College of Micronesia – FSM

P.O. Box 159
Kolonia, Pohnpei

Course Outline Cover Page

Concrete Form Construction **Course Code VCT 163**

Course Description:

This course is designed to teach the student construction terms, materials, and methods in concrete form construction for residential and commercial buildings. The course also introduces the care and maintenance of leveling and sighting instruments.

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	Hours / week		#. of weeks	Total hours	Semester Credits
Lecture/Workshop	3	x	16	= 48	= 3

Purpose of Course

Degree Requirement	
Degree elective	
Certificate	XX
Remedial	
Other (workshop)	

Prerequisite(s) VCT 153 Introduction to Carpentry

Signature, Chairperson, Curriculum committee — Date Approved by Committee

Signature, President, COM, FSM — Date Approved by President

VCT 163 Concrete Form Construction

COURSE TITLE **CONCRETE FORM CONSTRUCTION**

Nominal Duration **48 Hours / 3 Credits**

Course Code **VCT 163**

General Objectives

This course is designed to teach the student construction terms, materials, and methods in concrete form construction for residential and commercial buildings. The course also introduces the care and maintenance of leveling and sighting instruments.

In addition, student evaluation will include digital photos showing details of student production (listed in the specific objectives). Also each student will have a faculty generated portfolio which will include images of individual and class projects as well as a rubric for each finished product using the following criteria:

1. Accuracy in measurement
2. Attention to detail
3. Proper use of tools
4. Selection of appropriate materials
5. Attention to safety concerns

Note: In all cases student performance evaluation will include the performance rubrics included below

Prerequisite(s) VCT 153 Introduction to Carpentry

Learning outcomes:

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

1. **Properly lay out a building site of an 8' x 12' structure from a blueprint or sketch drawing**
2. **Construct a continuous footing form for an 8' x 12' structure**
3. **Construct model forms for piers and columns**

4. **Construct a solid wall form 8’ x 6’ x 4” for the back wall of the 8’ x 12’ structure**
5. **Construct forms for window openings, 3’ x 3’ for side walls of the 8’ x 12’ structure**
6. **Construct a form for door opening, 3’ x 82” for the 8’ x 12’ structure**
7. **Construct a two step form for a duty step**
8. **Construct a model form for a 6 step open stairway**
9. **Construct a roof form for the 8’ x 12’ structure**

Learning Outcome 1: **Properly lay out a building site of an 8’ x 12’ structure from a blueprint or sketch drawing**

Assessment Criteria

a) Competently use tape measure or other measuring devise
b) Build and install batter boards
c) Insure accurate right angles for the layout
d) Stake out project

Conditions **Working in groups given:**

- **Resources**
- **Verbal presentation to the group of learners**

Assessment Method: methods **Assessment may involve any of the following**

- **Oral questioning**
- **Written tests**
- **Individual written assignments**
- **Active participation in group activity**

Learning Outcome 2: **Construct a continuous footing form for an 8’ x 12’ structure**

Assessment Criteria

a) Determine size of needed footings
b) Excavate trench to accommodate forms
c) Construct footing forms
d) Cut, bend, and install reinforcing bars based on plan design specifications using appropriate tools
e) Correctly use tie wire

Conditions **Working in groups given:**

- **Resources**
- **Verbal presentation to the group of learners**

Assessment Method methods **Assessment may involve any of the following**

- **Oral questioning**
- **Written tests**
- **Individual written assignments**
- **Active participation in group activity and presentation**

Learning Outcome 3: **Construct model forms for piers and columns**

Assessment Criteria

a) Select appropriate materials for project
b) Select appropriate tools for project
c) Build sample forms based on plan specifications

Conditions **Working in groups given:**

- **Resources**
- **Verbal presentation to the group of learners**

Assessment Method methods **Assessment may involve any of the following**

- **Oral questioning**
- **Written tests**
- **Individual written assignments**
- **Active participation in group activity**

Learning Outcome 4: **Construct a solid wall form 8' x 6' x 4" for the back wall of the 8' x 12' structure**

Assessment Criteria

a) Select appropriate materials for project
b) Select appropriate tools for project
c) Build sample forms based on plan specifications

Conditions **Working in groups given:**

- **Resources**
- **Verbal presentation to the group of learners**

Assessment Method methods **Assessment may involve any of the following**

- **Oral questioning**
- **Written tests**
- **Individual written assignments**
- **Active participation in group activity**

Learning Outcome 5: Construct forms for window openings, 3' x 3' for side walls of the 8' x 12' structure

Assessment Criteria

1. Select appropriate materials for project
2. Select appropriate tools for project
3. Build sample forms based on plan specifications

Conditions **Working in groups given:**

- **Resources**
- **Verbal presentation to the group of learners**

Assessment Method methods **Assessment may involve any of the following**

- **Oral questioning**
- **Written tests**
- **Individual written assignments**
- **Active participation in group activity**

Learning Outcome 6: Construct a form for door opening, 3' x 82" for the 8' x 12' structure

Assessment Criteria

1. Select appropriate materials for project
2. Select appropriate tools for project
3. Build sample forms based on plan specifications

All work practices must ensure that safe practices are adopted.

