



COLLEGE OF INDUSTRIAL TECHNOLOGY
DT 321 – CONSTRUCTION ESTIMATES AND SCALED MODELING

UNIVERSITY VISION

A leading University in advancing scholarly innovation, multi-cultural convergence, and responsive public service in a borderless Region.

UNIVERSITY MISSION

The University shall primarily provide advanced instruction and professional training in science and technology, agriculture, fisheries, education and other related fields of study. It shall also undertake research and extension services, and provide progressive leadership in its areas of specialization.

UNIVERSITY STRATEGIC GOALS

- a. Deliver quality service to stakeholders to address current and future needs in instruction, research, extension, and production
- b. Observe strict implementation of the laws as well as the policies and regulations of the University
- c. Acquire with urgency state-of-the-art resources for its service areas
- d. Bolster the relationship of the University with its local and international customers and partners
- e. Leverage the qualifications and competences in personnel action and staffing
- f. Evaluate the efficiency and responsiveness of the University systems and processes

INSTITUTIONAL OUTCOMES (IO)

- a. Enhance competency development, commitment, professionalism, unity and true spirit of service for public accountability, transparency and delivery of quality services
- b. Provide relevant programs and professional trainings that will respond to the development needs of the region
- c. Strengthen local and international collaborations and partnerships for borderless programs
- d. Develop a research culture among faculty and students
- e. Develop and promote environmentally-sound and market-driven knowledge and technologies at par with international standards
- f. Promote research-based information and technologies for sustainable development
- g. Enhance resource generation and mobilization to sustain financial viability of the university

PROGRAM OUTCOMES (PO) COMMON TO ALL PROGRAMS AND ITS RELATIONSHIPS TO INSTITUTIONAL OUTCOMES

A graduate of Sultan Kudarat State University can:	INSTITUTIONAL OUTCOMES (IO)						
	a	b	c	d	e	f	g
a. Articulate effectively and independently in multi-disciplinary and multi-cultural teams the latest development in the fields practiced such as Automotive, Architectural Drafting, Civil, Electrical, Electronics, Food and its allied discipline,	✓	✓		✓	✓	✓	✓
b. Lead in the promotion and preservation of Filipino historical and cultural heritage, social empowerment and environmental sustainability in a professional and ethical approach.	✓	✓	✓	✓	✓	✓	✓
c. Generate research-based information and technologies at par from international standards, and	✓	✓	✓	✓	✓	✓	✓
d. Promote and transfer knowledge and technologies for effective and efficient school-industry partnership	✓	✓	✓	✓	✓	✓	✓

1 COURSE CODE DT 321

2 COURSE TITLE CONSTRUCTION ESTIMATE AND
SCALED MODELING

3 PREREQUISITE DT 221

4 CREDITS 3 units

5 COURSE DESCRIPTION

Construction Estimate and Scaled Modelling provides students with foundational knowledge and practical skills required to prepare accurate construction cost estimates and create scaled models in the context of building projects. This course integrates the technical, mathematical, and creative aspects of construction planning and visualization. Students will learn how to calculate project costs, material quantities, labor expenses, and other essential factors involved in construction estimating. They will also explore the application of scaled models to visualize architectural designs and facilitate project planning. Through hands-on projects, students will develop proficiency in the use of industry-standard software, tools, and techniques for cost estimation and model-making.

6 COURSE LEARNING OUTCOMES (CLO) AND ITS RELATIONSHIPS TO PROGRAM OUTCOMES

Course Learning Outcomes (CLO)					Program Outcomes			
At the end of the course, a student can:					a	b	c	d
a.	Interpret Construction Drawings for Estimation:				✓	✓	✓	✓
b.	Develop Detailed and Accurate Cost Estimates:				✓		✓	✓
c.	Apply Estimating Techniques for Different Project Types:				✓		✓	✓
d.	Construct Accurate Physical Scaled Models				✓	✓	✓	✓
e.	Apply Scale and Proportion Principles				✓	✓	✓	✓
f.	Enhance Design Communication through Models:				✓	✓	✓	✓

