

Government of Pakistan

**National Vocational and Technical Training Commission**

**Prime Minister Youth Skills Development Program**

"Skills for All"



**Course Contents / Lesson Plan**

**Course Title:** Revit (software)

For construction professionals: a global prospective

**Duration:** 3 Months

Trainer Name	
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Course Title	Revit (software) for Construction Professionals: A Global Perspective
Objectives and Expectations	<p><b>Employable skills and hands-on practice in Android Java + Database</b></p> <p><b>Objective:</b> The objective of this course is to equip trainees with a solid understanding of Revit's core functionalities for architectural, structural and MEP design, catering to the specific requirements of Gulf construction sites, European buildings and Australian construction companies. Also, it will enhance the efficiency and accuracy of design processes in international construction projects.it will facilitate collaboration among design team member across different geographical location. Moreover, to prepare trainees for the challenges and opportunities of BIM-driven construction in a global context.</p> <p><b>Expectations:</b></p> <ol style="list-style-type: none"> <li>i. <b>Technical Proficiency:</b> Demonstrate proficiency in using Revit's core tools and features for global construction projects. They can create accurate and detailed models adhering to international standards. Understand the principles of BIM and its applications in a global context.</li> <li>ii. <b>Cultural Sensitivity:</b> Can adapt to different cultural norms and communications styles. Also, can effectively collaborate with design teams from diverse backgrounds.</li> <li>iii. <b>Global Sensitivity:</b> Can apply international BIM standards and best practices to construction projects. Can understand and comply with regional building codes and regulations</li> </ol> <p><b>Employable Skills:</b></p> <p>Completing a 3-month course on Revit with a global perspective can equip with a range of employable skills that are valuable in various industries, particularly in architecture, engineering, and construction (AEC). Here are some key skills and competencies you might gain:</p> <p><b>Technical Proficiency:</b></p> <ol style="list-style-type: none"> <li>1. <b>Revit Software Mastery:</b> In-depth knowledge of Revit's tools and features, including creating and managing building models, using families, and working with different project views.</li> <li>2. <b>3D Modeling:</b> Ability to create detailed and accurate 3D models of buildings and infrastructure.</li> <li>3. <b>BIM (Building Information Modeling):</b> Understanding of BIM principles and how to</li> </ol>

apply them in Revit for efficient design, documentation, and coordination.

### Design and Documentation:

1. **Drafting and Annotation:** Skills in producing high-quality construction documents, including floor plans, elevations, sections, and details.
2. **Collaborative Design:** Experience in working with multidisciplinary teams using Revit's collaboration tools to manage changes and coordinate work.

### Global Standards and Practices:

1. **International Standards:** Familiarity with global standards and practices for building design and construction, including different regional codes and requirements.
2. **Cultural Awareness:** Understanding of how design practices and preferences vary across different countries and cultures.

### Problem-Solving and Project Management:

1. **Troubleshooting:** Ability to identify and resolve issues that arise during the modeling and documentation process.
2. **Project Coordination:** Skills in managing project workflows, integrating various disciplines, and ensuring consistency across different project components.

### Communication and Presentation:

1. **Visualization:** Competence in creating high-quality visualizations, including renderings and walkthroughs, to communicate design concepts effectively.
2. **Client and Stakeholder Engagement:** Ability to present and explain Revit models and design choices to clients and stakeholders

### Hands-on Practice:

- **Practice Exercises:** Regularly complete practice exercises and challenges to reinforce your skills.
- **Real-World Projects:** Work on small personal projects or volunteer for local projects to gain real-world experience.
- **Revit Community:** Participate in online forums and communities (e.g., Autodesk forums, Reddit) to exchange tips and ask questions.
- **Software Updates:** Stay updated with the latest Revit features and tools to ensure your skills remain current.

