

**Electrical Level 2
2022-2023
Course Syllabus**

WEEKS 1 – 12

Delmar's Standard Textbook of Electricity, 7th Edition (DEL)

Tom Henry Transformer Exam Calculations (TOM)

2020 National Electric Code (NEC) is referenced when a code article is used in EWR or DEL

| WEEK | CONTENT | MATERIALS USED | ASSIGNMENT(S) <i>Numbers listed next to assignment reflect the number of questions.</i> |
|-------------|---|---|--|
| | Orientation/Introduction of Program Apprenticeship Application (VDOL) | Canvas VDOL Outreach | CANVAS MODULE: 21-22 APPRENTICESHIP ORIENTATION |
| | Math Review Pythagorean Theorem Basic Trigonometry Vectors | DEL (Unit 14 & 15) | DEL UNIT 14: BASIC TRIGONOMETRY & VECTORS (20) DEL UNIT 15: ALTERNATING CURRENT (45) |
| | Introduction to AC Electricity | DEL (SECTION 5) | |
| | Inductance in AC Circuits | DEL (Unit 16) | DEL UNIT 16: INDUCTANCE IN AC CIRCUITS (43) |
| | Resistive-Inductive Series Circuits | DEL (Unit 17) | DEL UNIT 17: RESISTIVE-INDUCTIVE SERIES CIRCUITS (43) |
| | Resistive-Inductive Parallel Circuits | DEL (Unit 18) | DEL UNIT 18: RESISTIVE-INDUCTIVE PARALLEL CIRCUITS (43) |
| | Capacitors in AC Circuits | DEL (Unit 19 & 20) | DEL UNIT 19: CAPACITORS (47) DEL UNIT 20: CAPACITANCE IN AC CIRCUITS (46) |
| | Resistive-Capacity Series Circuits | DEL (Unit 21) | DEL UNIT 21: RESISTIVE-CAPACITIVE SERIES CIRCUITS (45) |
| | Resistive-Capacitive Parallel Circuits | DEL (Unit 22) | DEL UNIT 22: RESISTIVE-CAPACITIVE PARALLEL CIRCUITS (44) |
| | Resistive-Inductive-Capacitive Series Circuits | DEL (Unit 23) | DEL UNIT 23: RESISTIVE-INDUCTIVE-CAPACITIVE SERIES CIRCUITS (45) |
| | Harmonics | DEL (Unit 35) | DEL UNIT 35: HARMONICS (42) |
| | Resistive-Inductive-Capacitive Parallel Circuits Power Factor Correction | DEL (Unit 24) | DEL UNIT 24: RESISTIVE-INDUCTIVE-CAPACITIVE PARALLEL CIRCUITS (45) |
| | Magnetic Induction | DEL (Unit 13) | DEL UNIT 13: MAGNETIC INDUCTION (43) |
| | Single Phase Transformers | DEL (Unit 27) NEC (Article 450) TOM | DEL UNIT 27: SINGLE-PHASE TRANSFORMERS (44) TOM: SINGLE PHASE TRANSFORMER EXAM #1 (6) |
| | Transformer Components, Windings, Sizing, and Protection | DEL (Unit 27) NEC (Article 450) TOM | |
| | Midterm Exam Review | DEL (Units 15-25, 27, 35) | REVIEW ALL PREVIOUS ASSIGNMENTS |

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| | | NEC (Article 450) TOM | |
| | Midterm Exam | Standardized Exam Reviewing Weeks 1-12 Material Covered | CANVAS EXAM (3.5 HOURS TO COMPLETE – 1 ATTEMPT) |

WEEKS 13-24

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| WEEK | CONTENT | MATERIALS USED | ASSIGNMENT(S) |
|------|---|--|---|
| | Three Phase AC Circuits | DEL (Unit 28) | DEL UNIT 28: THREE-PHASE TRANSFORMERS (47) |
| | Three Phase Transformers & Calculations | DEL (Unit 28) | |
| | DC Generators | DEL (Unit 29) | DEL UNIT 29: DC GENERATORS (42) |
| | DC Motors | DEL (Unit 30) | DEL UNIT 30: DC MOTORS (43) |
| | Three Phase AC Alternators | DEL (Unit 31) | DEL UNIT 31: THREE-PHASE ALTERNATORS (42) |
| | Three Phase Motors | DEL (Unit 32) NEC (Article 430) | DEL UNIT 32: THREE-PHASE MOTORS (43) |
| | Single Phase Motors | DEL (Unit 33) NEC (Article 430) | DEL UNIT 33: SINGLE-PHASE MOTORS (43) |
| | Motors, Motor Circuits, and Controllers | DEL (Unit 34) | DEL UNIT 34: MOTOR INSTALLATION (22) |
| | Final Exam Review | DEL (Units 28-34) NEC (Article 430) | REVIEW ALL PREVIOUS ASSIGNMENTS |
| | Final Exam | Standardized Exam Reviewing Weeks 13-24 Material Covered | CANVAS EXAM (3.5 HOURS TO COMPLETE – 1 ATTEMPT) |