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|--|----|--|
| | | <ol style="list-style-type: none"> 1. Clearing site 2. Cleaning site 3. Waste disposal 4. Materials storage |
| 4. Prepare stakes, erect batter boards and Layout building lines | D. | Layout building lines <ol style="list-style-type: none"> 1. Stakes set up 2. Batter board erection 3. Building line layout |
| 6. Verifying building lines with instruments. | F. | Instruments <ol style="list-style-type: none"> 1. Transit 2. Builder's level |
| 7. Identify and describe different types and design of footing commonly used . | G. | Footing types and designs <ol style="list-style-type: none"> 1. Individual footing 2. Continuous footing 3. Plain footing 4. Reinforced footin |
| 8. Layout footing lines and excavate footing trench | I. | Footing layout and excavation <ol style="list-style-type: none"> 1. Individual footing 2. Continuous footing 3. Excavation <ol style="list-style-type: none"> a. Manpower b. Equipment assisted |
| 9. Set up footing reinforcement and construct footing forms. | K. | Reinforcement & Forms <ol style="list-style-type: none"> 1. Reinforcement <ol style="list-style-type: none"> a. Vertical b. Horizontal 2. Forms <ol style="list-style-type: none"> a. Prefabricated |
| 10. Estimate concrete mix. | M. | Concrete Mix <ol style="list-style-type: none"> 1. Mix Ratio 2. P.S.I (pressure per square inch) 3. Estimating steps 4. Magic numbers 5. Plant Process |

11. Identify and describe different types and design of foundation wall commonly used in Palau and throughout the region.

- N. Types of Foundation Wall
1. Concrete
 2. Concrete block
 3. Design Factors
 - a. Reinforcement
 - b. Structural Type
 - c. Soil conditions
 - d. Size of footing
 - e. Land form

12. Apply waterproofing method.

- R. Waterproofing
1. Sealers
 2. Plastering
 3. Mixing compound

VII. MATERIALS AND EQUIPMENT:

1. Hand tools
2. Overhead projector
3. Transparencies
4. Shop equipments
5. Power tools
6. Hand outs
7. TV & DVD
8. Transportation
9. Required Materials

VIII. TEXT AND REFERENCES:

1. Text: Instructor's made hand outs
2. References:
 - a. Wagner, Willis H. and Smith, Howard B. Modern Carpentry. South Holland, Ill: The Goodheart- Wilcox, 1996.
 - b. Curriculum and Instructional Materials Center. Fundamentals of Carpentry. Stillwater, OK: Oklahoma Department of Vocational and Technical Education, 1999.

IX. METHOD OF INSTRUCTION:

1. Lecture
2. Discussion
3. Demonstration
4. Laboratory work
5. Field trip (Site observation)

X. METHOD OF EVALUATION:

Lecture presentation is tested on written test. Lab evaluation is based on skill development and knowledge acquisition.

Four criteria is used in evaluating projects and operation performance are:

1. Accuracy
2. Techniques
3. Appearance
4. Completion

The components used in the computation of the final grade are:

1. Participation.....	25%
2. Quizzes/Homework.....	10%
3. Mid – Term and Final Test.....	25%
4. Projects.....	40%
Total.....	100%

The transmutation of percent to letter grade are:

90 – 100.....	A
80 – 89.....	B
70 – 79.....	C
65 – 69.....	D
0 – 64.....	F

TASK LISTING SHEET

CT 115 FOOTING AND FOUNDATION

Course No. & Title

CREDITS: 1 2 96
 Lec Lab Total Lab Hrs

TASK

TIME

SLO #1

3 hrs.

1. Translate drawing symbols
2. Identify materials specified in drawings
3. Acquire dimensions given in drawings

SLO # 2

6 hrs.

1. Interpret plans and specifications
2. Identify and locate lot on the map
3. Locate building/structure on the lot
4. Draw plot plan sketch
5. Dimension outside lines of building/structure from lot lines or property lines

SLO # 3

6 hrs.

