**Department of Architecture**

**School of Architecture and planning**

**University of Management and technology**

**Course Outline (on OBE)**

**UMT’s Vision**

***Our Vision is... Learning***

It defines our existence, inspires all stakeholders associated with us, creates a powerful momentum inside, and responds to the challenges outside. It continues to evolve as present captures new realities and foresight to unfold new possibilities. All in an incessant attempt to help individuals and organizations discover their God-given potentials to achieve Ultimate Success actualizing the highest standards of efficiency, effectiveness, excellence, equity, trusteeship and sustainable development of global human society.

**UMT Mission**

**Our Mission is.... Leading**

We aspire to become a learning institution and evolve as the LEADING COMMUNITY for the purpose of integrated development of the society by actualizing strategic partnership with stakeholders, harnessing leadership, generating useful knowledge, fostering enduring values, and projecting sustainable technologies and practices.

**Mission of the School**

The mission of the School is to provide the best leadership in the fields of the built environment; particularly in the development, management and innovation in the fields of architecture, urban planning and related specializations and sub-specializations.

**Mission of the Department**

At the Department of Architecture our mission is to challenge the participants to develop their abilities in solving complex problems by thinking creatively & informed decision making as a core of their professional schooling. Offering them a diverse interdisciplinary and meticulous program of studies led by an adroit faculty in a comprehensive studios or class environment and preparing them for leadership roles in the field of Architecture, Construction, Landscape, Built Environment and community development.

Course code: Course title: **Project Costing and Quantity Analysis**

|  |  |
| --- | --- |
| Program | BS INTERIOR ARCHITECTURE |
| Credit Hours | 2+0 |
| Duration | 16 Weeks |
| Prerequisites | ----- |
| Resource Person |  |
| Counseling Timing |  |  |
| Contact |  |  |

**Program Educational Objectives (PEOs):**

**PEO-1**: Able to interpret and elaborate on design knowledge effectively utilizing communication, graphical, and computer skills to convey design content comprehensively.

**PEO-2**: Possess strong analytical skills and ability to evaluate design challenges critically, proposing innovative solutions that address functional, aesthetic, and contextual considerations.

**PEO-3**: Able to apply principles of interior architecture in professional settings, showcasing creativity, technical proficiency, and adherence to ethical standards.

**Program Learning outcomes (PLOs)**

**PLO 1:** Design Fundamentals: Develop the ability to conceive and execute innovative and aesthetically pleasing interior spaces that meet both functional requirements and artistic standards.

**PLO 2:** Design Development and Analysis: Integrate knowledge from various disciplines to analyze complex design problems and demonstrate proficiency in conceptualizing and developing design solutions through various stages.

**PLO 3:** Technical and Technological Competence: Acquire a comprehensive understanding of construction methods, materials, and building systems coupled with expertise in utilizing industry-standard software and tools for design, drafting, modeling, and rendering, to produce precise and detailed technical drawings and specifications.

**PLO 4**: Effective Communication and Visual Representation: Enhance ability in expressing design concepts and solutions through verbal and written communication, while adeptly employing visual representation tools like sketches, renderings, and digital models.

**PLO 5:** Sustainability and Environmental Responsibility: Demonstrate a commitment to sustainable design practices by understanding and applying principles of environmental stewardship, energy efficiency, and resource conservation in interior architecture projects.

**PLO 6:** Professional Readiness: Prepare for professional practice in interior architecture by imparting knowledge of ethical, legal, and business aspects, while fostering skills in project management, client communication, collaboration with other design professionals, and adherence to industry standards.

**Course Description**:

Drawing Techniques-I is an introductory course designed to develop fundamental drawing skills and techniques. Students will explore various drawing materials and methods, focusing on observation, representation, and expression. The course aims to build a strong foundation in drawing that will be essential for further study in visual arts.

**Course learning outcomes (CLOs)**

After studying this course, the students will be able to better understand:

1. Understand the role and responsibilities of a quantity surveyor.
2. Develop skills in measuring and quantifying construction materials and labor.
3. Learn methods for pricing construction work and preparing cost estimates.
4. Gain proficiency in preparing bills of quantities and tender documents.
5. Explore software applications used in quantity surveying and cost estimation.

