM for preventive maintenance strategies, streamlining work order processes, and managing equipment warranties and service contracts.

#### **Module 6: BIM for Safety and Risk Management**

**AIM:** Learn how to use BIM for safety code compliance and inspections, hazard identification and safety training, and facility resilience and adaptation planning.

#### **Module 7: BIM for Space Management and Occupancy**

**AIM:** Explore how to use BIM for occupant experience and well-being, space performance evaluation, and flexible space planning and adaptive reuse.

**Module 8: BIM for Collaboration and Data Management** **AIM:** Understand how to establish BIM workflows and communication protocols, integrate BIM with facility management software, and recognize success factors and challenges in BIM adoption for FM.

# DETAILS OF ONLINE SHORT COURSES

## **Synchronizing Construction - TBM-MAN3101**

Duration: 8 Weeks – Excluding Orientation Delivery Method:

Virtually

Effort: 6-7 Hours Per Week

Language: English

### **Short Course Overview**

This short course is about coordinating construction using computerised options to iron out possible anomalies in the BIM model. The short course hints at the crucial bottlenecks in the built environment. It elucidates the extent to which computerised options in conjunction with the BIM model could assist in unravelling the problems that might be in the design. There are many predicaments that the construction industry might encounter. These include, among others, a lack of communication between different individuals of various specialisations working on a project. The result is that there will be a loss of money, quality of work, time, and efficiency, among others. Synchronising construction using technological options is a way forward to achieving efficiency. BIM digital intervention makes a feasible integrated model of a building's designs and specifications that permit all the individuals involved in a project to see what is happening on the project, what has been done, and any modifications being made.

### **Module breakdown**

#### **Orientation Module**

Welcome to your Online Campus

#### **Module 1: Introduction to BIM in Construction**

**AIM:** To provide an overview of BIM and its significance in the construction industry, including an introduction to BIM tools and technologies relevant to construction management.

#### **Module 2: BIM for Project Planning**

**AIM:** To explore the use of BIM in project planning stages, focusing on leveraging BIM for scheduling, resource allocation, and pre-construction simulations.

#### **Module 3: BIM for On-Site Coordination**

**AIM:** To utilize BIM for enhancing on-site coordination among different construction teams, focusing on strategies for real-time communication and issue resolution using BIM.

#### **Module 4: Integrating BIM with Construction Workflows**

**AIM:** To explore techniques for integrating BIM seamlessly with existing construction workflows, focusing on case studies of successful BIM integration in construction projects.

#### **Module 5: BIM for Real-Time Project Management**

**AIM:** To explore advanced strategies for using BIM in real-time project management, focusing on tracking progress, managing changes, and updating schedules dynamically.

#### **Module 6: Enhancing Construction Schedules with BIM**

**AIM:** To optimize construction schedules using BIM, focusing on techniques for leveraging BIM data to refine scheduling, anticipate delays, and mitigate risks.

#### **Module 7: Communication and Stakeholder Engagement**

**AIM:** To explore strategies for using BIM to improve communication and engagement with all project stakeholders, ensuring BIM facilitates clear, consistent messaging and documentation.

#### **Module 8: Capstone Project and Review**

**AIM:** To apply the skills learned throughout the course in a comprehensive project scenario, demonstrating the ability to synchronize planning and execution phases using BIM, manage a project in real-time, and ensure effective team communication. This week also includes a review and feedback session.

# DETAILS OF ONLINE SHORT COURSES

## **Building Accuracy TBN-MAN3102**

Duration: 8 Weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### **Short Course Overview**

This short course deals with how construction projects can attain accuracy. The means to attaining accuracy are governed by many calculations using BIM. Accuracy can be essential to ensure that a construction project runs smoothly. The advantage of employing the BIM model is that the architect can retrieve numerous calculations, ranging from equipment, supplies, materials and quantities. The short course further mentions BIM's role as a database for all activities in the design. It further mentions the 3D model's mechanical ability to update any calculations.

### **Module breakdown**

#### **Orientation Module**

Welcome to your Online Campus

#### **Module 1: Introduction to BIM and Model Accuracy**

**AIM :** To provide an overview of BIM fundamentals with a focus on the importance of accuracy in BIM models, introducing common sources of errors in architectural and structural models.

#### **Module 2 : Precision Drawing and Modeling in BIM**

**AIM :** To explore techniques for precision drawing and modeling in BIM, with an emphasis on setting up projects for accuracy from the outset.

#### **Module 3 : Advanced Modeling Techniques for Accuracy**

**AIM :** To explore advanced modeling techniques in BIM to enhance model accuracy, including working with complex geometries and precision components.