7 COURSE CONTENTS

WEEK	CONTENT	INTENDED LEARNING OUTCOMES(ILOs)	TEACHING AND LEARNING ACTIVITIES (TLA)	OUTCOMES-BASED ASSESSMENT (OBA)	COURSE LEARNING OUTCOMES (CLOs)
1	Course Orientation SKSU VMGO, Classroom Policies, Course Overview, Course Requirements, Grading System	At the end of the Orientation, the Learners can: a. discuss the University's VMGO, classroom policies, scope of the course, course requirements and grading system	Discuss the VMGO of the University, the classroom policies, scope of the course, course requirements and grading system		
2-3	Estimating Bill of materials Introductory topics. a. Requirements in estimating bill of materials b. Blueprint reading and interpretations c. Solving Area and Volume	At the end of the Lesson, the Learners can: a. Accurately evaluate the Requirements in estimating bill of materials b. Read and interpret Blueprint c. Solve Area and Volume required in estimation	a. Interactive Lecture b. Prior knowledge probing c. Follow-up questioning d. Multiple Visual Presentation for problem solving e. Solving / estimation activity	a. Written Work Assessment b. Concept Note from the Discussion c. Oral Recitation / board work d. Construction material estimating activity	ab

	d. Format of estimated bill of materials	b. Apply Format of estimated bill of materials			
4-7	Estimating Cement, Sand, Gravel and Fill a. Footing b. Column c. Beam d. Floor slab (on fill and reinforced) e. Stairs f. Wall footing g. Plaster finish h. Earth and Gravel Fill	At the end of the Lesson, the Learners can: a. Evaluate the references in solving Cement, Sand, Gravel and Fill b. Solve the quantity of Cement, sand, gravel for the: Footing, Column, Beam, Floor slab (on fill and reinforced), Stairs , Wall footing c. Determine the quantity of Earth and Gravel Fill	a. Interactive Lecture b. Prior knowledge probing c. Follow-up questioning d. Multiple Visual Presentation for problem solving e. Solving / estimation activity	a. Written Work Assessment b. Concept Note from the Discussion c. Oral Recitation / board work d. Construction material estimating activity	abc
8	Estimating Concrete Hollow Blocks a. Concrete hollow blocks quantity b. Concrete mortar for laying CHB (cell fill and setter)	At the end of the Lesson, the Learners can: a. Determine the quantity of CHB per square meter of wall b. Determine the quantity of cement, sand and gravel for concrete mortar.	a. Interactive Lecture b. Prior knowledge probing c. Follow-up questioning d. Multiple Visual Presentation for problem solving e. Solving / estimation activity	a. Written Work Assessment b. Concept Note from the Discussion c. Oral Recitation / board work d. Construction material estimating activity	abc
9	MIDTERM EXAM				
10	Estimating Steel Reinforcement a. Footing b. Column c. Beam d. Floor slab (on fill and reinforced) e. Stairs f. Wall footing	At the end of the Lesson, the Learners can: a. Solve and determine the quantity of Steel reinforcement for the: Footing, Column, Beam, Floor slab (on fill and reinforced), Stairs , Wall footing and CHB/ wall	a. Interactive Lecture b. Prior knowledge probing c. Follow-up questioning d. Multiple Visual Presentation for problem solving e. Solving / estimation activity	a. Written Work Assessment b. Concept Note from the Discussion c. Oral Recitation / board work d. Construction material estimating activity	abc
11	Estimating Lumber, Boards and Hardware Fasteners a. Lumber b. Nails c. Bolts and screws d. Wood frames and trusses e. Ceiling and Partition boards	At the end of the Lesson, the Learners can: a. Compute and determine the quantity of lumber, nails, bolts, screws, wood frames, trusses and ceiling and partition boards	a. Interactive Lecture b. Prior knowledge probing c. Follow-up questioning d. Multiple Visual Presentation for problem solving e. Solving / estimation activity	a. Written Work Assessment b. Concept Note from the Discussion c. Oral Recitation / board work d. Construction material estimating activity	abc

