Laser Engraver Certification Proposal

The laser engraver and its associated computer software is an integral piece of technology in the Createch Space at Arlington. It has applications as a tool for artistic and inventive expressions, and it helps foster skills that can be used across a variety of career paths, such as engineering. In Createch, teens have mainly been using the technology to turn their physical art into digital files that can be mass produced, and to create gifts for loved ones.

While the laser engraver has been incredibly popular, it does have a rather steep learning curve, which is the primary reason for this certification proposal. The goals is that if a teen becomes certified with the laser engraver, it would essentially mean that they are able to use the equipment on their own, as well as serve as a mentor for other students who are interested in creating a project. A student would be evaluated based on the rubric included below, and they would become certified if they achieved a 17 out of a possible score of 20, a score identical to what a student would need to pass a Northstar Assessment. While the laser engraver certification is not directly related to any of the topics assessed in Northstar, students will learn skills such as file identification and management; elements of basic computer; and soft design interface skills that can easily be translated to Microsoft office programs such as Word and Publisher.

The laser engraver at Arlington consists not only of the physical laser, but also the computer and design software that is associated with it. The main piece of software that users have available is called Corel Draw, which is a vector graphic design software that is very similar to Adobe Illustrator. Students use the design software to create a project, which is then sent to the laser via a “print” function that tells the laser to either make an engraving or a cut based on instructions provided by the user. There are many different materials that are compatible with the laser engraver, such as cardboard, wood, certain types of metal, paint, and acrylic.

As part of the certification, students will be evaluated on 4 different categories, which include: the Epilog laser itself, Corel Draw, file management, and safety.

Epilog Laser

* How to turn on the laser
* How to set the laser to the proper height
* How to use the different attachments
* How to initiate and cancel a printing (laser) procedure

Corel Draw:

* How to draw different shapes and text boxes
* How to create within the bounds of the workspace
* How to add text and change the font
* How to manipulate different elements within the workspace
* How to load the file that ensures your work will be printed
* Understanding the difference between raster (engrave) and vector (cut)
* importing image files like photographs for printing

File management:

* Understanding how files in Corel Draw are saved
* Downloading files from the internet or email and saving them in a folder
* The difference between a hard drive, flash drive, and cloud storage

Safety (Student must earn a 5 in safety to pass)

* Making sure that both filtration systems are plugged in before engraving
* Ensuring not to look at laser while it is in the process of engraving
* Understanding what materials you cannot engrave under any circumstances (PVC, Particle Board)
* How to shut off laser in event of emergency
* Knowledge of where fire extinguishers are

Proficiency in these four topics would ensure that the student is able to use the laser engraver to create with minimal supervision. Students who demonstrate proficiency in these four topics should also have enough knowledge to serve as a mentor to other students in the space. The rubric is enclosed below.

Evaluation Rubric Example (Detailed descriptions of each category are listed above)

|  |  |  |  |
| --- | --- | --- | --- |
| Category | Advanced – 5pts | Proficient – 4pts | Progressing - 3pts |
| Epilog Laser  | Student shows advanced proficiency in using the Epilog Laser. Student has demonstrated that they can use the laser with minimal assistance  | Student shows proficiency in using the Epilog Laser. Student has demonstrated that they are becoming more familiar with the laser, but still require a mentor to be present  | Student shows progressing proficiency in using the Epilog Laser. Student is still learning how to use the laser and requires a large amount of mentor assistance. |
| Corel Draw  | Student shows advanced proficiency in using Corel Draw. Student has demonstrated that they can use Corel Draw and its functions with minimal assistance. | Student shows proficiency in using Corel Draw. Student has demonstrated that they are developing skills in Corel Draw, but still requires a mentor to be present. | Student shows progressing proficiency in using Corel Draw. Student still requires a large amount of mentor assistance.  |
| File Management | Student shows advanced proficiency in file management. Student is able to find their project with little difficulty. Student understands how to download and access files without assistance. | Student shows proficiency in file management. Student is able to find their project and download files, but requires some assistance when locating everything they need. | Student shows progressing proficiency in file management. Student still requires a large amount of mentor assistance when accessing their project and downloading files. |
| Safety (Must score a 5 to pass) | Student is able to demonstrate knowledge of all safety guidelines associated with the Epilog Laser. Student is aware of ventilation procedures and fire extinguisher locations. | Student does not show proficiency in understanding safety rules and regulations. |

Score out of 20\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (A score of 17 is passing)