

## DIGITAL ARTS, GRAPHICS, AND MEDIA EMPLOYER NEEDS ASSESSMENT REPORT

### ISSUES

By 2017, San Mateo region will have 50,849 jobs in the Digital Arts, Graphics and Media occupations (up 25% from 2012) with 2,360 annual openings averaging \$41.70 per hour (Center of Excellence in the Community Colleges). These jobs present great opportunity for those with the appropriate skills and education. According to Economic Modeling Specialists Incorporated (EMSI), numerous education and training opportunities exist in this field. Occupations with the largest numbers of projected job openings in the Bay Area:

<b><i>High Demand Occupations</i></b>	<b><i>Annual Openings through 2019</i></b>	<b><i>Total Openings</i></b>
Computer Programmers	620	3,721
Software Developers, Applications	1,547	9,280
Multimedia Artists, Animators, and Graphic Designers,	373	2,238
Audio and Video Equipment Technician	75	450
Gaming and miscellaneous computer occupations	203	1,218
Broadcast Technician, Sound Engineering Technicians	52	315

### ASSESSMENT PROCESS

Our effort to understand entry-level Digital Arts, Graphics and Media needs in the region began with labor market data. An internal work group comprised of faculty and deans from Digital Media related fields at all three Colleges analyzed data and met to discuss how to assess labor market needs. Four areas of focus within the Digital Art, Graphics and Media sector were selected based on job data, current college program strengths and weaknesses, and sector trends. Each is covered in this report.

#### Four focus areas of this assessment:

1. Web based technology: Web based technology with a particular emphasis on user interface and user experience (UI/UX) was identified as a growth area; a focus group of eight representatives from five companies was held to discuss this area.
2. Animation and Interactive Media: Design needs for interactive media was the second focus area. A focus group with seven representatives from five companies specializing in animation and interactive media was held to discuss these needs.
3. Digital Audio and Video Production: Faculty identified this area as one in which the Colleges need to validate and update the current curriculum in this program based on industry trends. Interviews with seven professionals representing five local television production companies were conducted. In each interview, existing SMCCCD curriculum and potential program enhancements were discussed.
4. Audiovisual Technician (AV Tech): An internal program review led by faculty was conducted to assess AV Tech training opportunities.

## 1. WEB BASED TECHNOLOGY FINDINGS FOR THE COLLEGES

A focus group of eight representatives from five web based technology companies (Wells Fargo, Crittercism.com, Design Map, Visa, Inert Soap) was held to discuss user interface and user experience (UI/UX) hiring needs. A summary of the focus group discussion follows:

- Demand for formal education:

Educational requirements vary by company. All participants agreed that a breadth of skills is very important. Portfolios that demonstrate creative thinking were more important to half the participants than formal education.

- Hiring challenges:

Design Skills: A UI/UX professional needs to understand how consumers experience websites and how to develop user-friendly websites. To understand the user experience, students need a blend of skills:

- ✓ Basic graphic design principles.
- ✓ Understanding UI patterns on web pages and the need to minimize clicks.
- ✓ Knowledge of software commonly used by UI/UX professionals: Adobe Suite, (including Adobe Illustrator and Photoshop); knowledge of FTP; Dropbox; Balsamic software; HTML; CSS; Envisionapp.com; TextMate; web content manager programs; and Wordpress.
- ✓ Familiarity with typography, including hand drawn typography.
- ✓ The ability to create models that incorporate the technical, user, and business angles.
- ✓ Project management skills, including cross-functional collaboration.
- ✓ Knowledge of multiple work methodologies including: Agile; Waterfall; GIRA; Pivotal; Subversion; Basecamp; and/or SharePoint.

Creative thinking: Companies want to know how candidates think and handle constructive criticism. Potential employees need to show the logic and flow of a web page using wireframes (a web page blueprint) or site maps (a visual model of a web page's content). Wireframes can demonstrate a candidate's ability to understand the customer thought processes. If built well, a wireframe will get a candidate an interview faster than examples of finished products.

Understanding business demands: Web sites exist to generate revenue. Potential employees need to understand how business needs can influence the creative development process. UI/UX is a hybrid role that combines user perspective with programming and business needs.