#### **Module 4 : Error Detection Methods in BIM**

**AIM :** To introduce methods and tools for detecting errors in BIM models, focusing on automated and manual checking processes.

#### **Module 5 : Error Correction Strategies in BIM**

**AIM :** To present strategies for correcting detected errors in BIM models, including revising workflows and models to enhance accuracy

#### **Module : 6 Quality Control and Assurance in BIM Projects**

**AIM :** To introduce best practices for quality control and assurance in BIM projects, emphasizing maintaining model accuracy throughout the project lifecycle

#### **Module : 7 Collaborative Practices for Ensuring Accuracy**

**AIM :** To explore techniques for enhancing accuracy through collaboration among project stakeholders, focusing on communication and data sharing practices that support model accuracy.

#### **Module : 8 Capstone Project and Review**

**AIM :** To apply the skills learned throughout the course in a comprehensive project, focusing on building model accuracy. Participants will address a project scenario requiring precision, error detection, and correction, and ensure effective team communication for timely delivery of construction projects.

# DETAILS OF ONLINE SHORT COURSES

## **BIM and CAM amalgamation TBM-MAN3106**

Duration: 8 Weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### **Short Course Overview**

This short course aims to make students understand the significance of Computer-Aided Manufacturing (CAM) in developing low-cost construction standards and quality construction components that construction workers can use. Learners will realise the benefits of CAM in favouring the making of prefabricated materials, design, and fabrication of intricate structures. Learners will further understand that BIM and CAM amalgamation is soft progress from design to construction. The course additionally looks at BIM and CAM amalgamation to automate construction technologies and CAD working with CAM to determine a product or part. Learners will further learn that this union's result is better construction and assist in minimising building predicaments.

### **Module breakdown**

#### **Orientation Module**

Welcome to your Online Campus

#### **Module 1: Introduction to BIM and CAM**

**AIM :** Provide a comprehensive understanding of BIM and CAM, their importance in the construction industry, and introduce relevant software tools and platforms.

#### **Module 2: BIM Data Management**

**AIM :** Understand BIM data management principles, exchange formats, protocols, and interoperability with CAM data.

#### **Module 3: BIM Modeling and Visualization**

**AIM :** Learn BIM modeling principles and practices, visualization techniques, and tools, as well as BIM and CAM model comparison and analysis.

#### **Module 4: CAM Process Planning**

**AIM :** Understand CAM process planning principles and practices, software tools, and platforms, as well as the integration of BIM and CAM data in process planning.

#### **Module 5: CAM Toolpath Generation**

**AIM :** Learn about CAM toolpath generation principles and practices, software tools, and platforms, as well as the integration of BIM and CAM data in toolpath generation.

#### **Module 6: CAM Simulation and Verification**

**AIM :** Understand CAM simulation and verification principles and practices, software tools, and platforms, as well as the integration of BIM and CAM data in simulation and verification.

#### **Module 7: : BIM-CAM Collaboration and Coordination**

**AIM :** Learn about collaboration and coordination principles and practices, common data environments, and project management tools, as well as case studies of successful BIM-CAM collaboration and coordination.

#### **Module 8: Future Directions and Emerging Trends**

**AIM :** Explore emerging trends in BIM and CAM amalgamation, research and development opportunities, and course summary and final project presentations

# DETAILS OF ONLINE SHORT COURSES

## **Revit MEP Setup-TFM-FM1101**

Duration: 8 Weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### **Short Course Overview**

This short course introduces learners to the following in general Project setup for Revit MEP:

Exploring the User Interface:

The ribbon interface is designed for optimal workflow. In this chapter, students will discover the features of the user interface that allow learners to work efficiently. Some new features in Revit MEP improve the user interface dramatically.

View Filters and View Templates:

This takes learners through the significant areas for creating and applying filters and view templates that help learners deliver consistent-looking documentation for all learners' projects.

Work sets and Work-sharing:

These guide learners through setting up a project file in a multiuser environment. The features of a work-sharing enabled file are explained in a manner that promotes ideas for project workflow efficiency.

### **Module breakdown**

#### **Orientation Module**

Welcome to your Online Campus

#### **Module 1: Introduction to Autodesk Revit for MEP**

**AIM:** To provide an overview of Autodesk Revit with a focus on its application in MEP engineering, introducing the Revit interface, navigation, and basic setup for MEP projects.

#### **Module 2: Initial Setup for MEP Projects**

**AIM:** To provide detailed instructions on the initial setup specific to MEP projects in Revit, including project templates, setting units, and importing architectural models.