### Entry-level of trainees

- Minimum DAE Civil, Mechanical, and Architecture Technology Preferably Graduation in Construction and Mechanical Sector

## Learning Outcomes of the course

A 3-month Revit course designed for construction professionals with a global perspective should focus on equipping participants with essential skills for effective Building Information Modeling (BIM) and its application in diverse international contexts. Here's an outline of key learning outcomes you can expect from such a course:

### I. Mastery of Revit Basics and Advanced Features

**Revit Interface and Navigation:** Proficiency in using Revit's interface, including the ribbon, properties panel, and project browser.

**Modeling Tools:** Ability to create and modify building elements such as walls, floors, roofs, and structural components.

**Advanced Features:** Knowledge of advanced tools for complex modeling, including custom families, parametric constraints, and complex geometries.

### II. Comprehensive Understanding of BIM Concepts

**BIM Fundamentals:** Understanding the principles of Building Information Modeling and how they apply to construction projects.

**Global BIM Standards:** Familiarity with international BIM standards and practices, such as ISO 19650, and how they influence project workflows and documentation.

**Collaborative BIM:** Skills in using Revit for collaborative work, including worksets, shared parameters, and coordination with other disciplines (e.g., MEP, structural).

### III. Practical Application in Construction Projects

**Project Workflow:** Knowledge of the Revit workflow from conceptual design through to construction documentation and project handover.

**Documentation and Annotation:** Ability to create detailed construction documents, including plans, sections, elevations, and schedules.

**Visualization:** Skills in producing visualizations such as renderings, walkthroughs, and 3D views to aid in design presentations and stakeholder communication.

### IV. Integration with Global Construction Practices

**Regional Code Compliance:** Understanding how to incorporate and apply regional and international building codes and standards within Revit models.

**Cultural Considerations:** Awareness of design and construction practices specific to different regions and how these can be integrated into Revit projects.

**International Project Collaboration:** Skills in managing and coordinating with international teams and stakeholders, including handling different file formats

	<p>and software compatibility.</p> <p><b>V. Enhanced Problem-Solving and Project Management Skills</b></p> <p><b>Troubleshooting:</b> Ability to identify and resolve common issues that arise in Revit projects, such as conflicts and errors.</p> <p><b>Project Coordination:</b> Skills in managing project coordination and collaboration, including resolving clashes and ensuring consistency across disciplines.</p> <p><b>Efficiency and Productivity:</b> Techniques to improve efficiency and productivity in Revit, including template management, automation tools, and effective use of Revit's features.</p> <p><b>VI. Effective Communication and Presentation</b></p> <p><b>Stakeholder Engagement:</b> Ability to communicate design intent and project details effectively to clients, contractors, and other stakeholders using Revit's visualization tools.</p> <p><b>Presentation Skills:</b> Competence in creating compelling presentations and reports using Revit's output, including annotated drawings and graphical representations.</p> <p><b>VII. Hands-On Experience and Portfolio Development</b></p> <p><b>Real-World Projects:</b> Hands-on experience with real or simulated projects to apply learned skills in a practical context.</p> <p><b>Portfolio Creation:</b> Development of a portfolio showcasing the projects completed during the course, including detailed documentation and visualizations</p>
<p><b>Course Execution Plan</b></p>	<p>The total duration of the course: <b>3 months (12 Weeks)</b>  Class hours: <b>4 hours per day</b>  Theory:  Practical:  Weekly hours: <b>20 hours per week</b>  Total contact hours: <b>240 hours</b></p>
<p><b>Companies offering jobs in the respective tradeAr</b></p>	<ul style="list-style-type: none"> <li>○</li> <li>● NESPAK</li> <li>● Archetype Group</li> <li>● Habib Rafiq (Pvt) Ltd</li> <li>● Buro Happold</li> <li>● ACE Group</li> <li>● Pak Oman Investment Company</li> <li>● FWO (Frontier Works Organization)</li> <li>● Descon Engineering</li> <li>● Emaar Pakistan</li> </ul>