### IMPACT ON WEB BASED TECHNOLOGY DISTRICT PROGRAMS

- New Course Development: Based on the results of this assessment, Canada College proposed a new course on UI/UX that was approved by the Curriculum Committee and will be offered in Fall, 2014. The course will cover the fundamentals of user-centered interface design concepts and practices for web, mobile devices, and other applications. Students would gain an understanding of how users interact with an interface and be introduced to the concepts of usability, interface associations and aesthetics, and the user experience. This course was developed and approved through the local curriculum process and will be offered in Spring, 2015

**2. ANIMATION AND INTERACTIVE MEDIA FINDINGS FOR THE COLLEGES**

A focus group of seven representatives from five companies (Pixar, Ring Digital, Bash Gaming, Zynga, and Sledgehammer Games) was held to discuss labor market demands for animation and interactive media.

- Candidate requirements:
  - ✓ Fundamentals of animation: Candidates need to understand the fundamentals of animation: drawing, painting, perspective, lighting and color. They need to be specialized artists; self-driven problem solvers; and able to work long hours.
  - ✓ Degrees & Portfolios: Neither an AA or a BFA is required to secure a position in animation. The portfolio is the determining factor. Focus group participants agree that college degrees (AA and/or BA) are generally the means to gain the skills to develop an impressive portfolio.
  - ✓ Demo Reels: Job candidates should be prepared to present a demo reel that showcases the student’s best animation work.
  - ✓ Software programs: The focus group participants did not identify particular software programs that candidates should use and noted that new software programs are constantly being introduced. Instead, companies seek individuals who are familiar with several software programs and who explore emerging programs.
  - ✓ Interview Skills: Candidates need to research a prospective company, taking company culture into account for the actual interview. Focus group participants stated that good artists collaborate, work well with others, are open to new ideas, and take criticism well. Employers look for these characteristics during interviews.
  
- Desired skills and knowledge:
  - ✓ Internships: Internships are valuable. Employers prefer candidates who have completed at least one internship. At large companies, internships are paid entry-level positions where those with talent are quickly hired into regular jobs. Internship positions are generally posted on larger company websites. They are competitive and in high demand.
  - ✓ Entry-level positions on a career pathway: Sample animation and interactive media jobs along career pathways with corresponding salaries are depicted in the graphic below.



To be promoted, employees need to be recognized for excellent work and collaboration and also understand that they are part of a team that contributes to a pipeline of work where assets are passed back and forth.

- ✓ **Transferrable skills:** Interactive media provides transferrable skills that are applicable to many industry sectors outside of animation. Animation is used heavily in marketing. Data visualization is particularly relevant to biotechnology and medical device companies. Corporate eLearning uses interactive media to efficiently train employees across many sectors. An interactive media background can offer many students a variety of work options.

### **IMPACT ON ANIMATION & INTERACTIVE MEDIA DISTRICT PROGRAMS**

This assessment has resulted in Cañada College proposing two new course offerings, a course modification, and a course expansion.

- **Proposed new course: Organic Modeling**  
Creation of organic forms (human, animal, creature, and plants) using 3D digital sculpting tools and Maya 3D software. Emphasis is placed on surface topology, optimization of the 3D mesh object, surfacing, texturing, and efficient working methods. Students gain an understanding of utilizing these tools to create models that will function well in a game or movie environment.
- **Proposed new course: 3D Animation Mechanics:**  
Fundamentals of 3D animation mechanics, using Maya software. Basic motion mechanics and animation principles are emphasized and practiced via short animated clips produced in computer animation software. Topics include squash, stretch, overlap and follow-through, timing, and spacing. Students' progress from simple exercises with geometric objects to more complex shots utilizing a simple character rig.
- **Course modification: 3D Character Animation**  
Techniques taught in 3D Animation Mechanics are applied to character performances. Creation of animated sequences that bring inanimate objects, human, and creature characters to life. Synchronize movements with sound, dialog, and music. Creation of entry-level professional clips that can be used in a demo reel. Small group projects in which students can create animated shorts.
- **Course Expansion: Compositing**  
A proposal is underway to expand the existing Compositing class to a full semester class rather than half semester incorporating subject matter such as green screen filming, compositing animation layers to create a complete image, compositing special effects (smoke, fire, water, electricity), and exploration of secondary compositing techniques (layer-based versus node-based compositing techniques).