#### **Module 3: MEP Project Coordination Settings**

**AIM:** To set up project coordination tools, including grids, levels, and views specific to MEP projects, introducing coordination models and linked files.

#### **Module 4: Basic MEP Modeling Techniques**

**AIM:** To introduce basic MEP modeling techniques in Revit, including creating ducts, pipes, and cable trays.

#### **Module 5: Electrical Systems Setup**

**AIM:** To set up electrical systems in Revit MEP, including electrical circuits, lighting plans, and power distribution.

#### **Module 6: Plumbing Systems Setup**

**AIM:** To introduce the setup of plumbing systems in Revit MEP, including water supply, drainage systems, and fixtures.

#### **Module 7: HVAC Systems Setup and Design**

**AIM:** To cover the basics of setting up and designing HVAC systems in Revit MEP, including ductwork, ventilation, and air conditioning units.

#### **Module 8: Integration and Coordination of MEP Systems**

**AIM:** To introduce techniques for integrating and coordinating MEP systems within a Revit project, focusing on clash detection, coordination review, and exporting data for analysis.

# DETAILS OF ONLINE SHORT COURSES

## **Mechanical Design Fundamentals - TFM-FM 1102**

Duration: 8 Weeks – Excluding Orientation Delivery

Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### **Short Course Overview**

This short course introduces learners to the following in Mechanical Design: HVAC Cooling and Heating Load Analysis: Mechanical design must start with understanding how learners' buildings will perform in different weather conditions and climates. In this course, students will learn that properly produced building loads can ensure that the mechanical design has been sized for maximum efficiency, saving energy and money while reducing the environmental impact. Creating Logical Systems: In this course, learners will learn how to set up logical systems and how each system is affected by the type learners assign it. From mechanical and fire-protection systems, all have a specific role in BIM. Mechanical Systems and Ductwork: Understanding how to route ductwork successfully can lead to error reduction and better coordination. Learners will learn how to locate mechanical equipment and use the proper routing methods for ductwork. Mechanical Piping: Routing mechanical piping can be a daunting task. In this, learners will learn how to route and coordinate learners' piping and how, through these techniques, learners can speed up production and take full advantage of what Revit MEP offers.

### **Module breakdown**

#### **Orientation Module**

Welcome to your Online Campus

#### **Module 1: Introduction to Mechanical Design in BIM**

**AIM:** To provide an overview of mechanical design fundamentals and the significance of BIM in the mechanical design process, introducing Autodesk.

#### **Module 2: Basic Concepts of Mechanical Systems**

**AIM:** To explore basic concepts and types of mechanical systems in buildings, including HVAC, plumbing, and fire protection systems.

#### **Module 3: Introduction to Autodesk Revit MEP for Mechanical Design**

**AIM:** To provide basic training on using Autodesk Revit MEP for mechanical design, including setting up mechanical projects and navigating the Revit MEP interface.

#### **Module 4: Designing HVAC Systems in Revit MEP**

**AIM:** To provide detailed instructions on designing HVAC systems using Revit MEP, including ductwork, air handling units, and ventilation systems.

#### **Module 5: Plumbing and Piping Systems Design**

**AIM:** To cover the basics of designing plumbing and piping systems in Revit MEP, including water supply, drainage, and fire protection systems.

#### **Module 6: Creating Mechanical Fabrications Parts**

**AIM:** To cover techniques for creating and using mechanical fabrication parts in Revit MEP, focusing on custom parts and fittings for mechanical systems.

#### **Module 7: Mechanical Systems Analysis and Optimization**

**AIM:** To introduce methods for analyzing and optimizing mechanical systems in Revit MEP, including energy analysis and system performance simulations.

#### **Module 8: Integrating Mechanical Designs with Other Disciplines**

**AIM:** To introduce strategies for integrating mechanical designs with architectural and structural components in BIM projects, emphasizing collaboration and coordination using Revit MEP.

# DETAILS OF ONLINE SHORT COURSES

## Module breakdown

### Learnig Managing Content in Revit MEP

#### TFM-FM1105

Duration: 8 Weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### Short Course Overview

This short course introduces learners to the following in Managing Content:

#### *Solid Modelling:*

The foundation for custom content creation can create the forms required to build component families. In this short course, learners will learn how to use the tools available in Revit MEP to create model geometry. Learners will also learn how to make geometry parametric, increasing its usability.

#### *Creating Symbols and Annotations:*

Because so much MEP design information is conveyed with schematic symbols, it is essential to have the symbols and annotative objects commonly used for projects. Revit MEP has the tools needed to create schematic symbols for use in component families or directly in projects. In this short course, learners will learn how to use these tools and develop constraints within families to display the symbols in learners' projects.