1. Cut down trees
2. Cut grasses
3. Properly dispose waste
4. Clear working area
5. Secure site
6. Build materials storage

SLO # 4

6 hrs.

1. Sharpen stakes and markers and cut to size
2. Locate and install markers of building/ structure
3. Locate and drive stakes
4. Mark the line level on stakes
5. Install batter boards
6. Brace batter boards
7. Check for levelness

SLO # 5

6 hrs.

1. Establish base line and starting corner
2. Square the first corner with the following method
 - a) 6-8-10 triangle
 - b) Transit
 - c) Rafter square
3. Mark the line location on the batter board

4. Measure the length and width from the base lines of the square corner and mark on the batter board
5. Extend the line to complete the outside line of the building/structure

SLO # 6

3 hrs.

1. Check line level with transit
2. Check level with level hose
3. Check square ness with transit
4. Plumb check with transit/ bar level/ plumb bob

SLO # 7

2 hrs.

1. Draw a complete sketch of a individual footing
2. Draw a complete sketch of a continuous footing
3. Draw a complete sketch of a plain footing
4. Draw a complete sketch of a reinforced footing

SLO # 8

15 hrs.

1. Design individual footing for various column sizes
2. Design continuous footing for various types of foundation wall
3. Design plain footing for wooden house construction
4. Design reinforced footing for wooden house Construction
5. Layout individual footing line on a field project
6. Layout continuous footing line on a field project
7. Mark excavation line and prepare for excavation
8. Excavate individual footing with hand tools
9. Excavate continuous footing with excavator

SLO # 9

16 hrs.

1. Layout reinforcement line/mark
2. Construct and install HOR. & VERT. reinforcement for individual footing
3. Construct and install horizontal & vertical. reinforcement for continuous footing
4. Construct and install individual footing forms
5. Construct and install continuous footing forms

SLO # 10

3 hrs.

1. Estimate concrete mix for 1-2-3 mix ratio

2. Estimate concrete mix for 1-3-4 mix ratio
3. Estimate concrete mix based on various strength (p.s.i)

SLO # 11

20 hrs.

1. Draw a complete sketch of a concrete foundation wall
2. Draw a sketch of a concrete block foundation wall
3. Design concrete foundation wall of residential construction
4. Design concrete block foundation wall of a residential const.
5. Design appropriate foundation wall for commercial const.
6. Set-up forms prepare for concrete pouring
7. Mix concrete at appropriate ratio and pour
8. Apply finishing/surfacing
9. Layout blocks line and prepare for laying blocks
10. Mix mortar at appropriate ratio and lay blocks to finish height
11. Apply rough surfacing for continuation

SLO # 12

10 hrs.

1. Plaster using sealing compound mixed w/ mortar on foundation wall or retaining wall
2. Apply polyethylene sheeting over poured footing and foundation wall
3. Install footing drain and prepare for testing

TOTAL LAB HOURS

96 hrs

Course Level Achievement

Form A

(Used for shop courses as well as other program courses)

CT115 FOOTING AND FOUNDATION

Student's Name (print): _____

Semester/Year: _____

Instructor's Name (Print): _____

Directions: Evaluate the student using the rating scale below and encircle the appropriate number to indicate the degree of competency. The numerical ratings of 5, 4, 3, 2, and 1 are not intended to represent the traditional school grading system of A, B, C, D, and F. the descriptions opposite the numbers will determine the level of student performance for each of the competencies listed below.

- Rating Scale:**
- 5 Excellent
 - 4 Above average
 - 3 Average
 - 2 Below average
 - 1 Unacceptable

COMPETENCY	RATING
1. Interpret site plan, foundation plan, and floor plan.	5 4 3 2 1
2. Select footing and foundation materials.	5 4 3 2 1
3. Prepare building site, erect batter boards, and layout and install building and foundation lines.	5 4 3 2 1
4. Layout and excavate footing and foundation trench and set-up reinforcement.	5 4 3 2 1
5. Set up footing and foundation reinforcement and install.	5 4 3 2 1
6. Construct reinforced concrete and concrete blocks foundation wall.	5 4 3 2 1
7. Mix, pour, and finish concrete.	5 4 3 2 1

I certify that the student has completed all the competencies in this program and has achieved ratings as shown under each respective competency.

