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Course Title: Computer Integrated Manufacturing

Department: Manufacturing and Engineering

Grades: 10-12   Credits: .5

Course Overview/Description
This course is designed to help students develop the skills and knowledge in Computer Integrated Manufacturing. Students will develop skills in Computer Aided Design(CAD), Computer Aided Manufacturing(CAM), Computer Numerical Control, and machine operation. Students will work with a variety of computer controlled equipment and learn, set-up, design, and the operation of each machine. Students will get experience with laser engraving, 3-D Printing, Vinyl cutting and CNC Machines.

<mark>Course Materials</mark>

Scope and Sequence

Timeframe	Unit	Instructional Topics
1 Week	**What is Computer Integrated Manufacturing (CIM)**	**History** **Types of Systems** **Equipment**
2 Weeks	**CAD - Computer Aided Design**	**Intro/Basics - Similarities and Differences** **Corel Draw** **AutoDesk Fusion 360** **Design Edge** **MasterCam**
2 Weeks	**Vinyl Cutting**	**Machine Operation / Set-Up /Cutting** **Software** **Vinyl Types / Application** **Project**
3 Weeks	**Laser Engraving / Cutting**	**Machine Operation** **Software / Corel Draw** **Printing - Engrave/Cut** **Project**
3 Weeks	**Water Jet**	**Machine Operation** **Fundamentals** **File Types** **Project**
2 Weeks	**CNC Router**	**Machine Operation** **Software / MasterCam Design** **Tooling** **Project**
2 Weeks	**CNC Plasma Cutting**	**Machine Operation**

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		Fundamentals **Software - ** **** **Project**
Optional	**CNC Machining**	**CNC Fundamentals** **Conversational Programming** **CAM - Computer Aided Manufacturing** **G&M Code** **Project**
4 Weeks	**CIM - Capstone Project**	

<u>Essential Standards:</u>

BB1.b - I can analyze tools and materials.	BB1.b
MNF1.a - I can identify, select, and safely use tools, machines, products, and systems for specific tasks.	MNF1.a
MNF1.a - I can select, use, and identify manufacturing systems.	MNF1.e
MNF1.f - I can select and use manufacturing technologies.	MNF1.f
4C1.a - I can develop original solutions, products, and services to meet a given need.	4C1.a
ENG5.b.7.h - I can operate systems so that they function in the way they are designed.	ENG5.b.7.h