


COLLEGE OF INDUSTRIAL TECHNOLOGY
DT 221 – BUILDING TECHNOLOGY AND UTILITIES
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

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 221
 2 COURSE TITLE BUILDING TECHNOLOGY AND UTILITIES
 3 PREREQUISITE DT 211
 4 CREDITS 3 units

5 COURSE DESCRIPTION

The course is intended to provide the students with the knowledge and understanding of the Ancient, Modern and Exotic Architecture, better understanding on remarkable architectures of Rome, Greece, Africa, Europe, Asia, America, Middle East, different Building Materials such as Wood and Lumber, Construction Fasteners and Adhesives, Concrete, Construction Finishing, paints and polishing, Steel works, Tinsmithry works, lay out and designs of Floor System, Wall System, Ceiling System, Roof and Roof Framing, Doors and Windows, Foundations and Column, Beams, Stairs. Understand basic utilities such as Electrical System, Plumbing and Drainage System, Mechanical System, Air conditioning and Heating, Fire protection System. Have firsthand experience in actual building technology and utilities through educational trip and actual site visitation.

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

Course Learning Outcomes (CLO)				Program Outcomes			
				a	b	c	d
At the end of the course, a student can:				✓	✓	✓	✓
a. Have knowledge about the building technology and utilities.				✓		✓	✓
b. Develop skills and knowledge about building technology and utilities.				✓		✓	✓
c. Apply their knowledge in building technology and utilities.				✓		✓	✓
d. Make a building designs, lay outs and systems.				✓	✓	✓	✓

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, course overview, requirements and grading system	Discuss the VMGO of the University, the classroom policies, scope of the course, course requirements and grading system		
2-6	Ancient and Modern Architecture a. Greek and Roman Architecture b. African Architecture c. European Architecture d. Asian Architecture e. Middle Eastern Architecture f. American Architecture	At the end of the Lesson, the Learners can: a. Identify the different historical structures and modern architecture worldwide. b. Analyze the Influence of Cultural and Historical Contexts on Ancient and Modern Architectural Designs c. Compare and contrast the styles and designs used in ancient and modern architecture.	a. Round Table Discussion b. Prior knowledge probing c. Follow-up questioning d. Interactive Lecture e. Multiple Visual Presentation f. Drawing Activity	a. Written Work Assessment b. Concept Note from the Round Table Discussion c. Oral Recitation d. Drawing Output assessment from workbook	abc

	Building Materials a. Wood and Lumber b. Construction Fasteners and Adhesives c. Concrete d. Construction Finishing, paints and polishing e. Steel and Tinney works	At the end of the Lesson, the Learners can: a. Identify the different building materials used in construction. b. Understand and appreciate its unique characteristics and properties; c. Compare the purpose of each construction material.	a. Round Table Discussion b. Prior knowledge probing c. Follow-up questioning d. Interactive Lecture e. Multiple Visual Presentation f. Drawing Activity	a. Written Work Assessment b. Concept Note from the Round Table Discussion c. Oral Recitation d. Drawing Output assessment from workbook	abc
9	MIDTERM EXAM				
10	Building Systems and Structures Floor and Floor System a. Floor Framing and Reinforcement b. Floor Finish and Materials	At the end of the Lesson, the Learners can: a. Identify and describe different types of floor systems commonly used in construction; b. Understand different flooring materials used in floor systems; c. Understand the structural components of floor systems.	a. Round Table Discussion b. Prior knowledge probing c. Follow-up questioning d. Interactive Lecture e. Multiple Visual Presentation f. Drawing Activity	a. Written Work Assessment b. Concept Note from the Round Table Discussion c. Oral Recitation d. Drawing Output assessment from workbook	abcd
11	Building Systems and Structures Walls and wall system a. Wall Type, Materials, and Finish b. Wall Reinforcement and Framing	At the end of the Lesson, the Learners can: a. Identify the different types of walls, materials, and finishes b. Understand the purpose of a wall system in a building; c. Compare the characteristics of each type of wall.	a. Round Table Discussion b. Prior knowledge probing c. Follow-up questioning d. Interactive Lecture e. Multiple Visual Presentation f. Drawing Activity	a. Written Work Assessment b. Concept Note from the Round Table Discussion c. Oral Recitation d. Drawing Output assessment from workbook	abcd
12	Building Systems and Structures Ceiling and ceiling system a. Ceiling Layout b. Ceiling Frame c. Ceiling Materials and Finish	At the end of the Lesson, the Learners can: a. Identify the different structures of ceiling frames and materials. b. Understand the purpose of a ceiling layout in a building; c. Compare the characteristics of each type of ceiling.	a. Round Table Discussion b. Prior knowledge probing c. Follow-up questioning d. Interactive Lecture e. Multiple Visual Presentation f. Drawing Activity	a. Written Work Assessment b. Concept Note from the Round Table Discussion c. Oral Recitation d. Drawing Output assessment from workbook	abcd

