

Computer Application in Project Management-I

01CP0103

Objective of the Course:

Objectives of introducing this subject at second year level in civil branches are:

- To understand the Software applications in Construction projects and Concept of Building Information modeling.
- To Develop models for any project using basics of Auto-CAD and Revit Architecture Software.

Credits Earned: 2

Course Outcomes

After completion of this course, student will be able to

- Use basic and advanced commands of Auto-CAD to develop 2D detail engineering and construction drawings for projects.
- Apply basic and advanced commands of Revit architecture in Building Information Modeling.
- Develop 3D view with the help of the software.
- Solve the real life project problems with the use of Software.

Teaching and Examination Scheme

| Teaching Scheme (Hours) | | | Credits | Theory Marks | | | Tutorial/ Practical Marks | | Total Marks |
|-------------------------|----------|-----------|---------|--------------|----|-----|---------------------------|----------------|-------------|
| Theory | Tutorial | Practical | | ESE (E) | IA | CSE | Viva (V) | Term work (TW) | |
| 0 | 0 | 4 | 2 | - | - | - | 50 | 50 | 100 |

Detailed Syllabus:

| Sr. No | Topic name | Hours |
|----------|--|-----------|
| 1 | Introduction to Engineering Drawings and AutoCAD | 12 |
| | Introduction to Engineering Drawings, AutoCAD, Different Versions of AutoCAD Workspace, Coordinate System, File management. Basic Geometry Shapes, Standards, Units, Limits, Snap, Drafting Setting. | |
| 2 | Advanced Drafting | 12 |
| | Move, Rotate, Scale, Copy, Mirror, Erase, Trim, Extend, Undo, Explode, Break, Stretch, Join, Fillet, Chamfer, and Object Properties. Array, Single line and multi-line text, Special Lines, Projection and Views, Hatching, Annotation, Dimension Style manager Layer, Layer Tools, Layer State Manager, Export-Import Layer, Hatch Pattern, Blocks, External References, Layout, Plot and Publish. | |
| 3 | Introduction to Revit Architecture and Building Information Modelling | 18 |
| | Introduction to BIM, Introduction to Revit Architecture Different Versions of Revit Architecture, Special Features of Revit Architecture. Using Ribbon & Quick Access Toolbar (QAT), Using Properties Palette, Modifying Properties & Professional Palette, Using Project Browser, Navigation Views (Zoom, Pan, and Rotate), Accessing Revit Operation. Creating a new project from file, Accessing Multiuser Projects using work share, Configure Project Settings, Adding Levels and Grids, Referring Layout with temporary dimensions | |
| 4 | Modelling in Revit and Linking with other Building Software. | 8 |
| | Adding Walls, Wall Properties, Wall types and wall thickness. Doors and Windows, Door and windows from library, Adding Plumbing Fixture and other components. Create Floor Using Pick wall, Floor using offset, arc, line, rectangle, Adding roof to the drawing, Plastering the walls and other components. Linking AutoCAD Drawing Files, Understanding CAD Inserts, Minor Groups to Create a Layout, Creating Revit Links, Managing the Links | |
| 5 | Developing the Building Model | 6 |

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|--|--|--|
| | Viewing the Building Model, Using Dimensions and Constraints, Detailing and Drafting, Construction Documentation, Presenting the Building Model, Rendering | |
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Suggested Theory distribution:

The suggested theory distribution as per Bloom’s taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

| Distribution of Theory for course delivery and evaluation | | | | | |
|---|------------|-------|---------|----------|--------|
| Remember | Understand | Apply | Analyze | Evaluate | Create |
| 00% | 40% | 40% | 10% | 00% | 10% |

Instructional Method and Pedagogy

1. Importance and utilization of software in the Civil Engineering sector shall be discussed.
2. The teaching shall be conducted using various teaching aids in computer lab.
3. Attendance in the session is mandatory and shall contain 5% weightage of the internal evaluation scheme.
4. At the end of each session, an assignment based on the content shall be given to the students which shall carry 5% weightage for timely completion and submission of the assigned work.
5. The course includes a practice session, where students shall have an opportunity to carry hands on experience on the software.

Recommended Study

Material Reference

Books:

1. Mastering Autodesk Revit 2018 by Eddy Krygiel, Lance Kirby and Marcus Kim.
2. Revit Architecture 2018 for Engineers and Designers by Douglas R. Seidler.
3. Autodesk Revit 2017 for Architecture by Eric Wing.

Reference Websites:

1. <https://www.lynda.com/Revit-Architecture-training-tutorials/416-0.html>