	<ul style="list-style-type: none"> <li>• DHA (Defense Housing Authority)</li> <li>• Mott MacDonald</li> <li>• RSM International</li> <li>• Pentasys</li> </ul>
<b>Job Opportunities</b>	<ul style="list-style-type: none"> <li>• BIM (Building Information Modeling) Specialist</li> <li>• Architectural Drafter</li> <li>• CAD/BIM Technician</li> <li>• Project Coordinator</li> <li>• Structural Drafter</li> <li>• MEP (Mechanical, Electrical and Plumbing) Designer</li> <li>• Visualization Specialist</li> </ul>
<b>No of Students</b>	25
<b>Learning Place</b>	Classroom / Lab
<b>Instructional Resources</b>	<p><b>Online Courses and Tutorials:</b></p> <p><b>The Revit Kid:</b> Provides tutorials and tips on using Revit effectively.</p> <ol style="list-style-type: none"> <li>1. <a href="#">The Revit Kid YouTube Channel</a></li> </ol> <p><b>BIMsmith:</b> Offers tutorials and webinars on Revit and BIM topics.</p> <ol style="list-style-type: none"> <li>2. <a href="#">BIMsmith YouTube Channel</a></li> </ol> <p><b>Videos:</b> Includes tutorials and feature highlights for Revit.</p> <ol style="list-style-type: none"> <li>3. <a href="#">Autodesk Revit YouTube Channel</a></li> </ol> <p>Coursera Offers courses on BIM and Revit through partnerships with universities.</p> <ol style="list-style-type: none"> <li>4. <a href="#">Coursera BIM and Revit Courses</a></li> </ol> <p>Offers various courses on Revit, including beginner to advanced levels.</p> <ul style="list-style-type: none"> <li>• <a href="#">LinkedIn Learning Revit Courses</a></li> </ul> <p>Udemy offers various courses on Revit, including beginner to advanced levels.</p> <ul style="list-style-type: none"> <li>• <a href="#">LinkedIn Learning Revit Courses</a></li> </ul> <p><b>Books and References:</b></p> <p><i><a href="#">"Mastering Autodesk Revit" Series</a></i></p>

**Author:** Robert Yori, and others.

5. **Description:** Comprehensive guides covering a wide range of Revit topics from basics to advanced features.

*. “Revit Architecture 2024 for Designers”*

**Author:** Douglas R. Seidler.

**Description:** A practical guide focusing on architectural design and documentation using Revit.

*“The BIM Manager's Handbook”*

**Author:** Dominik Holzer.

**Description:** Provides insights into BIM management, which is useful for understanding how Revit fits into broader BIM workflows.

**Practice and Experimentation:**

*BIM Object.*

- Link: [BIM Object](#)

*Revit City*

- Link: [Revit City](#)

**MODULES**

Schedu led Weeks	Module Title	Days	Learning Units	Home Assignment
Week 1	Introduction to BIM and its Global Standards	Day 1	<b>Definition and benefits of BIM</b> <ul style="list-style-type: none"><li>• Definition of BIM</li><li>• Benefits of BIM</li><li>• Difference between BIM and REVIT</li></ul>	<b>Define and Benefits of BIM?</b>
		Day 2-3	<b>Revit's interface and basic Tools</b> <ul style="list-style-type: none"><li>• Introduction to Revit</li></ul>	

			<p>interface (Ribbon, project browser, properties palette, drawing area, status bar etc)</p> <ul style="list-style-type: none"> <li>• Introduction to basic Revit tools (wall tools, window and door tools, floor, column tools etc)</li> <li>• Overview of workflow in Revit (start a project, create and place elements etc)</li> </ul>	
		<b>Day 4</b>	<p><b>Exploring International BIM Standards (e.g. ISO 19650, EN ISO 19591, NBS Codes)</b></p> <ul style="list-style-type: none"> <li>• Introduction to various standards used in BIM e.g. ISO 19650, EN ISO 19591, NBS Codes</li> </ul>	
		<b>Day 5</b>	<p><b>Understanding regional variations and best practices</b></p> <ul style="list-style-type: none"> <li>• Overview of International building code</li> <li>• Overview of International building standards</li> <li>• Overview of BIM standards adopted in various regions of the world</li> <li>• Introduction to best practices in BIM</li> </ul>	