12	Estimating Roofing Sheets and Accessories a. Materials and roof designs b. Roof sheets c. Plain GI sheet flashing, gutter, valley and other accessories	At the end of the Lesson, the Learners can: a. Determine appropriate roof materials and design b. Compute and determine the quantity of roof sheet. c. Compute and determine the quantity of plain GI flashing, gutter, valley and other accessories.	a. Interactive Lecture b. Prior knowledge probing c. Follow-up questioning d. Multiple Visual Presentation for problem solving e. Solving / estimation activity	a. Written Work Assessment b. Concept Note from the Discussion c. Oral Recitation / board work d. Construction material estimating activity	abc
13	Estimating Doors, Windows and Accessories a. Doors b. Windows c. accessories	At the end of the Lesson, the Learners can: a. Compute and estimate doors, windows and accessories.	a. Interactive Lecture b. Prior knowledge probing c. Follow-up questioning d. Multiple Visual Presentation for problem solving e. Solving / estimation activity	a. Written Work Assessment b. Concept Note from the Discussion c. Oral Recitation / board work d. Construction material estimating activity	abc
14	Estimating Materials for Building Finishes a. Wall and Floor tiles and accessories b. Other finishing materials	At the end of the Lesson, the Learners can: a. Determine the quantity of wall and floor tiles including their accessories b. Compute the quantity of other finishing materials	a. Interactive Lecture b. Prior knowledge probing c. Follow-up questioning d. Multiple Visual Presentation for problem solving e. Solving / estimation activity	a. Written Work Assessment b. Concept Note from the Discussion c. Oral Recitation / board work d. Construction material estimating activity	abc
15	Estimating Plumbing Pipes and Fixtures a. Water supply system b. Drainage system	At the end of the Lesson, the Learners can: a. Calculate the quantity of materials and accessories of building plumbing system including fixtures.	a. Interactive Lecture b. Prior knowledge probing c. Follow-up questioning d. Multiple Visual Presentation for problem solving e. Solving / estimation activity	a. Written Work Assessment b. Concept Note from the Discussion c. Oral Recitation / board work d. Construction material estimating activity	abc
15	Estimating Paints and Coatings a. Types of paints and coatings according to purpose b. Estimating paints and coatings	At the end of the Lesson, the Learners can: a. Classify types of paints and coatings b. Determine amount of paints and coatings including tools and equipment	a. Interactive Lecture b. Prior knowledge probing c. Follow-up questioning d. Multiple Visual Presentation for problem solving e. Solving / estimation activity	a. Written Work Assessment b. Concept Note from the Discussion c. Oral Recitation / board work d. Construction material estimating activity	abc
16-18	Building Scaled Modeling a. Scaling and space proportion b. Modeling materials and tools c. Parts assembly and placement d. Model landscape	At the end of the Lesson, the Learners can: a. Understand and apply proper modeling scale and proportion b. Differentiate and apply appropriate modeling materials c. Perform scaled model assembly and placement	a. Interactive Lecture b. Prior knowledge probing c. Follow-up questioning d. Multiple Visual Presentation for problem solving e. Solving / estimation activity	a. Written Work Assessment b. Concept Note from the Discussion c. Oral Recitation / board work d. Construction material estimating activity	def

	e. Labelling and preservation d. Perform model landscape e. Pack and label full scaled model			
19	Construction Estimate and Project Scaled Model Presentation	At the end of the Presentation, the Learners can: a. Perform construction estimate and project presentation	a. Corporate style project presentation a. Panel presentation	abcdef
FINAL EXAMINATION				

Total No. of Hours : 120

8 COURSE REQUIREMENTS AND COURSE POLICIES

COURSE REQUIREMENTS	Each student is required to: 1. Attend classes on schedule time and day. 2. Accomplish all assessment in Construction Estimate and Scaled Modeling; 3. Pass the major exams (midterm and final) 4. Perform Construction estimate and project presentation.
COURSE POLICIES	<p>Attendance: A student will be marked late if he/she enters the class 5 minutes after start of class period. Any student who comes to class 15 minutes after the scheduled time or always late for three consecutive meetings shall be marked absent.</p> <p>Missed work or exam: Any student who missed to submit a work assignment or to take a test should consult the concerned instructor for immediate compliance</p> <p>Cheating and Plagiarism: Any student who committed any form of academic dishonesty (e.g., copy-paste plagiarism) shall be given disciplinary action provided in the SKSU Student's Handbook</p> <p>Use of Technology: Cell phones should be turned off while the session is in progress. Using laptops, notebook PCs, smart phones, and tablets shall be allowed only when needed.</p>

