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**REEDLEY COLLEGE – MANUFACTURING TECHNOLOGY**

**FALL 2016 MFGT 23 – #59115 ELECTRICITY**

**2 Units, 9 weeks (08/15 - 10/14)**

**Tuesday / Thursday: 6:00 pm to 8:15 pm**

**Instructor:** Darrell Hirschler

**Phone:** (559) 638-3641 ext. 3477

**E-mail:** darrell.hirschler@reedleycollege.edu

**Office:** IND 22

**Classroom:** IND 17

**Lab:** IND 19 & 24A

**Office hours:** Tue / Thurs 5:30 pm – 6:00 pm & Mon / Wed 12:00 pm – 1:00 pm

**Description:**

The study of basic energy sources developed for commercial / manufacturing use. Methods that are used to measure potential difference and power, residential and industrial safety. Basic electrical codes, wire, and industrial troubleshooting. Basic shop electrical repairs and installations.

**Expected Outcomes:**

1. Service and operate electrical systems using safe shop techniques.
2. Calculate common mathematical problems associated with electrical systems.
3. Understand basic electrical theory
4. Understand how to measure voltage, current and resistance.
5. Understand how the code applies to the use and installation of materials and components.
6. Understand basic residential and commercial wiring practices.
7. Understand how to work with basic electrical hand tools and test equipment.
8. Understand the basic materials and components used in electrical wiring.
9. Understand how to perform basic Ohm’s Law calculations.
10. Understand Series-vs- Parallel circuits.
11. Understand basic electrical symbols and terminology

**Basic Skills Advisories:**

Eligibility for English 126 and Math 101

**Prerequisites: None**

**Required Materials: \*Optional but recommended**

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| **Clear Safety Glasses (Z87.1+)** | **\*Lineman’s Pliers** |
| **#2 Pencil / Eraser** | **\*Long Nose Pliers** |
| **Basic Calculator**  | **\*Slip Joint Pliers** |
| **3-ring Binder w/ Lined Paper** | **\*Utility Knife (Retractable Blade)** |
| **Wire Strippers** | **\*Water Pump Pliers (channel locks)** |
| **6-in-1 Screwdriver** | **Scan-Tron for final exam** |

**How class will be conducted:**

* Lecture
* Instructor Demonstrations
* Lab Tasks / Assignments
* Quizzes
* Homework Assignments
* Final Exam

**Course Outline:**

Week 1: Introductions; electrical safety, electrical theory and principles; electrical generation, electrical distribution; electrical terminology, tools and materials.

Week 2: Residential Electrical; Circuit conductors, connections and protection; Basic electrical symbols, Residential Branch Circuits (Romex- following the path of electricity);

Week 3: Wiring & Installing Branch Circuits – A/C Residential (Romex)

Week 4: Commercial Circuits; Wiring & Installing Service Entrance Panels & Sub Panels; EMT; Circuit breakers; Grounding.

Week 5: Volt Ohm Meter (finding voltage, amperage, resistance & continuity.

Week 6: Ohm’s Law, Calculating Voltage, Calculating Amperage, Calculating Wattage, Calculating Resistance, Basic electrical troubleshooting

Week 7: Electric Motors, Types, Interpreting Name Plate Information, 3 phase vs Single Phase, Motor Switches and Basic Controls.

Week 8:

**\*NOTE: Content and order may be changed as deemed necessary by the instructor.**

**Essential Information:**

* Any assignment turned in up to one week late will receive 50% credit.
* Home work will not be accepted more than one week late.
* Attendance and participation is very important. You must attend class in order to participate and complete the required work.
* In the event of class being cancelled you will be notified by a sign on the door.
* “Because cheating, plagiarism, and collusion in dishonest activities erode the integrity of the college, each student is expected to exert an entirely honest effort in all academic endeavors. Academic dishonesty in any form is a very serious offense and will incur serious consequences.” – SO DO NOT CHEAT!!
* If you carry a cellphone, please be respectful and set to vibrate before class starts.

**IMPORTANT DATES:**

AUGUST 15 M START OF FALL SEMESTER

AUGUST 15 - OCTOBER 14 M-F SHORT TERM CLASSES, FIRST NINE WEEKS

AUGUST 26 F LAST DAY TO DROP A FULL-TERM CLASS FOR REFUND

SEPTEMBER 2 F LAST DAY TO REGISTER FOR A FULL-TERM FALL CLASS

SEPTEMBER 2 F LAST DAY TO DROP A FALL FULL-TERM CLASS TO AVOID A W

SEPTEMBER 5 M LABOR DAY (NO CLASSES HELD)

SEPTEMBER 9 F LAST DAY TO CHANGE TO/FROM A PASS/NO-PASS

OCTOBER 14 F LAST DAY TO DROP A FULL-TERM CLASS

OCTOBER 17 - DECEMBER 16 M-F SHORT TERM CLASSES, SECOND NINE WEEKS

NOVEMBER 11 F VETERANS DAY (NO CLASSES HELD)

NOVEMBER 24 - 25 TH-F THANKSGIVING HOLIDAY

DECEMBER 12 - 16 M-F FINAL EXAM WEEK

DECEMBER 16 F SEMESTER ENDS

DECEMBER 17 - JANUARY 8 M-W WINTER BREAK