Computer Integrated Manufacturing

Class Description and Procedures:

Computer Integrated Manufacturing (CIM) is the study of manufacturing planning, integration, and implementation of automation. The course explores manufacturing history, individual processes, systems, and careers. In addition to technical concepts, the course incorporates finance, ethics, and engineering design. This reflects an integrated approach that leading manufacturers have adopted to improve safety, quality, and efficiency.

Utilizing the activity-project/problem-based (APPB) teaching and learning pedagogy, students will analyze, design, and build manufacturing systems. While implementing these designs, students will continually hone their interpersonal skills, creative abilities, and understanding of the design process. Students apply knowledge gained throughout the course in a final open-ended problem to build a factory system.

Computer Integrated Manufacturing is a high school level course that is appropriate for 10th, 11th, or 12th grade students interested in manufacturing and automation. It is recommended that students are concurrently enrolled in grade level mathematics and science courses and have successfully completed the Introduction to Engineering Design (IED) course.

CIM is one of the specialization courses in the Project Lead The Way high school engineering program. The course applies and concurrently develops secondary-level knowledge and skills in mathematics, science, and technology.

The course of study includes:

- Principles of Manufacturing
  - History of manufacturing
  - Manufacturing as an enterprise
  - System process flow
  - Automated control
  - Cost of manufacturing
- Manufacturing Processes
  - Design considerations for manufacturability
  - Property analysis
  - Ethics and safety
  - Creating a prototype
  - Manufacturing processes and machines
  - CNC mill programming and usage
  - Elements of Automation
  - Robotic simulation and physical testing
  - Power systems
  - Pneumatic system design and construction
  - Integration of Manufacturing Elements
  - Computer Integrated Manufacturing system types
  - Manufacturing and automation career research
  - Manufacturing system design and construction

Classroom Expectations:

- Be punctual - ready to go when the bell rings with pencil and folder.
- Sit in assigned seat.
- Be quiet and attentive during instruction.
- Use “table voices”.
- Be respectful of property, supplies, classroom & instructors.
- Clean up after yourself – 5 minutes before class ends.
- Put forth your BEST effort.
- No iPods, MP3 players, or cells phones are to be used in class.
- No food of drink in class.
- Following the Pirate Pact will prevent any issues from arising.
Computer Use:
Computers are available with students to use on a daily basis as the assigned tasks require. The computers, with internet connections, are provided with the intention that the students will use them to complete the required tasks. They are not to be used to download music or games from the various websites that exist. Loss of privileges is a possibility if this requirement is not met.

Software:
Students can obtain free copies of the software used in this class at [www.autodesk.com](http://www.autodesk.com).

Practice Makes Permanent:
In order to accomplish the goals that have been set for this class, it is imperative that you understand and practice the expectations for the classroom. I will expect responsible students in the classroom. If you happen to make poor behavior choices, you will have a chance to improve before seat changes, loss of privileges, parental notification and/or a referral with detention.

Grading:
- Written Assignments
- Assigned Readings
- Oral Presentations
- Formal Written Reports
- Projects
- Supplemental material
- Final Exam (Semester 1)
- End of Course Exam (Semester 2 – Note: ALL students are required to take End of Course Exam provided by PLTW)

Late/absent:
- Absent students must pick up work on the next day of the class, but it is due the following day.
- Work not turned in on time must be given a grade of zero. See Pirate Pact/PCS Code of Student Conduct
- Work from an unexcused absence or OSS must be dropped a full letter grade

Additional Assistance with Class Work:
- Students can come in after school by making arrangements prior to the day they want to come in.
- “Extra Help” board is available in room 9-2 to place a note on if a question should arise.

Final Exam:
- At the end of each first semester, there will be a final on all of the concepts that we presented throughout the first semester.
- There will be an End of Course exam for this course. All students are required to take that exam.

Student Photographs:
I plan on photographing students working on projects. Student photos will be used to display on the BCHS website and in the classroom. Students will bring home a media release for signature. Please return the media release directly to me.

Materials List:
- YOU MUST BRING A PENCIL EVERY DAY!!!
- Bring a 3-ring binder. Please purchase a white, 2” presentation binder. I suggest checking with Target as they sell an Avery 2”, 3-ring binder. You can purchase anywhere you wish, but please keep it to a simple 3-ring binder. The Target number for the item is DPCI: 081-03-0048. Walmart also has this item.

Emergency Procedures:
There are several emergency procedures that we must practice, as a school, to be prepared should a situation take place. Those are:
- **Fire Drills**
- **Evacuation Drills**
- **Lockdown Drills**
There are specific procedures for each and the cooperation of the students is incredibly important in order to ensure safety should something happen. We encourage students not to text or talk on the cell phone during these drills. Full cooperation and adherence to directives is expected. We will move to these locations during the one of the first two days of schools in an effect to become familiar with the procedures and review expectations.

Communication:
Communication between my class and the students’ home is very important. All grades and attendance will be posted on PCS Portal for you to keep you up-to-date on your child’s progress. The best way to get in touch with me is through e-mail medicir@pcsb.org
Acknowledgement Page

After reading the syllabus, please complete the section below and return to Mr. Medici.

School Year: 2012-2013  Period:  Class: __________________________________________________________

Students Name: ______________________________________________________________________

Parent/ Guardian Name: ______________________________________________________________________

Phone:  Cell / Home  
<table>
<thead>
<tr>
<th>Circle One:</th>
<th>Area Code</th>
<th>Phone Number</th>
<th>Cell Phone Carrier – Example – Sprint, AT&amp;T, Verizon</th>
</tr>
</thead>
</table>

Parent Email: ______________________________________________________________________

I have read the syllabus and course outline provided. I understand what my son/daughter will be doing in this class. I also understand that I can contact Mr. Medici via email with questions as well as schedule conferences with my students’ counselor.

Parent/Guardian Name Printed ___________________________________________________________ Parent/Guardian Signature ___________________________________________________________

Date ______________________________

Student Name Printed ___________________________________________________________ Student Signature ___________________________________________________________

Date ______________________________

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