



Gyanmanjari
Innovative University

Course Syllabus
Gyanmanjari Institute of Technology
Semester-6 (B. Tech.)

Subject: Construction Workshop- BETCV16334

Type of course: Skill based courses

Prerequisite: Basic Knowledge of Building Construction and Material, Concrete Technology

Rationale: The course provides students with hands-on exposure to construction site practices, materials, and tools. It emphasizes safety management, proper use of PPE, and hazard identification to instill a culture of safe working. Students gain practical skills in brickwork, concreting, reinforcement handling, and material management. The syllabus integrates construction drawings and software tools like AutoCAD and MS Project. Field visits help students observe site operations, labour management, and quality practices, enhancing their documentation skills. Overall, the course prepares students for professional roles in construction and interior design while promoting technical competence, safety awareness, and sustainability.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks					Total Marks
CI	T	P		Theory Marks		Practical Marks		CA	
				ESE	MSE	V	P	ALA	
0	0	4	2	0	0	10	40	50	100

Legends: CI-Class Room Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.



Course Content:

Sr. No	Course content	% Weightage
1	Construction Site Orientation and Safety Management Introduction to construction workshop environment, Safety norms, PPE, and hazard identification, Demonstration of site layout, temporary structures, Tools and equipment familiarization, Field communication and work discipline on site.	10
2	Building Components and Material Handling Practices Study of substructure and superstructure components, Brickwork, blockwork, plastering, and concreting demonstrations, Reinforcement cutting, bending, placing, and tying practice, Concrete mix proportioning and slump test demonstration, Material handling, storage, and wastage control methods.	25
3	Construction Drawing and Software Applications Introduction to construction drawings and detailing, Preparation of working drawings, AutoCAD for drafting and dimensioning, MS Project for planning, scheduling, and resource management, Basic SketchUp for 3D visualization.	20
4	Field Visit and Professional Documentation Site visit planning and observation techniques, recording technical details, foundation type, structural system, materials, equipment used, Site logistics, labour management, and quality practices, Preparation of site visit reports, sketches, and photographic documentation.	25
5	Mini Project: Planning, Design & Cost Analysis Selection of small-scale construction project, Preparation of project plan: drawings, work breakdown structure, and schedule, Material estimation and cost calculation using MS Excel Project, Integration of sustainability and safety aspects, Final report, presentation, and viva.	20



Course Outcome:

After learning the course, the students should be able to:	
CO1	Demonstrate practical understanding of building components and construction processes.
CO2	Develop project documentation and material management plans.
CO3	Use construction management or design software for planning and visualization.
CO4	Conduct field visits and prepare analytical site reports.
CO5	Execute a mini-project integrating construction design, costing, and presentation.

List of Practical:

Sr. No.	Descriptions	Unit No.	Hrs.
1.	Demonstration of Site Layout, Temporary Structures & Field Setup	1	02
2.	Study and Use of Personal Protective Equipment (PPE)	1	02
3.	Identification and Handling of Construction Tools & Equipment	1	04
4.	Brick Masonry in English Bond.	2	02
5.	Bar Bending Practice: Cutting, Bending, Hooking & Tying of Reinforcement	2	04
6.	Concrete Mix Preparation and Workability Test	2	04
7.	Plastering and Finishing Techniques using Cement Mortar	2	04
8.	Material Testing -- Cement, Sand, and Aggregate Quality Checks	2	06
9.	Preparation of Working Drawing using AutoCAD	3	06
10.	Project Planning and Scheduling using MS Project / Primavera	3	04
11.	Preparation of Material Estimation and Cost Calculation using Excel	3	04
12.	Field Visit at Residential and Institutional Building under Construction	4	04
13.	Field Visit at Infrastructure Project	4	02
14.	Preparation of Site Visit Report with Drawings, Photographs & Observations	4	04
15.	Mini Project Work: Planning, Design, Cost Estimation & Presentation.	5	08
Total			60



Continuous Assessment:

Sr. No	Active Learning Activities	Marks
1	Hands-on Masonry & Concrete Practice Students will perform small-scale practical works such as brick masonry, plastering, bar bending, and concreting using a mock setup. They will prepare an observation checklist and upload the final report in Poster Presentation format on the GMIU Web Portal.	10
2	Material Identification & Quality Testing Students will conduct on-site testing of aggregates, cement, and concrete cubes using laboratory or portable testing tools. The test results and observations will be recorded and compiled into a practical report, which must be uploaded in presentation format on the GMIU Web Portal.	10
3	Construction Planning using Software Students will prepare a bar chart schedule for a small construction project using MS Project software. The software output and analysis report must be uploaded in GMIU Web Portal.	10
4	Field Visit & Analytical Report Students will visit a real construction site to observe materials, construction methods, safety practices, and site management. Based on their observations, they will prepare a professional field report and upload it in PDF format on the GMIU Web Portal.	10
5	Mini Project: Plan-Design-Cost-Present Students, in groups, will carry out a mini-project involving planning, working drawing preparation, cost estimation, and PowerPoint presentation for a selected structure. The final presentation and report must be uploaded in PPT format on the GMIU Web Portal.	10
Total		50

Suggested Specification table with Marks (Theory): NA

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	NA	NA	NA	NA	NA	NA

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.



Instructional Method:

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of the tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory

The internal evaluation will be done on the basis of Active Learning Assignment

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

Reference Books:

- [1] Building Construction, S.C. Rangwala, Charotar Publishing House.
- [2] Building Construction, Sushil Kumar, Standard Publishers Distributors.
- [3] Building Construction, B.C. Punmia, Laxmi Publications.
- [4] Construction Planning, Equipment and Methods, R.L. Peurifoy and W.B. Ledbetter, McGraw Hill Education.
- [5] Construction Project Management: Planning, Scheduling and Control by K.K. Chitkara, Tata McGraw Hill.
- [6] Building Materials and Construction by S.K. Duggal, New Age International Publishers.
- [7] Construction Technology, R. Chudley and R. Greeno, Pearson Education.
- [8] Estimating and Costing in Civil Engineering, B.N. Dutta, UBS Publishers.





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