	Building Systems and Structures Roof and roof framing a. Roof Type and Framing b. Roofing Materials	At the end of the Lesson, the Learners can: a. Describe the importance of a roof in a house; b. Understand the components of roof framing; c. Compare the characteristics of each type of roof.	a. Round Table Discussion b. Prior knowledge probing c. Follow-up questioning d. Interactive Lecture e. Multiple Visual Presentation f. Drawing Activity	a. Written Work Assessment b. Concept Note from the Round Table Discussion c. Oral Recitation d. Drawing Output assessment from workbook	abcd
14	Building Systems and Structures Doors and Windows a. Door and Windows Types and Design b. Door Material and Finishes	At the end of the Lesson, the Learners can: a. Define various terms related to doors and windows, b. Classify the different types of doors and windows c. Compare the characteristics of each type of door and window.	a. Round Table Discussion b. Prior knowledge probing c. Follow-up questioning d. Interactive Lecture e. Multiple Visual Presentation f. Drawing Activity	a. Written Work Assessment b. Concept Note from the Round Table Discussion c. Oral Recitation d. Drawing Output assessment from workbook	abcd
15	Building Systems and Structures Columns and Foundations a. Foundation and Column Types and Designs b. Foundation and Column Details and Materials	At the end of the Lesson, the Learners can: a. Define various terms related to foundation and column; b. Classify the different types and designs of foundation and column; c. Compare the characteristics of each type and design.	a. Round Table Discussion b. Prior knowledge probing c. Follow-up questioning d. Interactive Lecture e. Multiple Visual Presentation f. Drawing Activity	a. Written Work Assessment b. Concept Note from the Round Table Discussion c. Oral Recitation d. Drawing Output assessment from workbook	abcd
16	Building Systems and Structures Beams a. Beam Types, Design, and Details	At the end of the Lesson, the Learners can: a. Define various terms related to beams; b. Classify the different types and designs of beams; c. Compare the characteristics of each type and design	a. Round Table Discussion b. Prior knowledge probing c. Follow-up questioning d. Interactive Lecture e. Multiple Visual Presentation f. Drawing Activity	a. Written Work Assessment b. Concept Note from the Round Table Discussion c. Oral Recitation d. Drawing Output assessment from workbook	abcd
17	Building Systems and Structures Stairs a. Stair Design and Types Stair Details	At the end of the Lesson, the Learners can: a. Define various terms related to beams; b. Classify the different types and designs of beams; c. Compare the characteristics of each type and design	a. Round Table Discussion b. Prior knowledge probing c. Follow-up questioning d. Interactive Lecture e. Multiple Visual Presentation f. Drawing Activity	a. Written Work Assessment b. Concept Note from the Round Table Discussion c. Oral Recitation d. Drawing Output assessment from workbook	abcd

	Basic Utilities a. Electrical System b. Plumbing and Drainage System c. Mechanical System d. Air Conditioning System e. Fire Protection System	At the end of the Lesson, the Learners can: a. Identify and describe various types of basic utilities; b. Discuss sustainable practices and technologies for utilities; c. Understand the essential role of basic utilities in modern society.	a. Round Table Discussion b. Prior knowledge probing c. Follow-up questioning d. Interactive Lecture e. Multiple Visual Presentation f. Drawing Activity	a. Written Work Assessment b. Concept Note from the Round Table Discussion c. Oral Recitation d. Drawing Output assessment from workbook	abcd
19	Educational Trip a. Site visit of Philippine historical and unique architectural Sites b. Site visit of on-going building construction	At the end of the Trip, the Learners can: a. Discover some Philippine historical and unique architectural sites. b. Appreciate building design and details. c. Discover actual practices in building construction and technologies.	a. Visual Observation	a. Trip narrative report	abc

