BIM (BUILDING INFORMATION MODELLING)

Semester VI

Course Objective:
To provide students with fundamental knowledge of Building Information Modeling (BIM), its applications, workflows, and implementation in construction projects.

UNIT – I: Introduction to BIM

- Overview of Building Information Modeling (BIM)
- Evolution of BIM in the Construction Industry
- BIM Concepts, Terminologies, and Dimensions (3D, 4D, 5D, 6D, 7D)
- Benefits and Challenges of BIM Adoption
- BIM Standards and Guidelines

UNIT – II: BIM Modeling Fundamentals

- Introduction to BIM Software Platforms
- Creating and Managing BIM Models
- Building Components and Parametric Modeling
- Architectural, Structural, and MEP Modeling Basics
- Data Management and Model Coordination

UNIT – III: BIM Collaboration and Coordination

- BIM Workflow and Project Lifecycle
- Collaborative Design Environment
- Clash Detection and Conflict Resolution
- Interoperability and Data Exchange Formats
- Common Data Environment (CDE)

UNIT – IV: BIM for Construction Planning and Management

- 4D BIM for Construction Scheduling
- 5D BIM for Cost Estimation and Quantity Take-Off
- Resource Planning and Project Monitoring

- Site Management using BIM
- Risk Identification and Mitigation through BIM

UNIT – V: BIM Implementation and Future Trends

- BIM Execution Plan (BEP)
- BIM Adoption Strategies in Organizations
- Facility Management using BIM
- Digital Twins and Smart Buildings
- Emerging Trends: AI, IoT, Cloud Computing, and BIM Integration

Course Outcomes

After successful completion of the course, students will be able to:

1. Understand the fundamental concepts and benefits of BIM.
2. Develop basic BIM models using industry-standard tools.
3. Apply BIM workflows for project collaboration and coordination.
4. Utilize BIM for planning, scheduling, and cost management.
5. Implement BIM practices in construction projects and explore future digital construction technologies.