### **3. DIGITAL AUDIO AND VIDEO PRODUCTION TECHNOLOGY FINDINGS FOR THE COLLEGES**

Interviews with seven professionals representing five local television production companies (SF Giants, Oakland A's, Golden Gate Warriors, Telemundo, and Peninsula TV) were conducted to determine labor market demands and possible enhancements to existing SMCCCD programs,

- **Skills required in digital audio and video production positions:**

Technical skills: A variety of technical skills are required to work in production positions:

- ✓ The ability to write, edit and produce a script and storyboard.
- ✓ Knowledge of video production with a focus on documentary style.
- ✓ Knowledge of analog media in a digital world.
- ✓ Software skills: Avid Media Composer and Adobe Creative Suite.
- ✓ Studio production experience.
- ✓ Motion graphics and/or compositing.

Editing skills: Employees are expected to understand the basic principles of non-linear editing as they apply to all formats (including Apple, Avid, and Premiere). Lighting, shot composition, frame rates, color composition and camera work are important skills.

Flexibility and the ability to multi task: New hires are required to fill a range of roles and need to be flexible and organized. Media companies look for candidates who can manage audio, camera, editing software and motion graphics. Production assistants help with everything from logging footage to cable wrapping.

Internships: Most companies interviewed would like the Colleges to encourage students to complete internships to gain real experience and to help students understand employer demands.

#### **IMPACT ON DIGITAL AUDIO AND VIDEO PRODUCTION DISTRICT PROGRAMS**

Demand for both AV production experience and broadcasting classes within the District is high; classes consistently fill and employers demand real life experience. As a result of this assessment, CSM is exploring expanding the existing TV Studio Production course at CSM to include a new TV program- BULLDOGS TV!

- Potential course expansion: TV Studio Production at CSM

CSM is exploring an expansion of TV Studio Production (DGME 112) to provide students experience with live remote sports broadcast through multi-camera and studio experiences. A live multi-camera “remote” experience at CSM could be provided through the College’s athletic teams. The course, if created, could establish Bulldogs TV! The District has the capability to expand multi-camera studio offerings by using state-of-the-art TV studios at CSM. In addition, a remote or field multi-camera live broadcast experience could be offered to students.

- Proposed SMCCCD Streaming TV Channel: BULLDOGS TV!

BULLDOGS TV!, if created, would address production company demands for real life experience and internships, making SMCCCD students more desirable in the workplace. It would expand the capacity of the broadcasting program by covering multiple sports so that games could be broadcast, recorded, or streamed. Studio skills would be used in the field to shoot multi-camera live productions under the direction of a technical director (student) and director (student). In order to launch BULLDOG TV!, there are both equipment and staffing needs that would need to be addressed.

- Increase partnerships for student interns

CSM intends to partner with local sports production facilities and teams (Giants, Warriors, 49ers, and local minor leagues) to help place students in sports-related internships. CSM broadcasting alumni and interview participants from this assessment indicate both the willingness and opportunity to partner with the College.

#### **4. AUDIOVISUAL TECHNICIAN (AV TECH) FINDINGS FOR THE COLLEGES**

An internal assessment of audiovisual technical training needs was conducted and existing training opportunities were explored in the Broadcasting and Drama Departments. A new certificate that combines classes from both departments will be proposed to train AV Technicians.

- Proposed new certificate program: Audiovisual Technician

A new certificate program for Audiovisual Technicians will be proposed at Skyline as a result of this assessment. Students would complete a maximum of 9 units in 1 semester to earn their certificate. The certificate program builds upon a drama class at Skyline (DRAM 310) and proposes to teach camera, audio set-up, presentation technologies, and conference set-up. DRAM 310 currently teaches technical theater skills that are transferrable to theatres, concert venues, and conference centers. AV Technicians need to be skilled in five areas: Audio, Video, Computer, Lighting, and Rigging. DRAM 310 touches on each area, but another course is needed to fill skill gaps specific for AV Techs.

The proposed AV Tech Certificate content would include:

- ✓ Stage and set construction
- ✓ Pipe and drape of stage and projection screens
- ✓ Audio set-up, including microphones and speakers
- ✓ Stage lighting, including training on motion lights
- ✓ Rigging field lights
- ✓ Projection and multi-projection or multi-screen set ups
- ✓ Camera operation (for multi-camera live switch)
- ✓ Computer software and applications for presentation
- ✓ Responsibilities of technical crews
- ✓ Guest speakers from AV companies and presentation events