



**COLLEGE OF INDUSTRIAL TECHNOLOGY**  
**CT 221 – CONSTRUCTION ESTIMATES**

**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**

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

**INSTITUTIONAL OUTCOMES (IO)**

- Enhance competency development, commitment, professionalism, unity and true spirit of service for public accountability, transparency and delivery of quality services
- Provide relevant programs and professional trainings that will respond to the development needs of the region
- Strengthen local and international collaborations and partnerships for borderless programs
- Develop a research culture among faculty and students
- Develop and promote environmentally-sound and market-driven knowledge and technologies at par with international standards
- Promote research-based information and technologies for sustainable development
- 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 CT 221

2 COURSE TITLE CONSTRUCTION ESTIMATES  
3 PREREQUISITE CT 211  
4 CREDITS 3 units

5 COURSE DESCRIPTION

Construction Estimates equips students with the essential knowledge and skills to accurately estimate costs and resources for construction projects. This course covers the principles, methods, and tools used to prepare cost estimates, ranging from preliminary budget estimates to detailed project costs. Students will learn how to calculate material quantities, labor costs, and overhead expenses while considering factors such as market trends, location, and project scope. This course provides a comprehensive understanding of construction cost estimation. Students will also gain practical experience in using modern estimating software and will apply their skills to real-world construction scenarios.

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

At the end of the course, a student can:	Course Learning Outcomes (CLO)	Program Outcomes			
		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. Analyze and Control Construction Project Costs		✓	✓	✓	✓

7 COURSE CONTENTS

WEEK	CONTENT	INTENDED LEARNING OUTCOMES( ILOs)	TEACHING AND LEARNING ACTIVITIES (TLA)	OUTCOMES-BASED ASSESSMENT (OBA)	COURSE LEARNING OUTCOMES (CLOs)
1	<b>Course Orientation</b> <i>SKSU VMGO, Classroom Policies, Course Overview, Course Requirements, Grading System</i>	At the end of the Orientation, the Learners can: a. discuss the University's VMGO, classroom policies, course overview, requirements and grading system	Discuss the VMGO of the University, the classroom policies, scope of the course, course requirements and grading system		
2-3	<b>Estimating Bill of materials Introductory topics.</b> a. Requirements in estimating bill of materials b. Blueprint reading and interpretations c. Solving Area and Volume d. Format of estimated bill of	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  b. Apply Format of estimated bill of	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



materials

materials

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**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

abcd

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**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

abcd

**MIDTERM EXAM**

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**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

abcd

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**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

abcd

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	<b>Estimating Roofing Sheets and Accessories</b> 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	abcd
	<b>Estimating Doors, Windows and Accessories</b> 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	abcd
	<b>Estimating Materials for Building Finishes</b> 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	abcd
5	<b>Estimating Plumbing Pipes and Fixtures</b> 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	abcd
6	<b>Estimating Paints and Coatings</b> 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	abcd

#### FINAL EXAMINATION

No. of Hours : 120

## 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;
3. Pass the major exams (midterm and final)
4. Perform Construction estimate.

### COURSE POLICIES

**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.

**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

**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

**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.

## 9 GRADING SYSTEM

### GRADING SYSTEM

Midterm Grade	
Midterm Examination	50%
Project Presentation	25%
Attendance/ Class Participation	10%
Quizzes	15%
<b>TOTAL</b>	<b>100%</b>

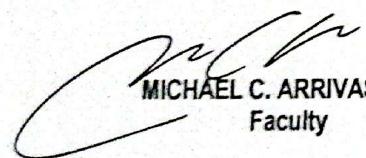
Final Term Grade	
Midterm Examination	50%
Project Presentation	25%
Attendance/ Class Participation	10%
Quizzes	15%
<b>TOTAL</b>	<b>100%</b>

FINAL GRADE	
Midterm Grade	50%
Final Term Grade	50%
<b>Total</b>	<b>100%</b>

10 REFERENCES

- Fajardo, M. B., Jr., & Fajardo, L. R. (2000). Electrical lay-out and estimate (2nd ed.).
- Fajardo, M. B., Jr. (2001). Building estimate.
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- National Fire Protection Association. (2016). McGraw-Hill's National Electrical Code® 2017 handbook (29th ed.). McGraw-Hill Education.
- Peterson, S. J. (2021). Estimating in building construction (9th ed.). Pearson.
- Peurifoy, R. L., & Ledbetter, W. B. (2012). Construction estimating: An introduction. McGraw-Hill Education.
- Kapp, J., & Means, R. S. (2002). The complete idiot's guide to construction estimating. Alpha Books.
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- Holm, L. (2009). Construction cost estimating: Process and procedures (2nd ed.). Prentice Hall.

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