**Mapping of CLOs to Program’s Learning outcomes(PLOs)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Code** | **Title** | **Course Learning outcomes** | **PLO 1: Design knowledge** | **PLO 2: Design Analysis and development:** | **PLO3: Digital Tools and technologies:**  | **PLO 4: communication skill:**  | **PLO 5:** **ethical, cultural, and sustainable principles** | **PLO 6: Project Management:** |
|  |  | Understand the role and responsibilities of a quantity surveyor. |  | √ |  |  |  |  |
| Develop skills in measuring and quantifying construction materials and labor | √ |  |  |  |  | √ |
| Learn methods for pricing construction work and preparing cost estimates. |  |  |  |  |  | √ |
| Gain proficiency in preparing bills of quantities and tender documents. |  |  |  |  |  | √ |
| Explore software applications used in quantity surveying and cost estimation. |  |  | √ |  |  |  |

**Learning Methodology:**

**Grade Evaluation Criteria**

Following is the criteria for the distribution of marks to evaluate final grade in a semester.

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| --- | --- |
| **Marks Evaluation** |  **Marks in percentage** |
| Quizzes | 15% |
| Assignments | 10% |
| Mid Term | 25% |
| Final Term | 50% |
| Total | 100% |

 **Recommended Text Books:**

* "Cost Estimation: Methods and Tools" by Gregory K. Mislick and Daniel A. Nussbaum, 2015, Wiley

**Reference Books:**

* "Estimating Construction Costs" by Robert L. Peurifoy, Garold D. Oberlender, 2013 (6th Edition), McGraw-Hill Education
* "Willis's Elements of Quantity Surveying" by Sandra Lee, Bill Trench, and Andrew Willis, 2020 (13th Edition), Wiley-Blackwell
* "New Aspects of Quantity Surveying Practice" by Duncan Cartlidge, 2020 (4th Edition), Routledge

**Course Schedule**

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| --- | --- | --- |
|  **Week** |  **Course Contents**  | **CLO’s** |
| 1 | **Introduction to Quantity Surveying:*** Definition and scope
* Role and responsibilities of a quantity surveyor
* Importance of cost estimation in construction
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| 2 | **Measurement and Quantification*** Measurement principles and standards
* Quantifying construction materials and labor
* Units of measurement and conversion factors.
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| 3 | **Cost Estimation Techniques*** Methods of cost estimation (detailed, unit rate, and factor estimating)
* Components of a cost estimate (materials, labor, equipment, overheads)
* Use of cost indices and historical data.
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| 4 | **Bills of Quantities (BOQ)*** Purpose and importance of BOQ
* Preparation of BOQ: preliminaries, prime cost sums, provisional sums
* Standard methods of measurement
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| 5 | **Tendering and Procurement*** Tender documentation and procedures
* Types of contracts and procurement methods
* Tender evaluation and contract award
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| 6 | **Cost Control and Monitoring*** Techniques for cost control during the project lifecycle
* Variations and change orders
* Reporting and documentation for cost control
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| 7 | **Value Engineering*** Principles and process of value engineering
* Techniques for optimizing project costs without compromising quality
* Case studies and applications of value engineering
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| 8 | **Software Applications in Quantity Surveying*** Introduction to quantity surveying software tools
* Practical training with industry-standard software (e.g., CostX, Bluebeam)
* Benefits and limitations of software tools
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| 9 | **MID TERM** |  |
| 10 | **Case Studies and Practical Applications*** Analysis of real-world construction projects
* Group projects simulating cost estimation and tendering processes
* Role-playing exercises as quantity surveyors
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| 11 & 12 | **Industrial Visits and Guest Lectures*** Visits to construction sites and quantity surveying firms
* Guest lectures by industry professionals
* Insights into current trends and best practices in quantity surveying
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| 13 | **Ethics and Professional Practice*** Ethical considerations in quantity surveying
* Professional standards and codes of conduct
* Continuing professional development
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| 14 & 15 | **Final Project Presentation and Review*** Presentation of group projects
* Peer review and feedback
* Course review and wrap-up
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| 16 | **FINAL EXAM** |  |