#### *Creating Equipment:*

Equipment families are an essential component of a Revit model because of their space within a building. In this short course, learners will learn how to use solid modelling tools to create equipment. Learners will also learn how to add connectors for systems and create clearance spaces for coordination with other model elements.

### Orientation Module

Welcome to your Online Campus

### Module 1: Solid Modelling

**AIM :** To introduce solid modeling principles and techniques, focusing on creating and manipulating solid models in a BIM environment.

### Module 2.1: Creating Equipment

**AIM :** To introduce techniques for creating equipment models in BIM, focusing on accurate representation and placement within the design.

### Module 2.2: Creating Symbols and Annotations

**AIM :** To teach the principles of creating symbols and annotations in BIM, ensuring accurate and clear communication of design intent.

### Module 3: Creating Light Fixtures

**AIM :** To teach participants how to create and place light fixture models in BIM, ensuring accurate lighting representation and coordination in design.

### Module 4: Creating Devices

**AIM :** To introduce techniques for creating device models in BIM, ensuring accurate representation and integration within the design.

### Module 5: Details

**AIM :** To teach participants how to create detailed views and components in BIM, ensuring comprehensive and accurate design documentation.

### Module 6: Sheets

**AIM :** To teach participants how to create and organize sheets in BIM, ensuring clear and comprehensive design documentation.

### Module 7: Fabrication

**AIM :** To introduce participants to the principles of fabrication in BIM, focusing on creating accurate fabrication drawings and models for construction.

### Module 8 : Creating an Effective Project Template

**AIM :** To teach participants how to create an effective project template in BIM, ensuring consistency and efficiency in future projects.

# DETAILS OF ONLINE SHORT COURSES

## Background and Organisation of Facility Management TFM-FM2101

Duration: 8 Weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6 - 7 Hours Per Week

Language: English

### Short Course Overview

This short course deals with the nature of facility management, particularly its relationship to the business environment it supports. We emphasise the need for the facility manager to be a business leader and describe just what that means. Next, we discuss what organisations and executives expect of facility managers and present a profile of success for facility managers. Finally, we look at facility organisations that can adapt BIM to meet their requirements and discuss the increasingly difficult staffing issues to fill those organisations.

### Module breakdown

#### Orientation Module

Welcome to your Online Campus

#### Module 1: Introduction to Facility Management

**AIM** To provide a comprehensive understanding of the fundamentals of facility management (FM) and its significance in the built environment

#### Module 2 : Facility Management Organizational Structures

**AIM** : To explore different organizational structures for FM and their impact on operations.

#### Module : 3 Strategic Planning in Facility Management

**AIM** : To understand the strategic planning process and its importance in FM.

#### Module : 4 Financial Management in Facility Management

**AIM** : To gain insights into financial management principles and practices in FM

#### Module : 5 Technology and Innovation in Facility Management

**AIM** : To explore the role of technology and innovation in enhancing FM operations.

#### Module : 6 : Sustainability and Environmental Management in FM

**AIM** : To understand the principles and practices of sustainability in FM.

#### Module : 7 Risk Management in Facility Management

**AIM** : To learn about risk management strategies and their application in FM.

#### Module : 8 Communication and Stakeholder Engagement in FM

**AIM** : To develop skills for effective communication and stakeholder engagement in FM.

# DETAILS OF ONLINE SHORT COURSES

## Planning and Budgeting- TFM -FM 2102

Duration: 8 Weeks – Excluding

Orientation Delivery Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### Short Course Overview

Too often, facility management has been confused with operations and maintenance, project management, or space management. This short course, Facility planning, covers these and all functions of facility management. But that is not enough. Facility planning must be an integral part of the organisation's business planning, not just an add-on. Almost no organisational function does not require facilities, and they must be planned concurrently with the development of the business plan. Therefore, every organisational business plan should have a corresponding facility plan (strategic, midterm, ad hoc, work, or other). Learners will be exposed to the role of facility managers, how to create facility management programs, and how they should consider the budget for those programs. That enables us to track our efforts from conception through execution.

### Module breakdown

#### Orientation Module

Welcome to your Online Campus

#### Module 1: Introduction to Project Planning and Budgeting

**AIM:** To provide an overview of fundamental concepts in project planning and budgeting, and introduce the role of BIM in financial planning and management.

#### Module 2: Developing Project Plans

**AIM:** To teach techniques for developing detailed project plans, including scope definition, work breakdown structures, and scheduling.

#### Module 3: Fundamentals of Budgeting for Projects

**AIM:** To cover the basics of constructing project budgets, including cost estimation, categorization of expenses, and budget allocation.

