# ELT 141 Spring 2015

**The instructor reserves the right to change the calendar with notification**

| Date | Topic | Description | Location | Points | Learning outcomes |
|---|---|---|---|---|---|
| Week 1 | | | | | |
| Tue., Jan. 13 | Introduction to ELT 141. Pretest. Syllabus. | Students are welcomed, and given an opportunity to review the syllabus. Pretest. | 58-164 | | Students better understand Expectations |
| Wed., Jan. 14 | Lab introduction. | Students are familiarized with lab and lab equipment. | 58-164 | | Students are allowed to examine lab equipment. 1 |
| Thu., Jan. 15 | Syllabus test. Transformer concepts | Students will be tested on the contents of the class syllabus. Assign for reading and review pages 1-14, Distribution Transformer Handbook. Assign for reading and review section26307-11 1.0.0 through 4.0.0 (pages 53-60) In the ELT 141 Lineworker training book. Lecture on transformer function | 58-164 | 100 | 1 |
| Week 2 | | | | | |
| Tue., Jan. 20 | Transformer concepts | Lecture on transformer concepts. The transformer, formulas, power triangle, transformer ratings, taps, losses, and so on. | 58-164 | | 1,2,5 |
| Wed., Jan. 21 | Demonstration on Transformer anatomy | Demonstration by instructor of how the parts of a distribution transformer function, and what they are called. Open discussion. Review due. | 58-164 Line lab | 20 | 1,2,5 |
| Thu., Jan. 22 | Test: Transformer concepts. Transformer concepts | Test on transformer concepts. Pages 15-26 in the Distribution Transformer handbook assigned for reading and review. | 58-164 | 100 | 1,2,3,4,5 |
| Week 3 | | | | | |
| Tue., Jan. 27 | Transformer concepts | Lecture on transformer concepts. Protection, CSP's, Ferroresonance, Vectors, Angular displacement | 58-164 | | 1,2,3,4,5 |
| Wed., Jan. 28 | Demonstration on transformer protection | Demonstration by instructor of the protective devices used in conjunction with transformers. Review due | 58-164 | 20 | 6 |
| Thu., Jan. 29 | Test: Transformer concepts part 2. Transformer safety and terminology | Test on transformer concepts. Section 80202-11 1.0.0 to 4.5.2 assigned for reading and review. | 58-164 | 100 | 1,2,3,4,5,6 |
| Week 4 | | | | | |
| Tue., Feb. 3 | Transformer safety and terminology. | Lecture on transformer safety, polarity, secondary connections, transformer types. | 58-164 | | 1,2,3,4,5 |
| Wed., Feb. 4 | Lab. Y-Y connection | Students will demonstrate Y-Y connection on lab trainers. Review due. | 58-164 | 20 lab, 20 review | 1,2,3,4,5 |

| | | | | | |
|---|---|---|---|---|---|
| Thu., Feb. 5 | Test: Transformer safety, and terminology. Primary transformer connections | Test on transformer safety and terminology. Pages 27-44 in the Distribution Transformer Handbook assigned for reading and review. | 58-164 | 100 | 1,2,3,4,5,6 |
| Week 5 | | | | | |
| Tue., Feb. 10 | Transformer connections: Primary connections | Lecture on primary side transformer connections. Y and Delta | 58-164 | | 1,3,4,5 |
| Wed., Feb. 11 | Lab . Y and Delta Primary connections. | Students will demonstrate primary transformer connections. Review due | 58-164 | 20 lab, 20 review | 1,3,4,5 |
| Thu., Feb. 12 | Test: Primary transformer connections. Y secondary connections | Test on primary side transformer connections. Assign for reading and review section 26307-11 5.0.0 to 5.2.3 (pages 60-63) and 11.0.0 to 11.2.0 (pages 78-83) | 58-164 | 100 | 1,3,4,5 |
| Week 6 | | | | | |
| Tue., Feb. 17 | Transformer connections: Y secondary connections | Lecture on Y secondary connections. | 58-164 | | 1,3,4,5 |
| Wed., Feb. 18 | Lab. Y secondary connections | Students will demonstrate Y secondary connections. Review due | 58-164 | 20 lab, 20 review | 1,3,4,5 |
| Thu., Feb. 19 | Test on Y secondary connections. | Test on Y secondary connections. Assign review of delta secondary connections. | 58-164 | 100 | 1,3,4,5 |
| Week 7 | | | | | |
| Tue., Feb. 24 | Transformer connections: Delta secondary | Lecture on delta secondary connections. | 58-164 | | 1,3,4,5 |
| Wed., Feb. 25 | Lab. Delta secondary connections | Students will demonstrate delta secondary connections. Review due | 58-164 | 20 lab, 20 review | 1,3,4,5 |
| Thu., Feb. 26 | Test on delta secondary connections. Vectoring | Test on Delta secondary connections. Assign for re-review pages 21-26 in the Distribution Transformer handbook, and pages 79-81 in the ELT 141 Lineman training manual. Vectors | 58-164 | 100 | 1,3,4,5 |
| Week 8 | | | | | |
| Tue., Mar. 3 | Vectors | Lecture on vectoring (phasing) for transformers | 58-164 | | 1,3,4,5 |
| Wed., Mar. 4 | Lab. Delta-Delta connections | Students will demonstrate delta-delta transformer connections, and corresponding vectors. Review Due | 58-164 | 20 lab, 20 review | 1,3,4,5 |
| Thu., Mar. 5 | Test: Vectors. Installing transformers | Test on vectors. Assign pages 45-61 in the Distribution Transformer Handbook for reading and review. Installing transformers | 58-164 | 100 | 1,3,4,5 |
| Week 9 | | | | | |
| Tue., Mar. 10<br>Wed., Mar. 11<br>Thu., Mar. 12 | Spring Break | | | | |
| Week 10 | | | | | |
| Tue., Mar. 17 | Installing transformers | Lecture on installing transformers. Nameplates, safety tips, backfeed, Transformer loads, load checks, etc. | 58-164 | | 1,2.3,4,5 |