Conditions **Working in groups given:**

- **Resources**
- **Verbal presentation to the group of learners**

Assessment Method methods **Assessment may involve any of the following**

- **Oral questioning**
- **Written tests**
- **Individual written assignments**
- **Active participation in group activity**

Learning Outcome 7: Construct a two-step form for a duty step

Assessment Criteria

1. Select appropriate materials for project
2. Select appropriate tools for project
3. Build sample forms based on plan specifications

Conditions **Working in groups given:**

- **Resources**
- **Verbal presentation to the group of learners**

Assessment Method methods **Assessment may involve any of the following**

- **Oral questioning**
- **Written tests**
- **Individual written assignments**
- **Active participation in group activity**

Learning Outcome 8: Construct a model form for a 6 step open stairway

Assessment Criteria

1. Select appropriate materials for project
2. Select appropriate tools for project
3. Build sample forms based on plan specifications

Conditions **Working in groups given:**

- **Resources**
- **Verbal presentation to the group of learners**

Assessment Method methods **Assessment may involve any of the following**

- **Oral questioning**
- **Written tests**
- **Individual written assignments**
- **Active participation in group activity**

Learning Outcome 9: Construct a roof form for the 8' x 12' structure

Assessment Criteria

1. Select appropriate materials for project
2. Select appropriate tools for project
3. Build sample forms based on plan specifications

Conditions **Working in groups given:**

- **Resources**
- **Verbal presentation to the group of learners**

Assessment Method methods **Assessment may involve any of the following**

- **Oral questioning**
- **Written tests**
- **Individual written assignments**
- **Active participation in group activity**

Course content:

1. **Introduction**
    1. Benefits of concrete building practices
    2. Differences between local /outside techniques

2. Building site preparation

1. Soil and sub surface testing
2. Blueprint interpretation
3. Construction of batter boards
4. Tools materials and supplies
5. Layout building from blueprint or sketch

3. Constructing forms for footing, piers, columns, and walls

1. Measuring and cutting wood to size according to blueprint or sketch
2. Materials estimating
3. Know and use tools and equipment properly
4. Follow safety guidelines
5. Construction techniques for single and double wall forms
6. Form construction for a precast wall

4. Constructing forms for stairs and walkways

1. Measure and cut wood to size according to blueprint or sketch
2. Estimating quantity and types of materials needed
3. Construction techniques for heavy duty and open stairs
4. Construction techniques for solid and segmented walkways

5. Construct forms for solid concrete roof

1. Measure and cut wood to size according to blueprint or sketch
2. Types of load bearing bracing

Required course materials

1. Instructor:

1. **Classroom with chalk or white board**
2. **Digital camera**
3. **Computer with printer**
4. **Individual student portfolio folders**
5. **Access to paper copying resource**
6. **Provisional site for 8' x 12' structure**
7. **Tools and materials (see attached list.)**

2.Student:

8. **Three ring binder**
9. **Writing tools**
10. **College ruled notebook**
11. **Architectural scale**
12. **Eye protection**
13. **Work gloves**
14. **Safety shoes**

Reference materials:

Carpentry and building Construction
John L. Freirer, Gilbert Hutchings, Mark Freirer, 1997

Glencoe McGraw Hill 5th edition
ISBN 007822702X

Institutional Costs

Text:	**41.99**
Instructors Guide	**50.99**
Materials	**300.00**

Method of instruction:

1. **Demonstration by instructor**
2. **Lecture**
3. **Group work**
4. **Team work of projects**
5. **Discussion**
6. **Practical exercise**

Required course Materials

Supplies:

1. **Nails, common and duplex**
2. **Bolts, nuts, washers (assorted lengths)**
3. **Wire**
4. **Rebar**

Materials:

1. **Dimensional lumber (assorted)**
2. **Plywood sheets, (assorted)**
3. **Cement, sand, ¾ inch gravel**

Tools and Equipment

1. **Spirit level**
2. **Carpenter level**
3. **Line level**
4. **Plumb bob**
5. **Layout line**
6. **Chalk line**
7. **Steel square**
8. **Tri square**
9. **Straight edge**
10. **Claw hammer**
11. **Measuring tape (25', or 30')**
12. **Hand saw, 10 point**
13. **Extension cord**
14. **Electrical circular saw**
15. **Jack plane**

16. **Drill and bit set**
17. **Lineman's pliers**
18. **Screw driver, slotted**
19. **Screw Driver Phillips**
20. **Adjustable wrench (10")**
21. **Pinch bar 2'**
22. **Crow bar 4'**
23. **Carpenters pencil**
24. **Utility knife**

Evaluation:

1.Final grades for this course will be assessed 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**

2. For each learning outcome the following rubric for evaluation will be used:

Criteria	A	C	F
Accuracy in measurement	**Can read measuring tools to a 1/8th inch accuracy**	**Can read measuring tools to a ½" accuracy**	**Cannot read measuring tools**
Attention to safety concerns	**Always has proper safety equipment when working with tools**	**Sometimes has proper safety equipment**	**Does not follow safety rules**
Proper use of tools	**Uses the proper tools 90% of the time**	**Uses the proper tool 60% of the time**	**Seldom used the proper tool**
Selection of appropriate materials	**Can identify and select proper materials 90% of the time**	**Can identify and select proper materials 60% of the time**	**Can not select proper materials for the job**

3. Competency in practical exercises means the student completed required project (s) within the 15+ week

course time limit with +/- ¼ inch accuracy in all major dimensions

4. Written Tests

Attendance:

The COM-FSM, Attendance and honesty policies will apply