Week 2	Architectural Modeling for Diverse Building Types	Day1-3	<p><b>Creating Architectural elements tailored to different building styles and climates.</b></p> <ul style="list-style-type: none"> <li>• Identify building type</li> <li>• Create families (of varies elements)</li> <li>• Draw Customize template tailored to the building type, including appropriate view templates, annotation styles, and standards etc</li> <li>• Ensure accuracy of measurements</li> </ul>	<p><b>Design a 3 story, 5 marla commercial building with interior and exterior design including material choices and finishes</b></p>
		Day 4-5	<p><b>Working with regional building codes and regulations</b></p> <ul style="list-style-type: none"> <li>• Identify building code for your region</li> <li>• Understand compliance requirements for the project</li> <li>• Set up revit templates</li> <li>• Configure project parameters</li> <li>• Apply and verify compliance with regional code</li> </ul>	
Week 3	Architectural Modeling for Diverse Building Types	Day 1-5	<p>Applying Materials and finishes suitable for specific geographical locations</p> <ul style="list-style-type: none"> <li>• Identify local building codes</li> <li>• Identify climate and environmental factors e.g. climatic zone, project location etc</li> <li>• Select materials based on performance and</li> </ul>	<p><b>Create or modify material on Architect ural Modeling in revit</b></p>

			<p>Aesthetics</p> <ul style="list-style-type: none"> <li>• Create or modify material definition</li> <li>• Apply materials to building elements</li> <li>• Use paint tool for finishes</li> <li>• Visualize and verify material performance by rendering</li> </ul>	
<b>Week 4</b>	<b>Structural Modeling for Global Construction Practices</b>	<b>Day 1-5</b>	<p><b>Creating structural elements (beams, columns, slabs, foundation) considering seismic, wind and other regional loads</b></p> <ul style="list-style-type: none"> <li>• Identify building code for respective region</li> <li>• Identify load parameters e.g. wind load, seismic load etc</li> <li>• Identify material properties etc for beam</li> <li>• Identify material properties for column</li> <li>• identify material properties of slabs</li> <li>• identify material properties for foundation</li> </ul>	<b>Creating structural elements in modelling</b>
<b>Week 5</b>	<b>Structural Modeling for Global Construction Practices</b>	<b>Day 1-5</b>	<p><b>Applying structural materials and properties compliant with international standards</b></p> <ul style="list-style-type: none"> <li>• Create a beam</li> <li>• Modify beam properties</li> <li>• Create columns</li> <li>• Modify column properties</li> <li>• Create slabs</li> <li>• Modify slab properties</li> <li>• Create foundation</li> </ul>	<b>Create and modify structural elements in modelling</b>

			<ul style="list-style-type: none"> <li>• Modify foundation properties</li> <li>•</li> </ul>	
<b>Week 6</b>	<b>Structural Modeling for Global Construction Practices</b>	<b>Day 1-5</b>	<b>Analyzing structural performance using advance analysis tools</b> <ul style="list-style-type: none"> <li>• Define structure elements</li> <li>• Verify load combinations as per local code</li> <li>• Check model integrity</li> <li>• Validate all structure elements and connections, support etc are correctly defined</li> <li>• Navigate to analyze tab in revit</li> <li>• Choose the appropriate analysis settings and options, such as analysis type (linear static, dynamic, etc.).</li> <li>• Create special views for analyzing the structural model, including loads and results.</li> <li>• Display and adjust the applied loads in your views.</li> <li>• Use Revit's integration with external analysis tools such as Autodesk Robot Structural Analysis, ETABS, or SAP2000</li> <li>• Perform more detailed analysis in the external software,</li> </ul>	<p><b>Create special views for analyzing the structural model, including loads and results.</b></p>