Instructor's signature

Date

COMPETENCY # 1 Interpret site plan, foundation plan, and floor plan.

5. Interpret, dimensions, material sizes and type, specifications, and notes in the Site Plan, Footing and Foundation Plan, and Floor Plan with 90 –100% accuracy.
4. Interpret, dimensions, material sizes and type, specifications, and notes in the Site Plan, Footing and Foundation Plan, and Floor Plan with 80 – 89% accuracy.
3. Interpret, dimensions, material sizes and type, specifications, and notes in the Site Plan, Footing and Foundation Plan, and Floor Plan with 70 – 79% accuracy.
2. Interpret, dimensions, material sizes and type, specifications, and notes in the Site Plan, Footing and Foundation Plan, and Floor Plan with 65 – 69% accuracy.
1. Interpret, dimensions, material sizes and type, specifications, and notes in the Site Plan, Footing and Foundation Plan, and Floor Plan with bellow 65% accuracy.

COMPETENCY # 2 Select footing and foundation materials.

5. Identify and select all of the required materials including concrete, reinforcements, and backfilling products for constructing footing and foundation according to plan with 90 – 100% accuracy.
4. Identify and select all of the required materials including concrete products, reinforcements, and backfilling products for constructing footing and foundation according to plan with 80 – 89% accuracy.
3. Identify and select all of the required materials including concrete products, reinforcements, and backfilling products for constructing footing and foundation according to plan with 70 – 79% accuracy.
2. Identify and select all of the required materials including concrete products, reinforcements, and backfilling products for constructing footing and foundation according to plan with 65 – 69% accuracy.
1. Identify and select all of the required materials including concrete products, reinforcements, and backfilling products for constructing footing and foundation according to plan with below 65%accuracy.

COMPETENCY # 3 Prepare building site, erect batter boards, and layout and install building and foundation lines.

5. Demonstrate all of the skills - including site inspection, leveling, layout, and landscaping, batter board installation, building line layout and installation, and testing, and foundation line layout and marking on the ground- required to properly prepare the building site, erect batter boards, and layout and install building and foundation lines according to plan with 90- 100% accuracy.
4. Demonstrate all of the skills - including site inspection, leveling, layout, and landscaping, batter board installation, building line layout and installation, and testing, and foundation line layout and marking on the ground- required to properly prepare the building site, erect batter boards, and layout and install building and foundation lines according to plan with 80- 89% accuracy.
3. Demonstrate all of the skills - including site inspection, leveling, layout, and landscaping, batter board installation, building line layout and installation, and testing, and foundation line layout and marking on the ground- required to properly prepare the building site, erect batter boards, and layout and install building and foundation lines according to plan with 70- 79% accuracy.
2. Demonstrate all of the skills - including site inspection, leveling, layout, and landscaping, batter board installation, building line layout and installation, and testing, and foundation line layout and marking on the ground- required to properly prepare the building site, erect batter boards, and layout and install building and foundation lines according to plan with 65- 69% accuracy.
1. Demonstrate all of the skills - including site inspection, leveling, layout, and landscaping, batter board installation, building line layout and installation, and testing, and foundation line layout and marking on the ground- required to properly prepare the building site, erect batter boards, and layout and install building and foundation lines according to plan with below 65% accuracy.

COMPETENCY # 4 Layout and excavate footing and foundation trench.