| | | | | | |
|---|---|---|---|---|---|
| Wed., Mar. 18 | Lab. Y-Delta connections | Students will demonstrate various Y-Delta connections. Review due. | 58-164 | 20 lab, 20 review | 1,3,4,5 |
| Thu., Mar 19 | Test: Installing transformers. Load management, and protective devices | Test on installing transformers. Assign pages 45-61 in the Distribution Transformer Handbook, and pages 113-116 in the ELT 141 manual for reading and review. | 58-164 | 100 | 1,2.3,4,5,6 |
| Week 11 | | | | | |
| Tue., Mar. 24 | Load management and protective devices | Lecture on load management and protective devices for transformers. Cutouts, lightning arrestors, fuses, etc. | 58-164 | | 1,2,3,4,5,6 |
| Wed., Mar. 25 | Lab. Delta-Y connections | Students will demonstrate various delta-Y connections. Review due. | 58-164 | 20 lab, 20 review | 1,3,4,5 |
| Thu., Mar 26 | Test: Load management and protective devices. Capacitors | Test on load management and protective devices. Assign for reading and review pages 18-25 in the ELT 141 Lineman Training book. | 58-164 | 100 | 1,2,3,4,5,6,7 |
| Week 12 | | | | | |
| Tue., Mar. 31 | Capacitors | Lecture on capacitors. Installation, handling, and purpose. | 58-164 | | 7 |
| Wed., Apr. 1 | Lab. Open Y-open delta connection. | Students will demonstrate the open Y-open delta connection, and corresponding vectors. Review due. | 58-164 | 20 lab, 20 review | 1,3,4,5 |
| Thu., Apr. 2 | Test: Capacitors. Pad mount transformers. | Test on capacitors. Assign for reading and review pages 73 to 80 in the Distribution Transformer Handbook. | 58-164 | 100 | 1,3,4,5,6,7 |
| Week 13 | | | | | |
| Tue., Apr. 7 | Pad mount transformers. | Lecture on padmount transformers. Grounding, handling, maintenance, etc. | 58-164 | | 1,6 |
| Wed., Apr. 8 | Demonstration on pad mount transformers by instructor. | Instructor will demonstrate the anatomy, and application of a pad mount transformer. Review due. | 58-164 | 20 | 1,6 |
| Thu., Apr 9 | Test: Pad mount transformers. Primary fuse calculations for transformers | Test on padmount transformers. Assign for reading and review handout for primary fusing calculations for distribution transformers. | 58-164 | 100 | 1,3,4,5,6 |
| Week 14 | | | | | |
| Tue., Apr 14 | Transformer fusing calculations | Lecture on primary fusing for distribution transformers, and practice at making the calculations. | 58-164 | | 1,4,5 |
| Wed., Apr 15 | Transformer connections | Students will demonstrate various transformer connections | 58-164 | 20 | 1,3,4,5 |
| Thu., Apr. 16 | Test: Transformer primary fusing calculations. Practice. | Students will be tested on transformer primary fusing calculations. Students will begin reviewing and practicing for final exams. | 58-164 | 100 | 1,2,3,4,5,6,7 |
| Week 15 | | | | | |
| Tue., Apr. 21 | Review | Preparation for final exams. | 58-164 | | 1,2,3,4,5,6,7 |
| Wed., Apr. 22 | Review | Preparation for final exams. | 58-164 | | 1,2,3,4,5,6,7 |
| Thu., Apr. 23 | Review | Preparation for final exams. | 58-164 | | 1,2,3,4,5,6,7 |
| Week 16 | | | | | |
| Tue., Apr. 28 | Final Exam | Final exam | 58-164 | 300 | 1,2,3,4,5,6,7 |
| Wed., Apr. 29 | Lab final | Lab final | 58-164 | 100 | 1,2,3,4,5,6,7 |

| | | | | | |
|---|---|---|---|---|---|
| Thu., Apr. 30 | Lab final (continued if necessary) | Lab final | 58-164 | | 1,2,3,4,5,6,7 |