TAMALPAIS UNION HIGH SCHOOL DISTRICT
Larkspur, California

Course of Study

<u>Web Design 1, 2, 3, 4, 5 and 6</u>

I.   INTRODUCTION

These one-semester courses give students the skills and knowledge necessary to design and create many types of Web pages, ranging from simple, static pages to interactive websites. These courses are intended for all students wishing to learn how to design web pages and websites. Skills learned in this course prepare students for positions in the technology sector of the job market. The skills learned also prepare students for the types of assignments they will be completing in college-level work. Web Design combines design and problem-solving skills and is a blend of design skills taught in Computer Graphics and problem-solving skills taught in Computer Programming.

This course addresses the following Tam 21st Century goals:

This course addresses the Tam 21st Century Mission of providing students with skills to succeed in their personal, academic and professional lives, and the Tam 21st Century Belief that student acquisition of technological skills is essential to succeed in our global community. Moreover, it addresses the Tam 21st Century Goal of providing a student environment which supports academic success and opportunities for student choice.

This course addresses the following Student Learning Outcomes:

This course provides students with many opportunities to satisfy the following Outcomes:

1.   Communicate articulately, effectively, and persuasively when speaking and writing.

2.   Read and analyze material in a variety of disciplines.

3.   Use technology as a tool to access information, analyze and solve problems, and communicate ideas.

11.   Interpret, experience, create, and/or perform artistic work.

12.   Demonstrate school-to-work/post-secondary transitions skills and knowledge.

13.   Participate in community, social, civic, or cultural service.

This course is designed to help students attain the state Career Technology Education Content Standards.

II.   STUDENT LEARNING OUTCOMES

A.   Students will:

1. Use manuals and online tutorials/resources to learn software applications.
2. Complete projects demonstrating their knowledge of, and competency in, the skills that they are learning during the semester.
3. Create projects that demonstrate the impact of computer technology on education, business/industry, and home uses.
4. Present their work to an audience.
5. Compare their work to the work of others and professionals in this field.
6. Self-evaluate their work orally and in written form.

The following is an <u>approximate</u> breakdown of the topics that may be covered in each of the six semesters of Web Design. The specific topics covered, as well as the timeline and depth of the topics, will vary depending on individual student needs and time constraints. In addition, this area of technology is always changing, making it important to allow for the addition of new topics as they become relevant.

<u>Web Design 1</u>
1. Explain the structure of the Internet and World Wide Web
2. Use a variety of web browsers
3. Use FTP, telnet, and secure shell clients
4. Integrate images, sound, and video into web pages
5. Use basic HTML to create original web pages
6. Use Web editing software to design web pages
7. Demonstrate the importance of design and graphical layout in web pages
8. Design visually appealing and user-friendly web sites
9. Incorporate, frames, layers, divisions and client-side imagemaps into web pages
10. Incorporate forms into web pages
11. Use appropriate file management strategies to manage web site files
12. Evaluate existing ("professional") web sites
13. Post web sites for public access
14. Introduce Flash design techniques
15. Introduce Javascript design techniques

<u>Web Design 2</u>
1. Incorporate more advanced JavaScript into Web pages
2. Create more advanced interactive, multimedia Web sites using Flash
3. Incorporate cascading style sheets, and dynamic HTML into Web pages
4. Design interactive Web sites using PHP and/or CGI scripting with Perl
5. Include SQL and other online database functionality in web pages

<u>Web Design 3 through 6</u>
Students in the third, fourth, fifth, and sixth semesters of Web Design will work much more independently (from the instructor), either in small groups with other students or by themselves on long-term projects. Students may use the skills that they have acquired during the first two semesters to create complete Web sites. Wherever possible, these sites will be designed for individuals or organizations that have specific Web needs and can benefit from student-designed Web sites.

Alternatively, students may choose to focus in-depth on extensively learning one or two specific applications used to create high-quality Web sites. In addition to a focus on interactive Web sites, students will be encouraged to create sites that allow for the entry and storage of data by end users. Students are expected (for the most part) to come up with the ideas for their own projects and then design and create them.