			<p>including dynamic analysis, nonlinear analysis, and more complex load scenarios</p> <ul style="list-style-type: none"> <li>• choose analysis tool, set up the analysis parameters and run the analysis.</li> <li>• Analyze the results for critical stresses, deflections, and stability</li> <li>• Generate report for comprehensive result review</li> </ul>	
<b>Week 7</b>	<b>MEP Systems Modeling for International Standards</b>	<b>Day 1-5</b>	<p><b>Creating MEP systems (electrical, Mechanical, plumbing) adhering to regional standards and regulations</b></p> <ul style="list-style-type: none"> <li>• Understand MEP Regional Standards and Regulations</li> <li>• create a project template that aligns with regional standards.</li> <li>• Ensure that your MEP systems are coordinated with architectural and structural models.</li> <li>• Set Up Your Revit Project</li> <li>• Use Revit's electrical fixtures such as lighting, power outlets, and switches.</li> <li>• Define electrical circuits and panel boards.</li> <li>• Perform load calculations to ensure that your electrical system</li> </ul>	<p><b>Design a 3 storey, 5 marla commercial building with MEP systems adhering to regional standards and regulations</b></p>

			<p>meets the power demands of the building.</p> <ul style="list-style-type: none"> <li>• Place HVAC components like ducts, diffusers, and mechanical equipment.</li> <li>• Design your HVAC system, including air handling units, fans, and chillers</li> <li>• Define the airflow, temperature control, and heating/cooling requirements based on local regulations.</li> <li>• Place plumbing fixtures like sinks, toilets, and faucets</li> <li>• Design and place piping systems for water supply, drainage, and waste</li> <li>• Use Revit's plumbing tools to define pipe sizes, materials, and routing.</li> <li>• Perform pressure and flow calculations</li> <li>•</li> </ul>	
<b>Week 8</b>	<b>MEP Systems Modeling for International Standards</b>	<b>Day 1-3</b>	<p><b>Routing pipes, ducts and conduits considering local climate conditions and energy efficiency requirements</b></p> <ul style="list-style-type: none"> <li>• Understand MEP Regional Standards and Regulations</li> <li>• Create a project template that aligns with regional standards.</li> <li>• Ensure that your MEP systems are coordinated with architectural and</li> </ul>	<p><b>Create a project template that aligns with regional standards.</b></p>

			<p>structural models.</p> <ul style="list-style-type: none"> <li>• Set Up Your Revit Project</li> <li>• Place HVAC components like ducts, diffusers, and mechanical equipment.</li> <li>• Design your HVAC system, including air handling units, fans, and chillers</li> <li>• Define the airflow, temperature control, and heating/cooling requirements based on local regulations.</li> <li>• Place plumbing fixtures like sinks, toilets, and faucets</li> <li>• Design and place piping systems for water supply, drainage, and waste</li> <li>• Use Revit's plumbing tools to define pipe sizes, materials, and routing.</li> <li>•</li> </ul>	
		<b>Day 4-5</b>	<p><b>Placing fixtures and equipment compatible with international standards</b></p> <ul style="list-style-type: none"> <li>• Use Revit's Clash Detection tools to identify any conflicts between MEP systems and other building elements</li> <li>• Conduct system performance analysis using Revit's analysis tools or external software to verify that all systems perform as intended</li> </ul>	