#### Module 4: BIM Tools for Planning and Budgeting

**AIM:** To explore BIM tools and software that aid in project planning and budgeting, focusing on the integration of BIM with traditional financial management tools.

#### Module 5: Cost Estimation Techniques

**AIM:** To introduce advanced techniques for cost estimation, including quantity takeoffs, unit cost analysis, and the use of BIM for dynamic cost estimation.

#### Module 6: Financial Monitoring and Reporting

**AIM:** To introduce strategies for monitoring project financial performance, including the setup of financial KPIs, cash flow management, and financial reporting.

#### Module 7: Cost Control and Value Engineering

**AIM:** To introduce methods for implementing cost control measures and conducting value engineering sessions to optimize project value and reduce unnecessary expenditures.

**Module 8: Case Studies and Capstone Project AIM:** To analyze real-world case studies highlighting successful planning and budgeting practices and complete a capstone project that requires participants to develop a project plan and budget using BIM tools.

# DETAILS OF ONLINE SHORT COURSES

## Real Estate Management- TFM-FM2103

Duration: 8 Weeks – Excluding Orientation Delivery

Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### Short Course Overview

In this short course, we assume, unless noted, that the facility manager is managing real estate. We look at standard options for a growing organisation: buying or leasing, site considerations, and a legal issue that impacts the real estate analysis and reporting. Also, we look at the considerations of becoming a lessor. Since some facility managers are property managers by title, we also discuss that function.

### Module breakdown

#### Orientation Module

Welcome to your Online Campus

#### Module 1: Introduction to Real Estate Management

**AIM:** To provide an overview of real estate management fundamentals, including the roles and responsibilities of real estate managers. Introduction to the impact of BIM on the real estate industry.

#### Module 2: Property Operations and Maintenance

**AIM:** To explore best practices for property operations and maintenance, focusing on cost-effective strategies for upkeep and sustainability. Introduction to BIM tools for facility management.

#### Module 3: Leasing and Tenant Relations

**AIM:** To explore strategies for effective leasing and maintaining positive tenant relations. Use of BIM for space management, lease administration, and enhancing tenant communications.

#### Module 4: Financial Management in Real Estate

**AIM:** To cover the fundamentals of financial management for real estate assets, including budgeting, financial reporting, and investment analysis. Exploration of BIM applications in financial analysis.

#### Module 5: Marketing and Leasing Strategies

**AIM:** To explore innovative marketing and leasing strategies for real estate properties. Introduction to digital marketing tools and BIM technologies for market analysis and property visualization.

#### Module 6: Risk Management and Legal Aspects

**AIM:** To introduce key considerations in risk management and legal aspects of real estate management. Application of BIM in identifying and mitigating risks associated with property management.

#### Module 7: Sustainable Property Management

**AIM:** To introduce principles of sustainable property management, focusing on energy efficiency, resource conservation, and green building practices. Use of BIM to support sustainability initiatives.

#### Module 8: Capstone Project and Integration

**AIM:** To apply course concepts in a comprehensive capstone project. Participants will develop a real estate management plan integrating BIM technologies to address operational efficiency, tenant satisfaction, and property value enhancement.

# DETAILS OF ONLINE SHORT COURSES

## Sustainability in FM Training course- TFM-FM2104

Duration: 8 Weeks – Excluding Orientation Delivery Method:

Virtually

Effort: 6-7 Hours Per Week

Language: English

### Short Course Overview

The rapid change in the interest and acceptance of green or sustainable buildings and building operations has occurred over the last decades. The perceived ability to reduce costs, improve employee satisfaction, and help to “save the earth” has given facility managers a dramatic new area of focus. This short course provides an overview of the green movement, sustainability applications to facility management, the financial case and models for justifying sustainable products and services, as well as some suggestions and resources for gaining acceptance as learners bring more sustainable practices to organisations.

### Module breakdown

#### Orientation Module

Welcome to your Online Campus

#### Module 1: Introduction to Sustainability and Facility Management

**AIM:** To introduce the concept of sustainability and its importance in facility management, providing an overview of the course structure and weekly sessions.

#### Module 2: Environmental Impact and Resource Efficiency

To explore the environmental impacts of facility management and discuss strategies for energy and water conservation, waste reduction, and recycling.

#### Module 3: Sustainable Building Design and Construction

**AIM:** To teach the principles of green building design, selection of sustainable materials, and construction practices with minimal environmental impact.

#### Module 4: Indoor Environmental Quality (IEQ) and Health

**AIM:** To explore the importance of indoor environmental quality (IEQ) in sustainable facility management and discuss strategies for improving indoor air quality, lighting, thermal comfort, and integrating health and well-being considerations.