5. Demonstrate all of the skills – on the ground layout, depth mark layout, excavating and clearing methods, and leveling and set-up - required to properly layout and excavate footing and foundation trench according to plan with 90 – 100% accuracy.
4. Demonstrate all of the skills – on the ground layout, depth mark layout, excavating and clearing methods, and leveling and set-up - required to properly layout and excavate footing and foundation trench according to plan with 80 – 89% accuracy.
3. Demonstrate all of the skills – on the ground layout, depth mark layout, excavating and clearing methods, and leveling and set-up - required to properly layout and excavate footing and foundation trench according to plan with 70 – 79% accuracy.
2. Demonstrate all of the skills – on the ground layout, depth mark layout, excavating and clearing methods, and leveling and set-up - required to properly layout and excavate footing and foundation trench according to plan with 65 – 69% accuracy.
1. Demonstrate all of the skills – on the ground layout, depth mark layout, excavating and clearing methods, and leveling and set-up - required to properly layout and excavate footing and foundation trench according to plan with below 65% accuracy.

COMPETENCY # 5 Set up footing and foundation reinforcement and install.

5. Demonstrate all of the skills – reinforcement layout, cutting, bending, fastening, set-up and installation - required to properly set up and install footing and foundation reinforcement according to plan with 90 - 100% accuracy.
4. Demonstrate all of the skills – reinforcement layout, cutting, bending, fastening, set-up and installation - required to properly set up and install footing and foundation reinforcement according to plan with 80 - 89% accuracy.
3. Demonstrate all of the skills – reinforcement layout, cutting, bending, fastening, set-up and installation - required to properly set up and install footing and foundation reinforcement according to plan with 70 - 79% accuracy.
2. Demonstrate all of the skills – reinforcement layout, cutting, bending, fastening, set-up and installation - required to properly set up and install footing and foundation reinforcement according to plan with 65 - 69% accuracy.
1. Demonstrate all of the skills – reinforcement layout, cutting, bending, fastening, set-up and installation - required to properly set up and install footing and foundation reinforcement according to plan with below 65% accuracy.

COMPETENCY # 6 Construct reinforced concrete and concrete blocks foundation wall.

5. Demonstrate all of the skills – form making, set-up and installation, concrete mixing and installation, block laying and finishing, and reinforcement - required to properly construct concrete and concrete blocks foundation wall according to plan with 90- 100% accuracy.
4. Demonstrate all of the skills – form making, set-up and installation, concrete mixing and installation, block laying and finishing, and reinforcement - required to properly construct concrete and concrete blocks foundation wall according to plan with 80- 89% accuracy.
3. Demonstrate all of the skills – form making, set-up and installation, concrete mixing and installation, block laying and finishing, and reinforcement - required to properly construct concrete and concrete blocks foundation wall according to plan with 70- 79% accuracy.
2. Demonstrate all of the skills – form making, set-up and installation, concrete mixing and installation, block laying and finishing, and reinforcement - required to properly construct concrete and concrete

blocks foundation wall according to plan with 65 - 69% accuracy.

1. Demonstrate all of the skills – form making, set-up and installation, concrete mixing and installation, block laying and finishing, and reinforcement - required to properly construct concrete and concrete blocks foundation wall according to plan with below 65% accuracy.

COMPETENCY # 7 Mix, pour, and finish concrete.

5. Demonstrate all of the skills – mixing manually and mechanically, pouring, screeding, compacting, leveling, and floating, smoothing and finishing - required to properly mix, pour, and finish concrete according to plan with 90 - 100% accuracy.
4. Demonstrate all of the skills – mixing manually and mechanically, pouring, screeding, compacting, leveling, and floating, smoothing and finishing - required to properly mix, pour, and finish concrete according to plan with 80 - 89% accuracy.
3. Demonstrate all of the skills – mixing manually and mechanically, pouring, screeding, compacting, leveling, and floating, smoothing and finishing - required to properly mix, pour, and finish concrete according to plan with 70 - 79% accuracy.
2. Demonstrate all of the skills – mixing manually and mechanically, pouring, screeding, compacting, leveling, and floating, smoothing and finishing - required to properly mix, pour, and finish concrete according to plan with 65 - 69% accuracy.
1. Demonstrate all of the skills – mixing manually and mechanically, pouring, screeding, compacting, leveling, and floating, smoothing and finishing - required to properly mix, pour, and finish concrete according to plan with below 65% accuracy.