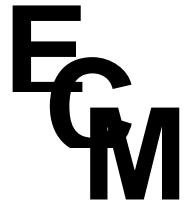




# Dauphin County Technical School

## Electrical Construction & Maintenance



### WRITTEN PROJECT INTRODUCTION

Each ECM senior will be responsible for a “Best Works” project that will include a written and performance requirement which is to be included in a Career Portfolio. Pictures of you (student) along with written steps of project/task chosen will complete this portfolio. Each student must accomplish this project to successfully satisfy the Dauphin County Technical School graduation requirement, as outlined by the Pennsylvania Department of Education. Below are your guidelines and some examples of the projects/task that are acceptable for Best Works. Student **must** provide one 1” Black /Binder.

### Senior Project Guidelines

1. Identify a task or project that is either on list below or you may design a project that meets the following criteria.
2. Performance Assessment must include but is not limited to; switch controls containing a minimum of two 3-ways, 4-way, conduit bending, metal and plastic boxes, nonmetallic sheathed cable and armored cable, GFCI receptacle, standard receptacle and either 100, 200 amp service or generator panel and door bell circuit.
3. Meet with Instructor to discuss plan and approval for selected task or project including student provided 1” black binder and have initialed and dated by Instructor. **Initial after you have read and understand requirements of both Senior Project Guidelines and ECM Rubric.**

**Due Last Thursday in September: Instructor & Student Initials** \_\_\_\_\_

4. The job must be researched with an explanation and a **complete detailed list** of what material and tools will be needed and how this relates to the job. Concentration must be on what material is required and or allowed by the National Electrical Code

**Due Last Thursday in October: Instructor & Student Initials** \_\_\_\_\_

#### **Example:**

- ½ emt conduit
  - 12-2 non-metallic sheathed cable
  - Plastic nail-on box
  - Metal bracket box with non-metallic sheathed cable strap
  - Ground screws
  - Cordless impact driver and assorted bits
  - ½ cordless drill with 1” wood bit
5. Research your process/procedure. Define each step of the procedure in detail, including graphics and safety or other cautions. This process should reflect your level of skill and competency. **Example:** *Safety precautions such as safety glasses, boots, and gloves must be worn at all times. The nonmetallic sheathed cable from switch box mounted 48” from finished floor to box center to fixture box in center of vanity sink*

*at 72" from finished floor to centerline of box and stapling within 12" of boxes and every 4.5' thereafter, while leaving 8" of conductor out of each box and making splices and grounding according to the NEC. Articles: 334.30 Securing and Supporting. 300.14 Length of Free Conductors at Outlets, Junctions, and Switch Points.*

**Due: Monday prior Thanksgiving Break: Instructor & Student Initials \_\_\_\_\_**

6. Include trade terminology- vocabulary and abbreviation definitions
7. Trade Documents related to the project or task can be utilized as additional credit.
8. Layout and Estimate cost must include:
  - How to perform basic math calculations and conversions (e.g., changes in voltage/current)?
  - How to plan and layout procedures?
  - How to estimate the amount of material needed for different situations (e.g., lengths of conduit, connectors, wire nuts, wire, and boxes)?
  - How to estimate the cost of material for the job?

**Due: Two days prior Christmas Break: Instructor & Student Initials \_\_\_\_\_**

9. Complete task to include:
  1. Completed Task
  2. Pictorial Component
  3. Shop Safety Protocol Component
  4. Tool Use & Coordination Component

**Due First Thursday in February: Instructor & Student Initials \_\_\_\_\_**

5. Be **punctual** with due dates and meet with Instructor on a weekly basis to review progress and reflection. Every day the projects are late will result in a lower letter grade per day for each section.

Note: Make sure you see me after you have read the entire Senior Project Guidelines and Rubric for 5 Bonus Points. This is only available the on the day the senior project is given.

#### **Examples of tasks:**

- 2 – 3 way switches and 1 – 4 way switch to control 2 light fixture centered in room or on wall. 1 GFCI receptacle feeding 1 receptacle. 200 amp overhead service. Door bell with 1 button
- 2 – 3 way switches to control 4 recessed light fixtures centered in room. 1 GFCI receptacle feeding 1 receptacle. 100 amp overhead service. Door bell with 2 buttons (front and rear door)
- 2 – 3 way switches and 1 – 4 way switch to control 1 light fixture centered in room or on wall. 1 GFCI receptacle feeding 1 receptacle. 100 amp overhead mast service. Door bells with 1 buttons (front door)
- Student Description:

**\*In addition to the Senior Project Grade, the students will receive additional shop grades in presentation to class, skill grades for skill and project completion and report grading, as well.**