#### Module 5: Sustainable Operations and Maintenance

**AIM:** To teach sustainable operations and maintenance practices, including green cleaning, sustainable landscaping, and energy management systems.

#### Module 6: Renewable Energy and Alternative Technologies

**AIM:** To explore renewable energy sources and alternative technologies, and discuss their integration into facility management for enhanced sustainability.

#### Module 7: Regulatory Compliance and Certifications

**AIM:** To teach the importance of regulatory compliance and certifications in sustainable facility management, focusing on understanding and implementing green building standards.

#### Module 8: Developing and Implementing a Sustainability Plan

**AIM:** To teach participants how to develop and implement a comprehensive sustainability plan, including setting goals, conducting assessments, and monitoring progress

# DETAILS OF ONLINE SHORT COURSES

## Introduction to Facility Management (FM) TFM-FM3101

Duration: 8 Weeks – Excluding Orientation Delivery Method:

Virtually

Effort: 6 - 7 Hours Per Week

Language: English

### Short Course Overview

This short course looks at the current Facility Management practice and the inefficiencies caused by poor data storage and lack of interoperability among the information systems used for design, construction, and facility management. Then identifies how BIM FM integration can address these problems and calculate the return on investment (ROI) achieved by investing in this technology and its associated processes. The results are rather startling. While the assumptions made in this analysis are tentative, they are conservative, and the results indicate that BIM FM integration, when done correctly, can provide very significant owner benefits.

### Module breakdown

#### Orientation Module

Welcome to your Online Campus

#### Module 1: Introduction to Facility Management

**AIM :** To provide an overview of facility management, and scope within the built environment. Introduction to the roles and responsibilities of facility managers,

#### Module 2: Key FM Processes and Standards

**AIM :** To explore key FM processes, including maintenance management, space management, and energy management.

introduction to FM standards and best practices.

#### Module 3: Introduction to BIM in Facility Management

**AIM :** To introduce the basic principles of Building Information Modeling (BIM) and its application in Facility Management (FM). Understanding how BIM can support the operational phase of a facility's lifecycle

#### Module 4: Lifecycle Management of Facilities

**AIM:** To examine the facility lifecycle, from design and construction to operation and decommissioning. Understanding the role of FM in each phase and how BIM facilitates lifecycle management.

#### Module 5: Maintenance and Operations Management

**AIM :** To explore strategies for effective maintenance and operations management. Use of BIM for preventive maintenance, asset tracking, and operational performance analysis.

#### Module 6: Space Utilization and Workplace Strategy

**AIM :** To examine principles of space utilization and workplace strategy. Leveraging BIM for space planning, analysis, and optimization.

#### Module 7: Sustainability and Energy Management in FM

**AIM :** To explore sustainable practices in facility management, focusing on energy efficiency, resource conservation, and sustainable operations. Application of BIM in monitoring and improving sustainability metrics.

#### Module 8: Implementing FM Technologies and BIM Integration

To provide best practices for implementing FM technologies and integrating BIM into FM operations. Strategies for overcoming challenges in BIM adoption and maximizing its benefits for facility management.

# DETAILS OF ONLINE SHORT COURSES

## **BIM Technology for Facility Management - FM-TFM3102**

(FM) Duration: 8 Weeks – Excluding Orientation Delivery

Method: Virtually

Effort: 6-7 Hours Per Week

Language: English

### **Short Course Overview**

This short course looks at the current Facility Management practice and the inefficiencies caused by poor data storage and lack of interoperability among the information systems used for design, construction, and facility management. Then identifies how BIM FM integration can address these problems and calculate the return on investment (ROI) achieved by investing in this technology and its associated processes. The results are rather startling. While the assumptions made in this analysis are tentative, they are conservative, and the results indicate that BIM FM integration, when done correctly, can provide very significant owner benefits.

### **Module breakdown**

#### **Orientation Module**

Welcome to your Online Campus

#### **Module 1: Introduction to BIM and FM**

**AIM:** To introduce the role of BIM in Facility Management and explore its impact on the FM Industry.

#### **Module 2: BIM for Facility Management Planning**

**AIM:** To explore BIM's applications in Facility Management Planning, including space programming, asset management, and maintenance forecasting.

#### **Module 3: BIM for Building Systems Management**

**AIM:** To understand the utilization of BIM for managing building systems, including MEP coordination, building automation systems integration, and facility condition assessment.

#### **Module 4: BIM for Energy Management**

**AIM:** To explore the applications of BIM in energy management, including energy modeling, monitoring, and optimization strategies.

