Faculty of Engineering and Technology
Department of Civil Engineering
Minor Degree in Building Information Modeling
Effective in Academic Year 2025-26

Branch Name:	Civil Engineering
Semester:	IV
Course Code:	BIM401
Course Name:	Fundamentals of BIM, BIM Modeling and Documentation in Revit (Basic Level)
Pre-requisite Course:	Basic knowledge of building construction and computer-aided drafting (CAD)

Course Objective

- The objective of this course is to provide students with a fundamental understanding of Building Information Modeling (BIM) concepts and hands-on experience using Autodesk Revit.
- The course aims to bridge the gap between traditional design processes and modern, digital construction practices.

Teaching Scheme (hours)				**Evaluation Scheme (Marks)**				
				Theory		**Practical**		
Lecture	**Tutorial**	**Practical**	**Credit**	**University Assessment**	**Continuous Assessment**	**University Assessment**	**Continuous Assessment**	**Total**
2	--	6	5	30	20	50	50	150

Sr. No	**Topic**	**Teaching Hrs.**	**Module Weightage**
1	**Module 1: Introduction to BIM and Revit Software** Concept of BIM: Definition, BIM Scope & advantages, and comparison with CAD, Overview of Autodesk Revit & Other BIM Tools	04	10
2	**Module 2: Actual Site Measurement & AutoCAD 2D Drawing** Students need to identify the small-scale Project like Apartment / Villa / Office/ School / collage etc., Site visit and measure the entire building, create 2D layouts (Plan & Elevations) in AutoCAD, Review the building against the created 2D Plans	08	20
3	**Module 3: Revit Interface & Standard** Autodesk Revit interface, Revit Architecture & Structure tools understanding, Project setup and template selection, BIM Standard & BIM Modeling Definitions	10	10
4	**Module 4: Building Modeling Basics** Modeling walls, Column, Beam, floors, roofs, and ceilings, inserting doors, windows, and components, Use of tools like copy, mirror, align, trim, and offset, View management: Plans, sections, elevations	12	10
5	**Module 5: Annotation, Documentation & Visualization** Dimensions, tags, and text, Schedules: Room, door, window, Sheets, title blocks, and print settings, 3D Visualization	10	20
6	**Module 6: Case Studies and Mini Project** Industry case studies on BIM implementation, Hands-on mini project: Residential or commercial building model, Project presentation and documentation	12	30

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Course Outcome

At the end of this course, the student will be able to

1. Understand the fundamental concepts of BIM and its role in the construction industry.
2. Create 3D BIM models using Revit software.
3. Generate 2D Drawings and Annotation.
4. Utilize visualization tools for design presentations.
5. Develop a complete building model and documentation as a project.

Scope of Course

- Suitable for students aiming for careers in architecture, structural design, and project coordination.
- Prepares learners for industry-standard tools and processes in digital construction and design.
- Useful for preparing for Autodesk Certified Professional (ACP) in Revit Architecture.

Suggested Practical's

Module 1: Introduction to BIM and Revit

1. Explore Revit interface: Create a new project, set up levels and grids.
2. Compare BIM and CAD by preparing a short demo/model in both environments.

Module 2: Site Measurement & AutoCAD 2D Drawing

3. Conduct a site visit to measure a small structure (e.g., classroom/lab/apartment).
4. Draft 2D plans and elevations of the site in AutoCAD.
5. Verify site measurements against drafted drawings and prepare a short report.

Module 3: Revit Interface & Standards

6. Create a Revit project with correct units, templates, and naming conventions.
7. Apply BIM standards by setting up parameters for walls, floors, and components.

Module 4: Building Modeling Basics

8. Model a simple residential unit with walls, doors, windows, floors, roofs, and stairs.
9. Use modification tools (align, copy, trim, mirror, offset) to edit the building.
10. Generate plan, section, and elevation views for the created model.

Module 5: Annotation, Documentation & Visualization

11. Add dimensions, tags, and text annotations to the model.
12. Create schedules (room, door, and window).

13. Prepare title blocks, sheets, and print-ready drawings.
14. Render a 3D visualization (interior/exterior).

Module 6: Case Studies & Mini Project

15. Review an industry BIM case study and present findings.
16. Develop a mini project (residential or commercial model) in Revit.
17. Prepare full project documentation (2D sheets + 3D views + schedules).
18. Final presentation of the mini project with drawings and renders.