Some examples of possible areas of study include:
1.   Integrate databases into websites
2.   Create Web sites incorporating Active Server Pages (ASP)
3.   Set up, configure, and use a Linux server
4.   Design more interactive and graphically complex Web pages using advanced Flash techniques
5.   Implement e-commerce marketing strategies into website design and production

B.   Students will cover the following state Career Technology Content Standards:

Arts, Media and Entertainment Industry Sector

4.0   Technology

    4.1   Understand past, present, and future technological advances as they relate to a chosen pathway.
    4.2   Understand the use of technological resources to gain access to, manipulate, and produce information, products, and services.

7.0   Responsibility and Flexibility

    7.5   Know the current issues and trends related to the field, distinguishing the different and convergent objectives that drive the industry.
    7.7   Develop a personal commitment to and apply high-quality craftsmanship to a product or presentation and continually refine and perfect it.

10.0   Technical Knowledge and Skills

    10.8   Know key influences on the origin and evolution of art, technology, media, and performance (e.g., the influence of historical styles on contemporary idioms).

    10.10 Use technical applications in the creative process, where appropriate.

A.   Media and Design Arts Pathway

A2.0   Students understand the key technical and technological requirements applicable to various segments of the Media and Design Arts Pathway:

    A2.3   Use technology to create a variety of audio, visual, written, and electronic products and presentations.

C.   Production and Managerial Arts Pathway

C2.0   Students demonstrate important skills and an understanding of the complexities of production planning:

    C2.3 Identify the activities and linkages from each stage associated with the preproduction, production, and postproduction of a creative project.

    C2.4 Understand how the various aspects of story development contribute to the success or nonsuccess of an arts, media, and entertainment project or production.

    C2.6 Apply knowledge of services, equipment capabilities, the workflow process, data acquisition, and technology to a timely completion of projects.

    C2.8 Critique the general coordination of various elements in a project or production.

C3.0   Students understand the key elements of promoting a production:

    C3.1   Know the business aspects of the arts, media, and entertainment industry.

    C3.3   Know various media production, communication, and dissemination techniques and methods, including alternative ways to inform and entertain through written, oral, visual, and electronic media.

Information Technology Industry Sector

3.0   Career Planning and Management

    3.1   Know the personal qualifications, interests, aptitudes, knowledge, and skills necessary to succeed in careers.

3.5 Understand the past, present, and future trends that affect careers, such as technological developments and societal trends, and the resulting need for lifelong learning.

3.6 Know important strategies for self-promotion in the hiring process, such as job applications, résumé writing, interviewing skills, and preparation of a portfolio.

3.7 Explore career opportunities in business through such programs as virtual enterprise, work experience, and internships.

4.0 Technology

4.1 Understand past, present, and future technological advances as they relate to a chosen pathway.

4.2 Understand the use of technological resources to gain access to, manipulate, and produce information, products, and services.

4.3 Understand the influence of current and emerging technology on selected segments of the economy.

4.4 Understand effective technologies used in Web site development and the Internet.

5.0 Problem Solving and Critical Thinking

5.3 Use critical thinking skills to make informed decisions and solve problems.

9.0 Leadership and Teamwork

9.1 Understand the characteristics and benefits of teamwork, leadership, and citizenship in the school, community, and workplace settings.

9.3 Understand how to organize and structure work individually and in teams for effective performance and the attainment of goals.

10.0 Technical Knowledge and Skills

10.1 Know how to use a variety of business- and industry-standard software and hardware, including major proprietary and open standards.

10.3 Understand the economic effects of technology on a business in the global marketplace.

10.7 Analyze the functions, features, and limitations of different operating systems, environments, applications, and utilities.

11.0 Demonstration and Application

A. Information Support and Services Pathway

A7.0   Students understand software applications and life-cycle phases:

    A7.1   Know common industry-standard software and its applications.
    A7.3   Know a variety of sources for reference materials (e.g., online help, vendors' Web sites, online discussion groups, tutorials, manuals).
    A7.5   Know current and emerging industry-standard technology and trends.

A8.0   Students understand the importance of reading, writing, and comprehending documentation in a technical environment:

    A8.1   Know appropriate search procedures for different types of information, sources, and queries.
    A8.2   Evaluate the accuracy, relevance, and comprehensiveness of retrieved information.
    A8.3   Analyze the effectiveness of online information resources to support collaborative tasks, research, publications, communications, and increased productivity.