			<ul style="list-style-type: none"> <li>• Create detailed drawings for electrical, mechanical, and plumbing systems, including plans, sections, and details.</li> </ul>	
<b>Week 9</b>		<b>Day 1-3</b>	<p><b>Understanding the BIM workflow and collaboration process in international projects</b></p> <ul style="list-style-type: none"> <li>• Establish high level working goals and design concepts</li> <li>• Develop detailed models, conducting simulations, and refining designs based on client feedback.</li> <li>• Create using BIM detailed drawings, schedules, and specifications required for construction</li> <li>• Use BIM model to construct and coordinate between planning, sequencing, and logistics</li> <li>• Use BIM model for operations and facility management</li> <li>•</li> </ul>	<p><b>Create using BIM detailed drawings, schedules, and specifications required for construction</b></p>

		Day 4-5	<b>Using linked models and work sharing across different teams and location</b> <ul style="list-style-type: none"> <li>• Define clear roles and responsibilities with respect to project e.g. engineer contractor etc</li> <li>• Establish communication protocols</li> <li>• Develop common data environment where all project data including BIM model etc are managed</li> <li>• Standardize BIM Protocols and Procedures:</li> <li>• Coordinate Time Zones and Cultural Differences</li> <li>• Develop a BIM Execution Plan that outlines the BIM goals, processes, and responsibilities for the project</li> </ul>	
Week 10		Day 1-2	<b>Resolving clashes and conflicts considering cultural and language barriers</b> <ul style="list-style-type: none"> <li>• Establish Clear Communication Channels</li> <li>• Implement Effective Clash Detection Tools</li> </ul>	<b>Develop and distribute a communication protocol document that outlines preferred methods</b>
		Day 3-5	<b>Coordinating with design teams from various regions</b> <ul style="list-style-type: none"> <li>• Use centralized platforms like Autodesk BIM 360, Microsoft Teams, or Slack for communication and document sharing</li> <li>• Set up regular coordination</li> </ul>	



			<p>meetings at times that are convenient for all time zones.</p> <ul style="list-style-type: none"> <li>• Develop and distribute a communication protocol document that outlines preferred methods</li> </ul>	
<b>Week 11</b>	<b>Advance Revit features for Global Projects</b>	<b>Day 1-2</b>	<p><b>Parametric modeling and families for creating reusable components</b></p> <ul style="list-style-type: none"> <li>• Understand the Basics of Parametric Modeling</li> <li>• Setup family template from Revits family</li> <li>• Create basic geometry. For 3D components, use tools like Extrude, Revolve, or Sweep.</li> <li>• Add parameter to geometry</li> <li>• Add constraints to adjust geometry</li> <li>• Create and manage family type</li> <li>• Add visibility control to family</li> <li>• Add detailed elements such as annotations, tags, or symbols that will appear in the project.</li> <li>• Save your family file (*.rfa) to a location where it can be accessed by your project.</li> <li>• Load the family into your Revit project by going to <b>Insert &gt; Load Family</b> and selecting your saved family file.</li> <li>• Test and validate family</li> </ul>	

			<ul style="list-style-type: none"> <li>• Create a family library</li> </ul>	
		Day 3-5	<p><b>Rendering and visualization techniques for presenting designs to international clients</b></p> <ul style="list-style-type: none"> <li>• Prepare revit model by applying appropriate material and setting up lightning</li> <li>• Use revits built in rendering tool</li> <li>• Create compelling views of the project</li> <li>• Enhance rendered image by exporting images to different software for post processing</li> <li>• Create high quality rendering in Revit using high resolution textures and proper lighting</li> <li>• Use Revit add-ons and external tools</li> <li>• Create presentation</li> </ul>	<p><b>Rendering and visualization techniques for a 5 Marla commercial plaza</b></p>
Week 12	Advance Revit features for Global Projects	Day 1-3	<p><b>Scheduling and quantity takeoff for global project management</b></p> <ul style="list-style-type: none"> <li>• Define project parameters e.g. project phase, levels and grids</li> <li>• Create and organize views to display quantity takeoffs.</li> <li>• Open schedule dialog to select schedule</li> <li>• Select the category of the elements you want to schedule e.g. doors, windows etc</li> <li>• Select fields that</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out scheduling and quantity take off for a 5 marla commercial building using Revit</li> </ul>

