HVLP 2483 Principles of Operation – CRN - 60238
Study of overhead and underground high voltage systems, transformer configurations, line voltage drops and the installation of overhead and underground systems are covered. Safety practices are emphasized and students will work with various types of material and equipment in this hands-on course.

Course Purpose:
To prepare students for line work scenarios and prepare for their upcoming internships

Type of Course: Theory/Lab
Credit Hours: 3; Total clock hours of theory per semester: 35;
Total clock hours of lab per semester: 40;
Class Length: 1st half
Class Days and Times: MTWRF 7:30 – 9:35am
Prerequisites: HVLP 2563, and HVLP 2663

Instructor Name: Barton Pettit                        Instructor Phone: (918) 759-7123
Office: Bldg.600    Room 102                        Instructor Email: fpettit@okstate.edu

Contact: My preferred method of contact is e-mail. Please allow 24-48 hours to return your correspondence during the normal work week.

Instructor's Office Hours: 12:30am-1:40 pm M-T-W-R-F

School Name: Engineering & Construction Technologies   School Main Phone: 918-293-4744

Required Text, References, and Materials
Texts: The Lineman’s And Cableman’s Handbook, Thirteenth Edition
ISBN #978-0-07-185003-2
Distribution Transformers, Alexander Publications
ISBN # N/A

References: Lineman’s Handbook, McGraw Hill

Materials: Materials needed including notebooks, writing utensils, project supplies, data storage devices, tools, etc.

Uniform/Tools: Dress for outside work; Long sleeves, boots, tool belt, hooks and hand tools. Tool belts must be complete and ready to use upon beginning first class period.

Estimated Cost for Materials: $ 20.00
Estimated Cost for Uniform/Tools: $ 150.00 hand tools if needed
Optional Resources: N/A

Upon completion of the course, students should:

<table>
<thead>
<tr>
<th>COURSE OBJECTIVES</th>
<th>ASSESSMENT OF OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Demonstrate calculation using OHMS law</td>
<td>Assessment Tests</td>
</tr>
<tr>
<td>2.2 Calculate KWH/KVA/FLC</td>
<td>Assessment Tests</td>
</tr>
<tr>
<td>*4.1 Execute proper pole framing</td>
<td>Observation Assessment</td>
</tr>
<tr>
<td>*4.2 Sag secondary and primary wires</td>
<td>Observation Assessment</td>
</tr>
<tr>
<td>*4.3 Properly install dead-ends and top ties</td>
<td>Observation Assessment</td>
</tr>
<tr>
<td>5.1 Explain how to install and connect 1 phase and 3 phase transformers in a class room setting.</td>
<td>Assessment Tests</td>
</tr>
<tr>
<td>5.2 Prepare different structures on ground and air</td>
<td>Observation Assessment</td>
</tr>
<tr>
<td>5.3 Perform all industry grounding methods</td>
<td>Observation Assessment</td>
</tr>
<tr>
<td>6.1 Know the difference between Distribution and Transmission voltages</td>
<td>Observation Assessment</td>
</tr>
<tr>
<td>6.2 Prepare different structures on the ground and in the air</td>
<td>Observation Assessment</td>
</tr>
<tr>
<td>6.3 Performing different grounding methods</td>
<td>Observation Assessment</td>
</tr>
</tbody>
</table>

Aspects of the course objective assessments may be used in the university’s assessment of student learning. If applicable, an asterisk (*) above indicates this assignment is used in the university assessment program.

Course Activities
In this course students will:

- Participate in class discussions and activities.
- View videos that depict the various concepts.
- Participate in group and individual presentations.
- Take examinations.
- Complete reading assignments.
- May be required to do quizzes.

Evaluation - Grades will be based on the quality and completion of these tasks:

- Attendance and Participation 20%
- Unit Test 20%
- Transformer Connections Exams 20%
- Essays and definitions 10%
- Final Exam 30%
- **Total** 100%

**OSUIT Grading Scale**

- **A** = 90% - 100%
- **B** = 80% - 89%
- **C** = 70% - 79%
- **D** = 60% - 69%
- **F** = 59% & below

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*The student’s grade for this assignment will be used in the university’s assessment of student learning. A 70% competency or higher receives a Pass rating. This Pass/Fail rating is independent of the student’s course grade.

