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**REEDLEY COLLEGE – MANUFACTURING TECHNOLOGY - ELECTRICITY**

**Spring 2017 MFGT 23 – #59827 M & W 1:00pm – 3:15pm**

**Spring 2017 MFGT 23 - #56961 Friday 7:30am – 12:10am**

**2 Units, 9 weeks (1/9 - 3/14)**

**Instructor:** Darrell Hirschler

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**Office:** IND 22

**Classroom:** IND 17

**Lab:** IND 19 & 24A

**Office hours:** Mon - Thur 12:00pm – 1:00pm & Fri 7:00am – 7:30am

**Text Book:** Electrical Principles and Practices, 4th Edition by Glen A. Mazur

**Description:** The study of basic energy sources developed for residential & commercial use. Methods used to measure potential difference and power, residential and industrial safety and wiring techniques. 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 and electrical terms.
4. Understand how to measure voltage, current and resistance.
5. Understand how the N.E.C. applies to the use and installation of electrical 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 how to perform basic Ohm’s Law calculations.
9. Understand Series-vs- Parallel circuits.
10. 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 Pliers** |
| **#2 Pencil / Eraser** | **\*Long Nose Pliers** |
| **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: #59827 Wed 3/8 = 1:00pm – 3:00pm

#59004 Fri 3/10 = 7:30am – 9:30am

**Course Outline:**

* Introductions; electrical safety, electrical theory and principles; electrical generation, electrical distribution; electrical terminology, tools and materials.
* Residential Electrical; Circuit conductors, connections and protection; Basic electrical symbols, Residential Branch Circuits (Romex- following the path of electricity)
* Wiring & Installing Branch Circuits: A/C Residential (Romex)
* Wiring & Installing Commercial Circuits: Wiring & Installing Service Entrance Panels / Sub Panels; EMT; Circuit breakers; Grounding.
* Volt Ohm Meter (finding voltage, amperage, resistance & continuity.
* Ohm’s Law, Calculating Voltage, Calculating Amperage, Calculating Wattage, Calculating Resistance, Basic electrical troubleshooting
* Intro to Electric Motors; Types, Interpreting Name Plate Information, 3 phase vs Single Phase, Motor Switches and Basic Controls.

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

**Essential Information:**

* Any assignment turned in over 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.
* You are required to find out from the instructor any material missed during absence.
* Tests may be made up at the instructor’s discretion.
* Campus policy requires all students who miss 2 consecutive weeks must be dropped.
* In the event of class being cancelled you will be notified by a sign on the door.
* “Because cheating, plagiarism, and collusion is dishonest activities that 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.
* Foul Language will not be tolerated and student will be asked to leave class if not contained.
* Do not leave the classroom or shop area without instructor’s permission.

**IMPORTANT DATES:**

* **January 16 (M) Martin Luther King Day No Classes**
* **February 17 (F) Lincoln Day No Classes**
* **February 20 (M) Washington Day No Classes**
* **March 10 End of 1st - 9 week courses**
* **March 12 (S) Daylight Savings Move clocks forward 1 hr.**
* **March 10 – 14 Spring Break No Classes**
* **May 19 End of 2017 Spring Semester**

**Work Ethic:** Most students are enrolled in college classes to obtain a quality job or to enhance their skills for enhancement with their current employment situation. Employers look for a punctual, responsible individual who is prepared to go to work. Our goal is to replicate the workplace environment where a student can develop and demonstrate these desirable traits.

* Punctual: It is customary to arrive at least 5 minutes before work begins. Individuals will be terminated if they are not punctual.
* Responsible: It is expected that an employee works every scheduled work day. Individuals will be terminated if they are not responsible.
* Prepared: It is expected that an employee be prepared when he/she arrives for work. Students must have the appropriate clothing, tools and safety gear to participate in the laboratory. If a student is not prepared, he/she cannot participate and will receive a zero (see “responsible”).