			<p>includes parameters such as type,size etc for scheduling</p> <ul style="list-style-type: none"> <li>• Apply filters to include only relevant elements such as project phase, level or type</li> <li>• Set sorting and grouping of schedules e.g. sort doors by type and group them by level</li> <li>• Format schedule e.g. column widths, header etc</li> <li>• Use quantity parameters i.e. area, volume or count</li> <li>• Create a schedule for quantity takeoff</li> <li>• Add calculation fields for custom quantity takeoff</li> <li>• Create material takeoff schedules by choosing material categories</li> <li>• Add properties related to materials such as type, volume and area</li> <li>• Export schedule and quantity data to excel and other project management tools</li> <li>• Use plugins that allows revit to interface with other software for advance scheduling and quantity take off</li> <li>• Update schedule regularly</li> <li>• Track project phases to track progress</li> <li>• Standardize data formats to share and coordinate with international teams effectively</li> <li>• Conduct regular</li> </ul>	
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			reviews and implement quantity control procedures	
		<b>Day 4-5</b>	<b>Customization and scripting to adapt Revit to specific regional requirements</b> <ul style="list-style-type: none"> <li>• Understand local building codes, standards and regulations applied to the region</li> <li>• Create Revit families as per regional standards</li> <li>• Create project templates and define annotation styles as per region</li> <li>• define project standards as per region</li> <li>• use Revit Application Programming Interface for advance customization</li> </ul>	

## Practical Tasks:

	Task	Description	Week
1	<b>Define and Benefits of BIM?</b>	<ul style="list-style-type: none"> <li>• Definition of BIM</li> <li>• Benefits of BIM</li> <li>• Difference between BIM and REVIT</li> </ul>	Week 1
2	<b>Design a 3 story, 5 marla commercial building with interior and exterior design including material choices and finishes</b>	<ul style="list-style-type: none"> <li>• Identify building type</li> <li>• Create families (of varies elements)</li> <li>• Draw Customize template tailored to the building type, including appropriate view templates, annotation styles, and standards etc</li> </ul>	Week 2
3	<b>Create or modify material on Architectural Modeling in revit</b>	<ul style="list-style-type: none"> <li>• Identify local building codes</li> <li>• Identify climate and environmental factors e.g. climatic zone, project location etc</li> </ul>	Week 3
4	<b>Creating structural elements in modelling</b>	<ul style="list-style-type: none"> <li>• Identify building code for respective region</li> <li>• Identify load parameters e.g. wind load, seismic load etc</li> <li>• Identify material properties etc for beam</li> </ul>	Week 4
5	<b>Create and modify structural elements in modelling</b>	<ul style="list-style-type: none"> <li>• Create a beam</li> <li>• Modify beam properties</li> <li>• Create columns</li> </ul>	Week 5
6	<b>Create special views for analyzing the structural model, including loads and results</b>	<ul style="list-style-type: none"> <li>• Define structure elements</li> <li>• Verify load combinations as per local code</li> <li>• Check model integrity</li> </ul>	Week 6
7	<b>Design a 3 storey, 5 marla commercial</b>	<ul style="list-style-type: none"> <li>• Understand MEP Regional Standards and Regulations</li> <li>• create a project template that</li> </ul>	Week 7