Daily and/or weekly quizzes, small weekly assignments and similar type projects: Normal return time to student by next class meeting or no later than one (1) week.

Extensive assignments, large lab projects, extensive quizzes, exams and similar type projects: Normal return time to students in one (1) to two (2) weeks.

**Recommended Student Competencies/Skills**
Bucket Truck operation, Pole climbing skills, Computer skills and hand eye coordination and note taking skills.

**Authorized Tools**
Students may use any/all course materials, including books and notes, while participating in classroom activities. All quizzes and written assignments are to be completed independently; no collaboration with classmates is permitted and any instance of such will be considered academic dishonesty. Any and all labs not finished during class time will be done on student’s own time.

**Late Work**
No late work without prior approval from instructor, unless absences meet criteria for excused absences outlined in this syllabus. Quizzes cannot be made up.

**Testing**
Test will be given in class or outside observation test. No notes or student collaboration, unless specified by the instructor.

**Other Lab and Classroom Policies**
Be on time ready to work with all your tools, proper clothing, your books, classroom materials.

Lab projects will be timed and must be completed by every student.

Student assessments will be based on:

- Following instructions in class and lab
- Proper completion of lab projects
- Punctuality and attendance
- Projects will be timed and graded accordingly.

Pop quizzes may be given at any time and without notice. If a pop quiz is given, a grade of zero will be given to those students not present at the time the quiz was given.

No Pole Yard activities allowed (no pole climbing) from 7:30 am to 7:30 am the following day, unless OSUIT High Voltage Lineman Faculty is onsite and has given permission for that activity, which would be for that one time & that date.

No cursing, no tobacco, no alcohol, no drugs, no shorts, no sleeveless shirts, no cellphone use, unless an emergency

**Syllabus Attachment**
View the Syllabus Attachment, which contains other important information, by visiting [https://osuit.edu/center/files/19-20-syllabus-attachment.pdf](https://osuit.edu/center/files/19-20-syllabus-attachment.pdf)
Principles of Operation Weekly Schedule

- Quiz could be given anytime & will be on subjects/labs that have been covered
- No Classes May 30th, 2016 Memorial Day
- All outside lab days will be Monday thru Friday unless told different or because of weather conditions.
- Unit tests and Transformer simulator tests will be on Fridays, unless told different.

<table>
<thead>
<tr>
<th>Course Outline Schedule</th>
<th>Topic</th>
<th>Assignment</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Cover Syllabus, Class Expectations, Assessments, single phase, open delta bank and formula refreshers. Intern experiences</td>
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<tr>
<td>Week 2</td>
<td>Setting Poles, and Rigging and retirement of existing lines and formulas</td>
<td>Outside Lab</td>
<td>All Days</td>
</tr>
<tr>
<td>Week 3</td>
<td>Distribution Line Installation &amp; Removal</td>
<td>Outside Lab Unit tests Transformer simulator tests</td>
<td>Days 1-4 Day 5 Day 5</td>
</tr>
<tr>
<td>Week 4</td>
<td>Three Phase Line Construction</td>
<td>Outside Lab Unit tests Transformer simulator tests</td>
<td>Days 1-4 Day 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Course assessment test</td>
<td>Day 5</td>
</tr>
<tr>
<td>Week 5</td>
<td>Working on Distribution, Transformer Connections Single Phase and open delta banks</td>
<td>Outside Lab Unit tests Transformer simulator tests</td>
<td>Days 1-4 Day 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Course assessment test</td>
<td>Day 5</td>
</tr>
<tr>
<td>Week 6</td>
<td>Transformer Connections Three Phase, Rotation Meters</td>
<td>Outside Lab Unit tests Transformer simulator tests</td>
<td>Days 1-4 Day 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Course assessment test</td>
<td>Day 5</td>
</tr>
</tbody>
</table>

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| Week 7 | Review questions that will be on Finals, Outside Equipment Review for Assessment tests, unit tests, & transformer simulator tests | Course assessment test Final written test Final Transformer Simulator test | Days 1-3 |

Schedule is subject to change at instructor discretion.