



**CAREER & TECHNICAL EDUCATION  
CURRICULUM ADOPTION PROPOSAL (CAP) REPORT  
TECHNOLOGY EDUCATION (TECH ED)  
APRIL 2016**

**Background of Technology Education Programming in BHM Schools**

The current Technology Education program offers courses in grades 7-12. At BCMS, Technology Education courses are required for all students at both 7th and 8th grade. Elective courses are also provided as additional options for students. The required 7th and 8th grade Technology Education courses have transitioned from a traditional manufacturing class to an engineering based course which emphasizes the informed design process with opportunities for problem solving and critical thinking. In our elective offerings we still offer two traditional manufacturing courses. There are currently no offerings for K-6 students. There have been discussions to add a 6th grade elective Technology Education course at BCMS if the proposed middle school potential schedule change would allow this.

At the high school all Technology Education (Tech Ed) classes are elective based. All but one of our classes are single term offerings. Choosing to do this gives students the most flexibility to fit a Tech Ed class into their schedules. Traditional classes such as woodworking and metals to high tech classes such as three dimensional computer aided drafting (3D CAD) and video production are offered. The BHS Tech Ed Department has been affiliated with St. Cloud State since 2006, offering a College in the Schools class. Much change and growth has occurred at the high school. In 2005, new expanded areas opened--a traditional metals shop, which is also used to teach an auto maintenance class and an all girls auto maintenance class. That same year, a computer lab was added, where an Introduction to CAD class along with two 3D CAD classes (one being a mechanical class, the other being an architectural class) are taught. There have also been modifications to the Technology Lab with a reorganization of space in 2005 and the repurposing of the darkroom into a small TV studio/filming studio in 2014.

Even with the changes that have occurred in the Technology Education department in recent history, the department has not fully kept pace with rapid speed of technological advance. The main issues that hold the department back have been financial and space limitations. The Technology Education department is hoping that some of these concerns can be addressed as the department strives to reach the goal of giving students opportunities to explore as many

current and future technologies as possible.

### **Standards**

The International Technology Education Association (ITEA) has standards for technology literacy for grades K-12. Our technology education program grades 7-12 addresses 18 of the 20 benchmarks set by ITEA. The two benchmarks that aren't addressed within the program are the benchmarks of medical and agricultural. Not all benchmarks are fully met but parts are introduced to the students. The standards can be found at the following link: [Standards for Technological Literacy](#)

### **Summary of Process for Review of Instructional Resources**

Improvement process goal:

The Technology Education department at BHM Schools wants to help its students explore as many job opportunities and life skills as possible throughout a student's educational career. The Tech Ed department has a wide variety of content areas in communications, energy/power & transportation, and manufacturing. It is our intention to give every student at BHM schools the best possible education in technical fields. To do this, many exploratory classes are offered to allow students to see a wide variety of technologies such as computer aided drafting (CAD), computer operated mill and lathe, computer graphics, digital video production, laser engraving/cutting, robotics, and flight simulation. With ever changing technology it is the Tech Ed department's hope that we can keep pace with the latest technology and current trends in Technology Education. The Tech Ed department desires that at the end of a student's educational career they can make a well-informed decision about their future lives.

### **Recommendations**

The BHM Technology Department would like to expand opportunities for the exploration and learning of current and future technologies. This would include increased opportunities to use 3D printing and scanning technology, laser engravers, robotics, and drones. The experience currently is very limited due to equipment availability at both BHS and BCMS. BHS has only one 3D printer and laser engraver and can't keep pace with student demand. BCMS also has only one 3D printer and laser engraver and faces the same issue. As far as robotics goes, BHS is currently piloting robotics on a small scale. It has proven to be very popular with students and we have proposed a full robotics course that would need to be equipped with robots, software, and

curriculum. BCMS currently offers robotics as an after school program. There is potential and discussions have been had regarding adding a Robotics elective at BCMS.

### **Financial Implications**

The financial implications can be found on a spreadsheet at this link:

[BHM Technology Education CAP Resources](#)

### **Evaluation**

Evaluation of the curriculum adoption will be monitored and evaluated in several ways. Some of the anticipated desired outcomes include:

- Increased enrollment in all Technology Education courses
- Improved student engagement in learning technology skills
- Increased mastery of the Standards for Technological Literacy
- Increased mastery of practical applications of mathematics (measurement, scaling, etc.)

### **Next Steps**

Once board approved, the Teaching & Learning Department will begin the process for purchase of the resources. Technology Educations teachers will participate in additional training opportunities to become more familiar with the operation of the new resources to most effectively utilize them. They will also participate in curriculum writing time to align curriculum with new instructional resources and to complete district curriculum mapping utilizing the new resources.