**Sample of Computer Science Courses**

The following is a **sample** of various competency-based computer science/technology

(A-G) course descriptions. There are many more available or, even better, create your own. **Comp Sci can be easily self-taught at home, online, or with an instructor.** You will want to add the instructor name (if applicable) and the textbook/software program (as applicable) in your records. A personal favorite is anything by the *For Dummies* series from the library. ☺

**Computer Science A**: **10 credits**. A very hands-on course that has as its goal to prepare for publishing the yearbook, a literary magazine, and various desktop publishing projects.  These will showcase the creative abilities of the student.  Students are required to meet deadlines regarding cover design, layout, subject matter, and organization.  Some extra time beyond the scheduled class period is required.  Computer skills are essential, as all of the projects will be created on the computer. Students will develop proofreading skills, develop and refine computer skills pertaining to page design, ad design, digital photography, scanning and layout and develop and refine computer skills with 35mm and digital cameras.

**Computer Science: Technology and Media Arts: 10 credits**. Students will learn how to use software as the projects arise and complete projects in a timely fashion. Students will be assigned various help desk functions, assisting others with software and hardware needs. This course will show students a means of adapting artistic skills to electronic media and the use of graphics in computing. It will introduce the techniques and design principles needed to produce a variety of creative documents including posters, logos, advertisements, and publication layouts. Students will develop intermediate skills in the use of the software programs.

**Introduction to Computers: 10 credits.** Students will be introduced to various basic computer skills. They will learn how to use and understand basic computer related terms, identify basic computer hardware components and peripheral devices, i.e. keyboard, mouse, printer, CD-ROM. Students will also be introduced to basic word-processing skills which will include correct use of the keyboard and will have the opportunity to practice on a daily basis. Students will be introduced to spreadsheet skills and will create simple multi-media presentations. Correct terminology related to hardware, software and applications will be introduced and reinforced throughout the semester. This course will prepare students for Intermediate level technology courses. They will understand the legal, social and ethical issues related to the use of computers in our daily life.

**Advanced Computers: 10 credits.** This elective builds on proficiencies acquired in the Intermediate Computer course. Students will integrate previously learned tools into a cumulative Web design project. Students will create their own web page, which will showcase their proficiencies. Students will use appropriate technology skills to conduct research and complete core curriculum projects, e.g. historical research, scientific and math investigations, and language arts writing projects. Emphasis on desktop publishing will provide additional opportunities for students to demonstrate application of skills previously learned. Legal, social and ethical issues related to the use of computers in our daily life will continue to be reinforced.

**Computer Applications 1:** This course is designed to bring students to a basic level of proficiency in applying computer technology in the educational setting. Emphasis will be placed on file-management and appropriate technology use in a network environment. Students will be introduced to fundamental computer concepts, beginning keyboarding skills, word-processing, multi-media presentations, Internet applications and spreadsheets. Special attention will be devoted to legal issues, copyright law, and safety*.* Application of technology in the workplace will be emphasized.

**Computer Applications 2:** This course provides additional computer experience for students who have been introduced to basic computer literacy skills. Students will problem-solve and create word processing documents, spreadsheets and databases. They will become familiar with digital media and digital publishing as well as software to create graphic presentations incorporating all phases of their learning. This presentation will be related to an occupational application of choice.

**World Wide Web - Publishing 1** This course offers students the opportunity to develop computer skills that will enable them to be productive citizens in the Information Age. Students will be challenged to synthesize web pages that present data and multimedia on the web. As a Junior or Senior project, students will collaborate in the creation of web sites that will improve educational content on the web. Careers in web design and publishing will be explored as part of the coursework.

**World Wide Web - Publishing 2:**This course offers students the opportunity to enhance the web publishing skills learned in World Wide Publishing. Students will learn scripting, advanced web technologies, interactive databases as well as vector graphics and animation. Careers in web design and publishing will be explored as part of the coursework.

**Introduction to Engineering Design** (10 credits): In this course, students use 3D solid modeling design software to help them design solutions to solve proposed problems. Students will learn how to document their work and communicate solutions to peers and members of the professional community. The major focus is to expose students to the design process, research and analysis, teamwork, communication methods, engineering standards, and technical documentation. Designed to develop an integrated mathematics and science program that encourages students to explore and enhance creative talents using SolidWorks software and using real-life applications in Robotics and to challenge students to apply mathematics/science themes to discover and invent.

**Robotics** I (10 credits): Robotics is a continuation of the robot principles learned at previous levels, but new students with no robotics background are capable of completing the course. In a flexible format, students learn about engineering and engineering problem solving. Students will be given introductions to the robotics design system while learning key STEM principles through a process that captures the excitement and engagement of robotics competition.

**Robotics 2** (10 credits): Robotics 2 will illustrate the engineering design process, the importance of integrating sensors, effectors and control, and briefly discuss robot learning and multi-robot systems. Students will work in engineering teams to design, build and test increasingly complex robots. In the lab, robots will be used to solve weekly challenges. The course culminates in a final project where student teams design, build and program a robot for a final competition.

**Computer Science I**. (10 credits) This course is designed to be a fun introduction to the basics of computer science and is designed to help students with very little or no computing background learn the basics of building simple interactive applications and mastering software including MS Word, Excel PowerPoint Access and Dropbox. The primary method for learning the course material will be to work through multiple "mini-projects" including building fun games and using applications. Instructor: Coursera Text: Browser-based program

**Computer Science II - Computer Programming for Musicians and Digital Artists,** (5 credits). This course provides a complete introduction to programming for digital musicians and artists, in the real-time multimedia language ChucK. Rich with practical examples and pointers to additional web resources, it can be understood by novices wishing to learn to program interactive arts systems. Instructor: Coursera Text: Brower-based program

Remember: this is only a sample of what you can use; the sky is almost the limit.