	<b>building with MEP systems adhering to regional standards and regulations</b>	<p>aligns with regional standards.</p> <ul style="list-style-type: none"> <li>• Ensure that your MEP systems are coordinated with architectural and structural models</li> </ul>	
<b>8</b>	<b>Create a project template that aligns with regional standards.</b>	<ul style="list-style-type: none"> <li>• Understand MEP Regional Standards and Regulations</li> <li>• Create a project template that aligns with regional standards.</li> <li>• Ensure that your MEP systems are coordinated with architectural and structural models</li> </ul>	Week 8
<b>9</b>	<b>Create using BIM detailed drawings, schedules, and specifications required for construction</b>	<ul style="list-style-type: none"> <li>• Establish high level working goals and design concepts</li> <li>• Develop detailed models, conducting simulations, and refining designs based on client feedback.</li> <li>• Create using BIM detailed drawings, schedules, and specifications required for construction</li> </ul>	Week 9
<b>10</b>	<b>Develop and distribute a communication protocol document that outlines preferred methods</b>	<ul style="list-style-type: none"> <li>• Use centralized platforms like Autodesk BIM 360, Microsoft Teams, or Slack for communication and document sharing</li> <li>• Set up regular coordination meetings at times that are convenient for all time zones.</li> </ul>	Week 10
<b>11</b>	<b>Rendering and visualization techniques for a 5 Marla commercial</b>	<ul style="list-style-type: none"> <li>• Understand the Basics of Parametric Modeling</li> <li>• Setup family template from Revits family</li> <li>• Create basic geometry. For 3D components, use tools like</li> </ul>	Week 11

	<b>plaza</b>	Extrude, Revolve, or Swee	
<b>12</b>	<b>Carry out scheduling and quantity take off for a 5 marla commercial building using Revit</b>	<ul style="list-style-type: none"><li>• Define project parameters e.g. project phase, levels and grids</li><li>• Create and organize views to display quantity takeoffs</li></ul>	Week 12

## Workplace/Institute Ethics Guide

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Work ethic is a standard of conduct and values for job performance. The modern definition of what constitutes good work ethics often varies. Different businesses have different expectations. Work ethic is a belief that hard work and diligence have a moral benefit and an inherent ability, virtue, or value to strengthen character and individual abilities. It is a set of values-centered on the importance of work and manifested by determination or desire to work hard.

The following ten work ethics are defined as essential for student success:

**1. Attendance:**

Be at work every day possible, plan your absences don't abuse leave time. Be punctual every day.

**2. Character:**

Honesty is the single most important factor having a direct bearing on the final success of an individual, corporation, or product. Complete assigned tasks correctly and promptly. Look to improve your skills.

**3. Team Work:**

The ability to get along with others including those you don't necessarily like. The ability to carry your weight and help others who are struggling. Recognize when to speak up with an idea and when to compromise by blend ideas together.

**4. Appearance:**

Dress for success set your best foot forward, personal hygiene, good manner, remember that the first impression of who you are can last a lifetime

**5. Attitude:**

Listen to suggestions and be positive, accept responsibility. If you make a mistake, admit it. Values workplace safety rules and precautions for personal and co-worker safety. Avoids unnecessary risks. Willing to learn new processes, systems, and procedures in light of changing responsibilities.

**6. Productivity:**

Do the work correctly, quality and timelines are prized. Get along with fellows, cooperation is the key to productivity. Help out whenever asked, do extra without being asked. Take pride in your work, do things the best you know-how. Eagerly focuses energy on accomplishing tasks, also referred to as demonstrating ownership. Takes pride in work.

**7. Organizational Skills:**



Make an effort to improve, learn ways to better yourself. Time management; utilize time and resources to get the most out of both. Take an appropriate approach to social interactions at work. Maintains focus on work responsibilities.

**8. Communication:**

Written communication, being able to correctly write reports and memos.  
Verbal communications, being able to communicate one on one or to a group.

**9. Cooperation:**

Follow institute rules and regulations, learn and follow expectations. Get along with fellows, cooperation is the key to productivity. Able to welcome and adapt to changing work situations and the application of new or different skills.

**10. Respect:**

Work hard, work to the best of your ability. Carry out orders, do what's asked the first time. Show respect, accept, and acknowledge an individual's talents and knowledge. Respects diversity in the workplace, including showing due respect for different perspectives, opinions, and suggestions.