#### **Module 5: BIM for Operations and Maintenance**

**AIM:** To learn how to use BIM for operations and maintenance tasks, including preventive maintenance, work order processes, and equipment warranties.

#### **Module 6: BIM for Safety and Risk Management**

**AIM:** To understand how BIM can be used for safety and risk management, including safety code compliance, hazard identification, and resilience planning.

#### **Module 7: BIM for Space Management and Occupancy**

**AIM:** To learn how to use BIM for space management and occupancy, including occupant experience, performance evaluation, and flexible space planning.

#### **Module 8: BIM for Collaboration and Data Management**

**AIM:** Understand how BIM can be integrated with facility management software and identify key success factors and challenges in BIM adoption for FM.

# DETAILS OF ONLINE SHORT COURSES

## Legal Aspects when considering BIM for FM -TFM-FM3104

Duration: 8 Weeks – Excluding Orientation

Delivery Method: Virtually

Effort: 6 -7 Hours Per Week

Language: English

### Short Course Overview

This short course addresses four main issues, from a legal perspective, that owners implementing BIM for FM should consider:

#### *Contract:*

What is in the model and its contractual status?

#### *Ownership:*

The ownership of the model.

#### *Intellectual property ownership:*

Who should own the intellectual property?

#### *Data exchange:*

Issues with interoperability and data exchange.

In addition, the course focuses on three additional issues:

#### *Liability:*

Does the use of BIM increase the liability of the other parties?

#### *Integrated project delivery:*

How does BIM relate to an integrated project delivery (IPD) environment?

*Insurance:* Whether the insurance covers BIM-related work.

These issues should be considered at the project's outset and addressed with good contractual language.

### Module breakdown

#### Orientation Module

Welcome to your Online Campus

#### Module 1: Introduction to Legal Frameworks in Facility Management

**AIM :** To provide an overview of the legal frameworks governing facility management and introduce basic concepts of law as they relate to real estate and facility operations

#### Module 2: Contracts and Procurement in FM

**AIM :** To explore contracts and procurement processes in facility management, focusing on contract formation, types, and essential terms for FM professionals.

#### Module : 3 Regulatory Compliances and Standards

**AIM :** To examine regulatory compliance issues and standards affecting facility management, including building codes, safety regulations, and environmental laws.

#### Module : 4 Liability Issues in Facility Management

**AIM :** To analyze liability issues in facility management, including negligence, property damage, and personal injury. Strategies for risk management and liability reduction.

#### Module : 5 Legal Implications of BIM in FM

**AIM :** To explore the legal implications of using Building Information Modeling (BIM) in facility management, including data ownership, privacy issues, and intellectual property rights

#### Module : 6 Dispute Resolution and Litigation Avoidance

**AIM :** To introduce techniques for dispute resolution and litigation avoidance in the context of facility management. Focus on mediation, arbitration, and effective communication strategies.

#### Module : 7 Insurance and Risk Management

**AIM :** To provide an overview of insurance products and risk management strategies relevant to facility management. Understanding the application of insurance as a tool for managing legal and financial risks

#### Module : 8 Implementing Legal Best Practices in FM Operations

**AIM :** To provide best practices for implementing legal considerations into facility management operations. Strategies for staying informed on legal changes and ensuring ongoing compliance.

# DETAILS OF ONLINE SHORT COURSES

## Using COBie by Facility Managers- TFM-FM3105

Duration: 8 Weeks – Excluding Orientation Delivery

Method: Virtually

Effort: 6- 7 Hours Per Week

Language: English

### Short Course Overview

This short course focuses on COBie, an international standard that delivers managed asset information. COBie stands for the Construction Operations Building information exchange. Today, COBie can be created and exchanged using over 20 commercial software systems. However, COBie can also be made and exchanged using simple spreadsheets if that is more helpful for the team. This short course begins by describing the motives behind the COBie project. Then, the spreadsheet format for COBie is described. Steps to implement COBie at a facility management office and ongoing work complete this course. The authoritative source for information about COBie is the Whole Building Design Guide's COBie website, where technical documentation, example models, and instructional videos can be found that the learner will find very useful during study.

### Orientation Module

Welcome to your Online Campus

### Module 1: Introduction to COBie and Facility Management

**AIM:** Understand the basic principles of COBie and how it can be utilized in Facility Management.

### Module 2: Understanding COBie Data Requirements

**AIM:** Gain an understanding of the data requirements for COBie and how to collect and organize this data.

### Module 3: COBie Tools and Software

**AIM:** Introduce various COBie tools and software, their features, benefits, and applications in Facility Management.

### Module 4: COBie Implementation Plan

**AIM:** Explore the COBie implementation plan, its steps, and examples of successful plans.

### Module 5: COBie Data Validation and Quality Assurance

**AIM:** Understand COBie data validation and quality assurance and learn methods for validating and improving data quality.