9 GRADING SYSTEM AND RUBRICS FOR GRADING

GRADING SYSTEM	Midterm Grade	Final Term Grade	FINAL GRADE																										
	<table> <tr> <td>Midterm Examination</td> <td>50%</td> <td>Midterm Examination</td> <td>50%</td> </tr> <tr> <td>Project Presentation</td> <td>25%</td> <td>Project Presentation</td> <td>25%</td> </tr> <tr> <td>Attendance/ Class Participation</td> <td>10%</td> <td>Attendance/ Class Participation</td> <td>10%</td> </tr> <tr> <td>Quizzes</td> <td>15%</td> <td>Quizzes</td> <td>15%</td> </tr> <tr> <td>TOTAL</td> <td>100%</td> <td>TOTAL</td> <td>100%</td> </tr> </table>	Midterm Examination	50%	Midterm Examination	50%	Project Presentation	25%	Project Presentation	25%	Attendance/ Class Participation	10%	Attendance/ Class Participation	10%	Quizzes	15%	Quizzes	15%	TOTAL	100%	TOTAL	100%		<table> <tr> <td>Midterm Grade</td> <td>50%</td> </tr> <tr> <td>Final Term Grade</td> <td>50%</td> </tr> <tr> <td>Total</td> <td>100%</td> </tr> </table>	Midterm Grade	50%	Final Term Grade	50%	Total	100%
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Rubric for Construction Estimate and Project Scaled Model Presentation

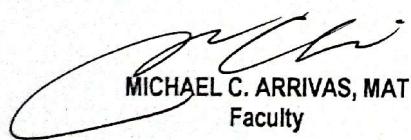
Criteria	1.0 (Excellent)	1.25 (Very Good)	1.5 (Good)	1.75 (Satisfactory)	2.0 (Needs Improvement)
Clarity of Presentation	Clear, concise, and easy to understand; well-organized structure.	Mostly clear with minor areas of confusion; organized.	Understandable but occasionally unclear or disorganized.	Somewhat unclear or lacking organization; could be more concise.	Difficult to understand; poorly organized.
Content & Accuracy	All information is accurate, relevant, and thoroughly explained.	Information is mostly accurate and relevant; minor details missing.	Adequate content but with some inaccuracies or incomplete explanations.	Some inaccuracies or irrelevant content; incomplete explanations.	Many inaccuracies or irrelevant information; lacking details.
Visual Aids/Models	Excellent use of visual aids/models; they enhance the understanding of the project.	Good use of visual aids/models; supports most key points.	Visual aids/models are used but could be more detailed or helpful.	Minimal use of visual aids/models or unclear visuals.	No visual aids/models or poorly executed visuals.
Delivery & Presentation Skills	Confident, engaging, and professional delivery; excellent use of tone, body language, and eye contact.	Clear and confident delivery; minor issues with tone or body language.	Adequate delivery with some nervousness or lack of engagement; minor issues.	Delivery lacks confidence or engagement; noticeable issues with tone or body language.	Unclear or very nervous delivery; major issues with tone, body language, or eye contact.
Overall Impact	The presentation is compelling, memorable, and clearly communicates key ideas effectively.	Engaging and informative; most key points are well communicated.	Sufficient presentation, but lacks strong impact or memorable elements.	Presentation is somewhat disengaging; missing key elements.	Presentation lacks impact and fails to effectively communicate key ideas.

10 REFERENCES

BOOKS

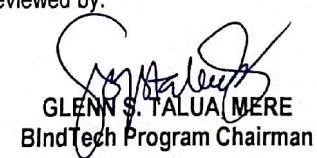
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