GRADE 11 TECHNOLOGICAL DESIGN
PROJECT 2
ELECTRICAL ADDRESS SIGN

PURPOSE:

To design and build an electrical address sign that when plugged into a regular wall socket will illuminate automatically when it gets dark.

PROJECT REQUIREMENTS:

1) The address numbers will be milled out of 3/4" thick finished pine in relief using the CNC milling machine. The locations of the L.E.D.'s will also be milled out using the CNC milling program.

2) The finished project cannot be larger than 14"x10".

3) You may use a maximum of 24 L.E.D.'s on your project.

4) You will need a minimum 12 VDC power supply that will plug into a regular wall socket (transformer), and you will receive a photocell, a 18 pin logic chip, chip holder and a few lessons so that you will be capable of designing and building the necessary electrical circuit.

STEP BY STEP PROJECT GUIDE:

1) Produce 3 design sketches.

2) Pick best sketch and draw it on Acad including the locations of up to 24 L.E.D.'s.

3) Write the CNC code required to mill out the address sign using the Mastercam software and compiling the maximum of 6 tool changes using notepad.

4) After a couple of amazing lessons, design and draft out a schematic diagram of your electrical circuit and also draft out your parts layout diagram.

5) Grab your wood and after jointing and planing it, mill out your design on the CNC milling machine after checking everything out on foam first.

6) Manufacture your electrical circuit and mount the L.E.D.'s in place.

PROJECT EVALUATION

OVERALL:

1)	FINISHED PROJECT	60%
2)	PROJECT REPORT	30%
3)	UNIT TEST (ELECTRICAL/CNC)	10%

FINISHED PROJECT EVALUATION:

1)	LEVEL OF COMPLEXITY	20%
2)	FINISHED PRODUCT APPEARANCE (SQUARE, SIZED RIGHT, SANDED)	20%
3)	FUNCTIONING ELECTRICAL CIRCUIT (PARTS LAYOUT, PCB BOARD, WIRING, SOLDERING, NEATNESS)	20%

PROJECT REPORT

1) SEE THE ATTACHED SHEET FOR A DESCRIPTION OF THE REQUIREMENTS FOR THE PROJECT REPORT.

UNIT TEST

1) THERE WILL BE A UNIT TEST INVOLVING SOME ELECTRICAL AND SOME CNC PROGRAMMING QUESTIONS.

DESIGN AND TECHNOLOGY
TDJ3M1

Electronic Address Project Report Format

1.	**Title page**: Includes a short, descriptive title, the student's name, the teacher's name, the course code, and the date the report is due.	5
2.	**Table of contents**: Use subheadings if required. Include item numbers and page numbers.	5
3.	**Introduction**: Describe the project, stating what it is, how it operates and it's overall construction. Also, include a brief review of the electronic components used in the project.	5
4.	**Material Equipment List**: An itemized list of all the tools and materials which were used in the manufacture of the project. Be specific with respect to shape and size.	5
5.	**Project Drawing**: A detailed drawing of the completed finished product with the tool paths identified with a legend.	20
6)	**Schematic Diagram**: Shows all the electrical components of the project using the correct schematic symbols on a CAD drawing.	15
7)	**Parts Layout Diagram**: Produce a CAD drawing of the printed circuit board and the complete circuit showing the locations of all the components in plan view.	15
8.	**Procedure**: A numbered, step by step process of how the project was completed. This section should be written in the third person, past tense cover all stages of the project.	15
9.	**Conclusions**: A summary of all of the strengths and weaknesses of your electronic address project. State any recommendations about what you would do differently if you were able to do the project again.	5
10.	**Technical problems**: A description of the most difficult technical problems you had to overcome, either during the design/drawing stage or in the manufacturing stage of the project.	5
11)	**Knowledge gained**: Outline what you learned from completing this project.	5