### Module 6: COBie Integration with BIM and CMMS

**AIM:** Understand how to integrate COBie with BIM and CMMS for efficient facility management.

### Module 7: COBie for Facility Management Operations and Maintenance

**AIM:** Understand how COBie can be used for facility management operations and maintenance

### Module 8: COBie for Asset Management and Reporting

**AIM:** Understand how COBie can be used for asset management and reporting.

## OPPORTUNITIES WORLDWIDE

---

Trident welcomes discussion on the following opportunities worldwide:

Employees' upskilling and training

Youth and unemployed upskilling and training

Re-selling of short courses

Use of Trident short-courses Intellectual Property

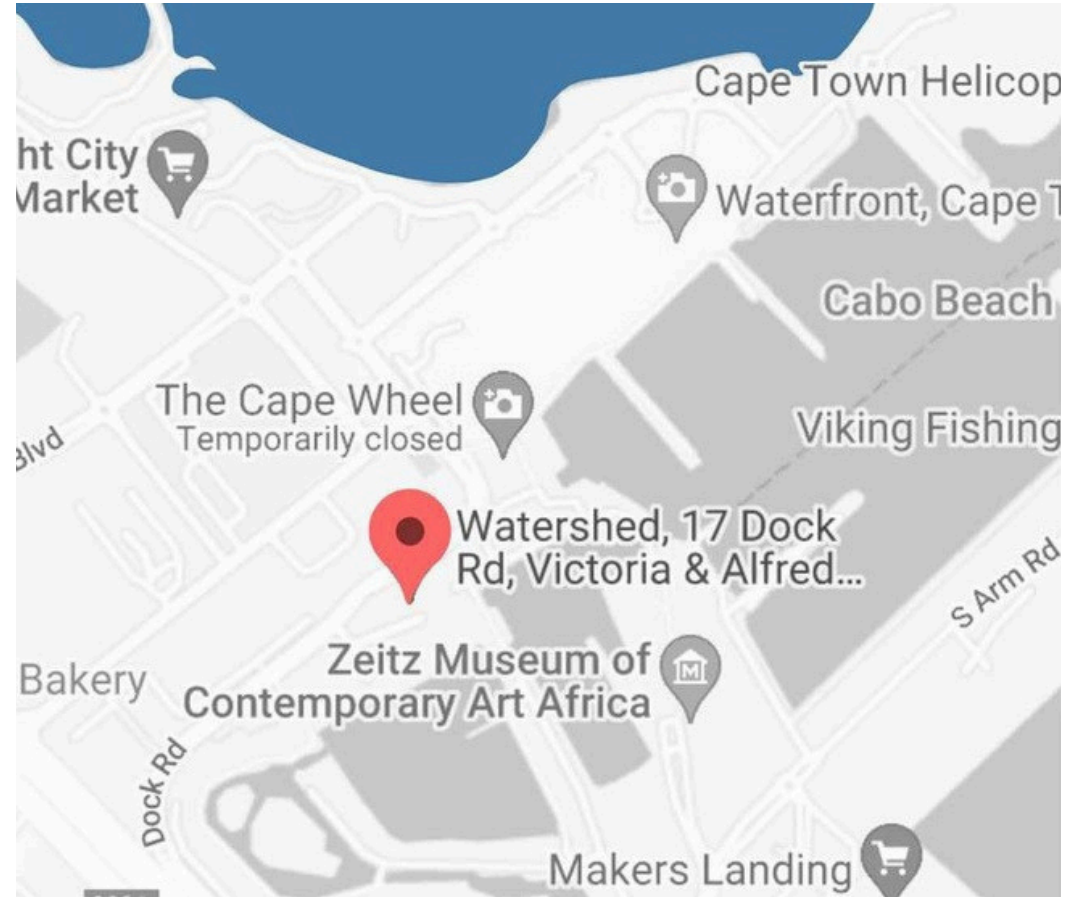
Research and Collaboration

BIM teaching and tutoring for online short courses

Work placement for work experience for Degree and Higher certificates students

Any other form of mutually beneficial partnership.

---



-33.90705,18.41853  
Workshop17 Watershed  
17 Dock Road, V&A Waterfront  
Cape Town  
South Africa  
8002

+27 21 011 7719



Executive Business Manager

Mclaren Matovux +27  
(62)0273844/ +27 (79)  
183 6617

The Watershed Workshop 17, 17 Dock Road,  
V&A Waterfront 8002