College of Micronesia – FSM
P.O. Box 159
Kolonia, Pohnpei

Course Outline Cover Page

Construction Procedures — Course Title
VCE 195 — Department and Number

Course Description: This course is an introductory study on the selection of appropriate materials, and the assembly of those materials, to erect a structure. The course covers building projects from ground breaking through the laying down of foundations and the accepted construction procedures for wooden, masonry, concrete and steel structures.

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	Hours per Week	No. Of Weeks	Total Hours	Semester Credits
Lecture	1.5/8	16/8	24	1.5
Laboratory				
		Total Semester Credits:		1.5

Purpose of Course

Degree Requirement	
Degree Elective	
Advanced Certificate	
Certificate	XX
Remedial	
Other (Workshop)	
Apprenticeship	XX

Prerequisite Course(s): MS 104, ESL 050/ SS 100

Signature, Chairman, Curriculum Committee — **Date Approved by Committee**

Signature, President, COM-FSM — **Date Approved by the President**

General Objective:

This course is to familiarize the student with the basic information required to combine material in the construction of a building.

Learning Outcomes: Upon successful completion of this course the student will be able to:

1. List the steps necessary to emplace the foundation of a structure.
2. Demonstrate the proper methods required for masonry construction.
3. List the types of wood materials available for construction and list their desirable and undesirable characteristics.
4. List the common materials used in steel construction.
5. Demonstrate the proper steps in reinforced concrete construction.
6. Identify and define practices and procedures involved in precast and prestressed concrete construction.
7. List the chronological steps required to carry out a complete construction project.

STUDENTS SHOULD BE MADE AWARE OF OCCUPATIONAL HEALTH AND SAFETY ISSUES IN ALL SITUATIONS AND BE EXPECTED TO DEMONSTRATE SAFE WORKING PRACTICES AT ALL TIMES.

Outline of Content:

This course contains:

1. Foundations
   - Soils and subsurface explorations
   - Types of foundations
   - Soil pressures and bearing areas
   - Foundation settlement
   - Piles and piers
   - Subsurface walls

2. Masonry Construction
   - Brick masonry
   - Rock and Stone
   - Hollow unit masonry

3. Wood Construction
   - Wood materials
   - Builder's hardware
   - Solid wood and laminated members
   - Wood trusses, floor and rigid frames

4. Steel Construction
    - Steel materials and shapes
    - Fabrication of steel members
    - Steel framing and rigid frames
    - Steel columns, girders, and trusses

5. Reinforced Concrete Construction
    - Concrete materials
    - Form work and columns
    - Beams, arches, and domes

6. Precast and Prestressed Concrete
    - Floors, roofs and walls
    - Joists, beams and girders
    - Columns and lift slab construction
    - Rigid frames, arches and domes

7. Steps for a complete construction project

    - Designing, drawing, and estimating
    - Clearing of project site
    - Layout of foundation lines
    - Formwork, concrete work, framework, and steelwork
    - Finishing work and landscaping

Learning Outcome 1:	**List the steps necessary to emplace the foundation of a structure**
Assessment Criteria	1. List types of foundations. 2. Describe the uses of foundations. 3. List and describe each step.
Assessment Methods	Multiple Choice Questions Short answer Questions Oral Questions Drawing
Learning Outcome 2:	**Demonstrate the proper methods required for masonry construction**
Assessment Criteria:	1. Define masonry construction. 2. List types of masonry construction. 3. Describe techniques used in masonry construction.
Assessment Methods:	Multiple Choice Questions

Short Answer Questions
Practical exercise
Quiz

Learning Outcome 3: **List the types of wood materials available for construction and list their desirable and undesirable characteristics**

Assessment Criteria:

1. List types of types of lumbers used in the construction industry.
2. Describe the two types of wood.
3. Describe the two kinds of seasoning lumbers.
4. List and describe each of the common wood defects.
5. Describe the proper ways of handling and storing lumbers.

Assessment Methods:
Multiple Choice Questions
Short Answer Questions
Test

Learning Outcome 4: **List the common materials used in steel construction**

Assessment Criteria:

1. Define steel construction.
2. List and describe the kinds of steel used.
3. Describe the proper ways of working with steel.
5. Describe the proper ways of handling and storing steel.

Assessment Methods:
Multiple Choice Questions
Short Answer Questions
Test

Learning Outcome 5: **Demonstrate the proper steps in reinforced concrete construction**

Assessment Criteria:

1. Define reinforcement.
2. List the kinds and the sizes of reinforcement used in concrete construction.
3. List and describe the proper steps in reinforced concrete.

Assessment Methods:
Multiple Choice Questions
Short Answer Questions
Quiz

Learning Outcome 6:	**Identify and define practices and procedures involved in precast and prestressed concrete construction**
Assessment Criteria:	1. Define precast concrete. 2. Define prestressed concrete. 3. List and describe the difference between precast and prestressed concrete. 4. Describe the procedures for precast and prestressed concrete.
Assessment Methods:	Multiple Choice Questions Short Answer Questions Test

Learning Outcome 7:	**List the chronological steps required to carry out a complete construction project**
Assessment Criteria:	1. List and describe each step in order. 2. Describe construction project.
Assessment Methods:	Multiple Choice Questions Short Answer Questions Test/ Quiz

Required Course Materials:

1. Instructor:

a. Wood shop with selected hand and power tools
b. TV/VCR, video tapes as available
c. Text, Instructor's Resource Guide, Workbook- (refer to Instructor)
d. Overhead projector, transparencies
e. Material duplication equipment (Xerox or equivalent)
f. Tools, lumber and wood working supplies (adhesive, sandpaper, fasteners, and preservatives).

2. Student:

a. Workbook, Instructor provided packets
b. Three ring binder (to contain handout material)
c. College ruled spiral notebook

Reference Materials:

Architecture: Drafting and Design,
Donald E. Hepler, Paul R. Wallach, Dana J. Hepler, 1997

Workbook, Architectural Drafting Design,
Hepler, Wallach, Hepler, 1997

FM 5-31, Engineer Field Handbook
US Government Printing Office, 19XX

Student Handout (Xeroxed), Forms, Check List, Specifications Locally

Method of Instruction:

1. Demonstration by Instructor
2. Lecture
3. Group work/Team work on projects
4. Discussion
5. Video presentation
6. Practical exercise

Evaluation:

Final Grade for this course will be based on meeting the course requirements at the following percentage rates:

90% - 100%	A – Superior
80% - 89%	B – Above Average
70% - 79%	C – Average
60% - 69%	D – Below Average
0 % - 59%	F – Failure

Attendance:

The COM-FSM attendance policy will apply.