Tech Wars 2020 – Niagara County Community College

Competition Category: 3D Technical Drawing using CAD
Level of Competition: High School
Event Coordinator: Steven Maranto smaranto@clevehill.org

Object of Competition:

 Reverse Engineered Drawings. This category allows for high school students to display their very vest technical drawings. This category is for 2D CAD drawings. You can enter a multi-view drawing with a 3D model. This is a display of the students' ability to create technical drawings, not their design ability. Judges will base their scores on: View layout, neatness, difficulty, drawing standards and conventions.

Rules of Competition:

1. Limited to one entry per student.
2. Student must pick an object and reverse engineer the drawings from it.
3. Requirements: objects must have at least 5 components Full assembly drawing is required.
4. Completed detail drawings for ever part (Fully Dimensioned) One 3D rendering of the entire assembly.
5. Project must be students original work.
6. Students must utilize standard CAD equipment.
7. The object must accompany the students drawing(s) – this is to verify if proper dimensions and line types are shown.
8. Students may need to be present to answer any questions form the judges if they arise.
9. The title block should contain the students full name and school on it.

Judging Criteria (Rubric):

Judges will review all projects on display. The Judges will award points based on the size, completeness, difficult, standards, and drawing skills. A perfect score will be 40 points. Judges will use the scoring rubrics in the evaluation process. See attached Rubric.
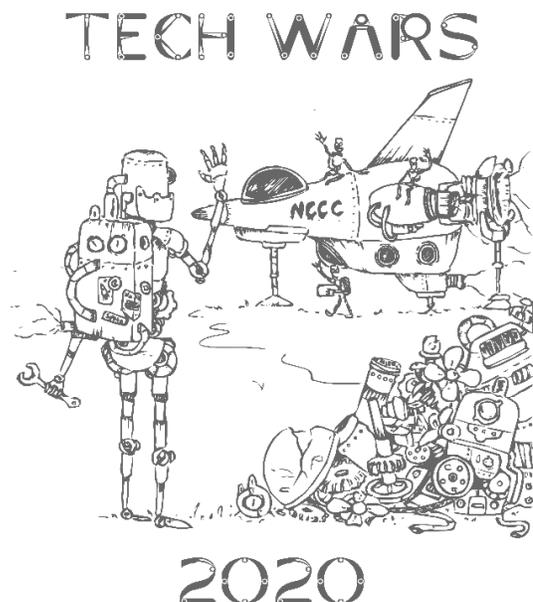
Category: Reverse Engineered CAD Drawings
Student Name: _____
School: _____
Project Description: _____

CRITERIA	ENTER SCORE HERE ⇓	9 – 10 pts	7 – 8pts	5 – 6pts	0 – 4pts
Project Size/ Completeness		Drawings are very detailed/complex. There are many features on the different part drawings. The drawings have no missing lines, dimensions, or other drafting/part features.	Drawings are somewhat detailed/complex. There are many features on the part drawings. The drawings have few missing lines, dimensions, or other drafting/part features.	Drawings are not detailed/complex. There are few features on the part drawings. The drawings has some missing lines, dimensions, or other drafting/part features.	Drawings are not detailed/complex. There are very few features on the part drawings. The drawing has many missing lines, dimensions, or other drafting/part features.
Degree of Difficulty		The drawings have advanced features such as additional views, auxiliary views, section views, detail views, or other complex features. Complete assembly drawing with parts list.	The drawings have basic orthographic views such as front, top and side views and maybe one additional complex view. Complete assembly drawing with parts list.	The drawing has no advanced features but has marginally complex features.	The drawing is below average with minimal detail.
Drawing Standards		All ANSI standards will are included where all drawings contain correct: orthographic projection, isometric view, selection, line weights and line style usage, dimensioning standards, use of scales, use of title blocks and borders and are neat with an excellent overall visual presentation. Appropriate text size is used for general text, titles, and notes.	Most ANSI standards are included in orthographic projection, view selection, line weight and line style usage, dimensioning standards, use of scales, use of title blocks and borders and are neat with an average overall visual presentation. For the most part, appropriate text size is used for general text, titles, and notes.	Some ANSI standards are included in orthographic projection, view selection, line weight and line style usage, dimensioning standards, use of scales, use of title blocks and borders. The visual presentation is below average. Some text size is appropriately used for general text, titles, and notes.	Many ANSI standards are missing in orthographic projection, view selection, line weight and line style usage, dimensioning standards, use of scales, use of title blocks and borders. Overall visual presentation is poor. Inappropriate text size is used for general text, titles, and notes.
Drawing Skills/ Neatness		The drawing(s) represents skills that reflect a thorough knowledge of 3D mechanical CAD. Accurate extrudes and geometry is accurately located. Drawing layout is aesthetically pleasing.	The drawing(s) represent an adequate knowledge of 3D mechanical CAD. Drawing layout is organized.	The drawing(s) represent a fair knowledge of 3D mechanical CAD. Drawing layout is average.	The drawing(s) represent little knowledge of 3D Drawing components are layed out haphazardly.