FINAL EXAMINATION

Total No. of Hours : 120

8 COURSE REQUIREMENTS AND COURSE POLICIES**COURSE REQUIREMENTS** Each student is required to:

1. Accomplish all assessment in the building technology and utilities Module;
2. Accomplish all drawing activities in the building technology and utilities Workbook;
3. pass the major exams (midterm and final)

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 AND RUBRICS FOR GRADING****GRADING SYSTEM**

Midterm Grade	
Midterm Examination	25%
Workbook Activities	40%
Attendance/ Class Participation	15%
Quizzes	20%
TOTAL	100%

Final Term Grade	
Midterm Examination	25%
Workbook Activities	40%
Attendance/ Class Participation	15%
Quizzes	20%
TOTAL	100%

FINAL GRADE	
Midterm Grade	50%
Final Term Grade	50%
Total	100%

RUBRIC FOR THE OUTPUT IN EVERY ACTIVITY IN WORKBOOK

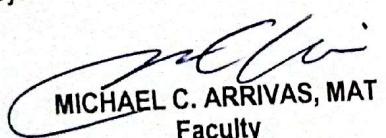
Criteria	1.0 (Excellent)	1.25 (Very Good)	1.50 (Good)	1.75 (Satisfactory)	2.0 (Needs Improvement)	2.50 (Poor)
Creativity & Originality	Exceptionally creative and original; stands out as highly unique.	Very creative with some unique aspects.	Good creativity with minor originality.	Some creativity, but lacks originality.	Limited creativity, ideas seem generic.	Very little creativity, lacks originality.
Composition & Layout	Masterful use of space, balance, and proportion.	Very well-balanced with good use of space.	Adequate composition with some balance.	Basic layout, some imbalance or awkward spacing.	Poor composition with noticeable imbalance.	Disorganized, lacks structure clarity.
Detail & Precision	Extremely detailed, sharp, and precise in all aspects.	Detailed and clear with minimal errors.	Adequate detail, some areas lack clarity.	Moderate detail, some vague or rough areas.	Very few details, lacks focus or refinement.	Barely any detail or clarity, very rough.
Technique & Skill	Masterful technique, flawless execution.	Very skilled, few minor imperfections.	Good technique with some visible imperfections.	Adequate technique with noticeable errors.	Weak technique, many visible mistakes.	Poor technique, major mistakes throughout.
Overall Impression	Outstanding overall impact; leaves a lasting impression.	Strong impact with a clear message.	Good overall, but lacks strong impact.	Adequate impact, lacks depth or coherence.	Weak overall impression, unclear or muddled.	Very poor overall, lacks clear message.

- **3.0 - Late Accomplished and Submission**
- **5.0 – Non-submission**

10 REFERENCES

- Michael C. Arrivas, Debbie Joy L. Arrivas, Building Technology and Utilities Module (2024)
Michael C. Arrivas, Debbie Joy L. Arrivas, Building Technology and Utilities Workbook (2024)
Max B. Fajardo, Jr. and Leo R. Fajardo (2000), Electrical Lay-out and Estimate second Edition
Max B. Fajardo, Jr. (1996), Electrical Lay-out and Estimate first Edition
Max B. Fajardo, Jr. (2001), Building Estimate
Max B. Fajardo, Jr. (2001), Planning and Designers Handbook
McGraw-Hill's National Electrical Code® 2017 Handbook, 29th Edition
Basic Electricity(2002), U. S. Naval Personnel, The Editors of REA, Engineering Study Guides
Michael C. Arrivas, Debbie Joy L. Arrivas (2021) , Industrial Drawing I
Steven J. Peterson (2021), Estimating in Building Construction, Ninth Edition

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