B.   Media Support and Services Pathway

B1.0   Students understand the effective use of tools for media production, development, and project management:

    B1.1   Know the basic functions of media design software, such as keyframe animation, two-dimensional design, and three-dimensional design.
    B1.2   Use appropriate software to design and produce professional-quality images, documents, and presentations.
    B1.3   Analyze the purpose of the media to determine the appropriate file format and level of compression.
    B1.6   Know the basic design elements necessary to produce effective print, video, audio, and Web-based media.

B2.0   Students understand the effective use of communication software to access and transmit information:

    B2.1   Know multiple ways in which to transfer information and resources (e.g., text, data, sound, video, still images) between software programs and systems.
    B2.2   Understand the differences between various Internet protocols (e.g., http, ftp, mailto, telnet).
    B2.3   Use multiple online search techniques and resources to acquire information.
    B2.4   Know the appropriate ways to validate and cite Internet resources.

B3.0   Students understand the use of different types of peripherals and hardware appropriate to media and technology:

       B3.3   Use various types of audio and video equipment (e.g., digital cameras, recorders, scanners, Web cams, CD and DVD recorders), as appropriate, for different projects.

       B3.4   Understand the types of media storage and the use of appropriate file formats, and know how to convert data between media and file formats.

B5.0   Students understand and apply knowledge of effective Web page design and management:

       B5.1   Understand the purpose, scope, and development of a Web site.

       B5.2   Know the relative features, strengths, and weaknesses of different authoring programs and cross-platform issues.

       B5.3   Use industry-standard programs to produce a Web-based business operation or simulation.

       B5.4   Know the tools needed to enable multimedia capabilities (e.g., still images, animated graphics, sound, video) for Web sites.

       B5.5   Know strategies for optimizing Web design for fast delivery and retrieval.

       B5.7   Know the full process of Web hosting, including registering domain names, setting up Web hosting, setting up e-mail addresses, and recognizing privacy issues.

       B5.8   Understand the hardware (server) and software required for Web hosting.

       B5.9   Know the tools and process for registering Web sites with search directories and engines and for enabling e-commerce capabilities (e.g., sell products, create a shopping cart, handle credit card transactions).

       B5.10 Differentiate among various versions of Internet programming languages.

III.   ASSESSMENT

A.   <u>Student Assessment</u>

Students will be assessed using self, peer and teacher evaluations of student-created websites and student presentations. Teacher observations of student in-class activities will also be used. As these courses can be highly customized to student needs/interests, demonstrated improvement over the course of each semester may also be used in student assessment as well as student self-evaluation.

B. **Course Assessment**

Student, teacher and/or community/industry feedback will be used to assess the course. Computer Science teachers will meet annually to discuss successes and difficulties in an effort to improve the effectiveness of the course.

IV. **METHODS AND MATERIALS**

A. **Methods**

- Students will use manuals and online tutorials/resources to learn software applications.
- Lectures, readings and presentations by other students, the teacher and, possibly, guest lecturers/presenters.
- Students will work individually and in groups.
- Students may tutor each other.
- Student will make oral presentations of finished product(s) to the class and/or industry experts.
- The vast majority of time is "hands-on" doing work on the computer resulting in less direct instruction and more student self-discovery.

B. **Materials**

Students will use current hardware, software, online tutorials and manuals as needed for their work/projects.

C. **Technology**

Technology will be the major focus of this course and students will be using current hardware, software, and Internet access in this course.

D. **School to Career Goals**

Web Design will incorporate the use of guest speakers, job shadowing, internship, use of adult mentors, as available to engage students with the world of work.

E. **Suggested Instructional Time Allocation**

Direct instruction of core content and skills - 25%
Smaller assignments and projects - 25%
Major projects and assignments - 50%

V. GENERAL INFORMATION

Web Design 1, 2, 3, 4, 5 and 6 are 5 credit courses open to all students.

A. <u>Prerequisites</u>

None

B. <u>Requirements Met</u>

This course may be used as elective credit towards graduation but does not meet any specific graduation requirement.

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