Institution Submitting Request: University of Utah
Proposed Title: Masters of Entertainment Arts and Engineering (MEAE) (with three graduate emphases incorporated therein: Game Arts, Game Engineering, and Game production) and a Joint MEAE/Master of Fine Arts in Film and Media Arts
School or Division or Location: College of Engineering and the College of Fine Arts
Department(s) or Area(s) Location: Entertainment Arts & Engineering Program
Recommended Classification of Instructional Programs (CIP) Code[1] : 36.0113, 50.0102, and 50.0411
Proposed Beginning Date: 08/26/2013
Institutional Board of Trustees' Approval Date: *MM/DD/YEAR*

Proposal Type (check all that apply):

		R401-4
		Items submitted will be reviewed by the Office of the Commissioner of Higher Education (OCHE), then forwarded to the Chief Academic Officers (CAO) and Program Review Committee (PRC) before being presented to the Regents. K-12 Personnel Programs are also reviewed by appropriate officials and faculty of the schools and colleges of education. See R401-4.2.2 for all programs requiring specialized reviews.
4.1.1	☐	Non-Credit Certificate of Proficiency Eligible for Financial Aid
	☐	Credit Certificate of Proficiency Eligible for Financial Aid
4.1.1	☐	Non-Credit Certificate of Completion
	☐	Credit Certificate of Completion
4.1.9	☐	Fast-Tracked Certificate
4.1.2	☐	Associate of Applied Science Degree
4.1.3	☐	Associate of Science Degree
	☐	Associate of Arts Degree
4.1.5	☐	Bachelor's Degree
4.1.6	☐	K-12 School Personnel Programs
4.1.7	X	Master's Degree
4.1.8	☐	Doctoral Degree

Chief Academic Officer (or Designee) Signature:
I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

_____
Signature

Date: 11 - 7 - 12

Printed Name: Michael L. Hardman

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[1] CIP codes must be recommended by the submitting institution. For CIP code classifications, please see http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55

University of Utah
Entertainment Arts and Engineering

August 1, 2012

Program Description

The proposed Masters in Entertainment Arts and Engineering (MEAE) is a master's degree from the interdisciplinary Entertainment Arts and Engineering (EAE) program, which resides in both the College of Engineering and College of Fine Arts. This proposed degree is designed to provide students with expertise to be successful in the interactive entertainment industry now and into the continuously evolving future. This degree helps students develop knowledge and skills in one of three areas; game arts, game engineering, and game production. This degree is intended to attract full-time students who want to increase an understanding of their own unique discipline, while benefitting from the cross-disciplinary contact that is integral to the program and reflects the current state of the industry. This degree is designed as a pure cohort model and is a two-year full-time post-baccalaureate degree that is comprised of four semesters spread over two years. During each of these semesters, students take two classes (7 hours) as a group, and then they take a class in their own area of interest (3 hours). These courses, combined with a required Internship (3 hours), make a total of 43 credit hours (minimum). The degree is proposed to start Fall Semester, 2013.

Role and Mission Fit

The proposed MEAE will provide knowledge and skills for those students seeking a career in the interactive entertainment industry that are not provided in existing degree programs at the University of Utah or across the State of Utah. Building on the very successful School of Computing and Department of Film and Media Arts' undergraduate emphasis in Entertainment Arts and Engineering (currently ranked number three in the country for video game development programs, behind USC and MIT), this new degree will provide additional graduate education required for advanced careers in the interactive entertainment industry.

Faculty

The classes relating to the EAE undergraduate emphases have been offered since the Fall of 2007. Graduate EAE classes began in the Fall of 2010. Both offerings have been highly ranked since 2011. There are currently five faculty (counting one open position) and several adjuncts with significant industry experience teaching classes related to the proposed degree. The faculty members believe in a "high touch" program and should enrollment increase significantly, additional faculty may be required.

Market Demand

An industrial advisory board of leading members of the video game business with members from inside and outside of the state of Utah representing large and small video game companies has been created. They have indicated that students who graduate with this degree will be highly sought after because they will have the specific skills employers desire. Colleagues at other universities offering similar master's programs have told program administrators that even non-video game employers highly value the skills exhibited by students graduating from their programs. For example, The Bureau of Labor Statistics projects that the number of people employed as Software Developers (their category for game programmers) is to increase by 30 percent between 2010 and 2020 (http://www.bls.gov/ooh/computer-and-information-technology/software-developers.htm). This is double the projected national increase in employment in all occupations (14%).

Student Demand
In 2007, the School of Computing and the Department of Film and Media Arts began an interdisciplinary undergraduate emphasis in Entertainment Arts and Engineering. This has been a success with between 15 percent and 20 percent of all Computer Science and Film students enrolled in the EAE emphases (there are roughly seven hundred and fifty CS and Film undergrads). A natural outgrowth of this success was the desire to create a master's program that had the same flavor, but was more intense, more focused, more tightly driven by industry practice, and yet had the underpinnings of a research one university. Thus the experimental creation of the EAE:Master Games Studio occurred in Fall 2010 using existing degrees and graduate emphases. The model is that each year a new cohort of students begins their two-year journey into the world of video games and interactive media. There were twenty-two students in the first, experimental cohort and each successive year enrollment has increased. It is anticipated that the program will grow to have about forty students in each new cohort (thus there will be eighty students in the EAE:MGS at any one time).

Statement of Financial Support
Appropriated Fund ....*X*
Special Legislative Appropriation ....☐
Grants and Contracts ....☐
Special Fees/Differential Tuition ....*X*
Other (please describe).............................☐

Similar Programs Already Offered in the USHE
There are no master's level degrees in this area in the State of Utah.

Section I: The Request

The University of Utah requests approval to offer a Masters in Entertainment Arts and Engineering with three graduate emphases incorporated therein: Game Arts, Game Engineering, and Game Production, effective Fall 2013. In addition, The University of Utah also requests approval to offer a joint Masters in Entertainment Arts and Engineering with Master of Fine Arts in Film and Media Arts. This program has been approved by the institutional Board of Trustees on **Date**.

Section II: Program Description

Complete Program Description

The proposed Masters in Entertainment Arts and Engineering (MEAE) is a master's degree from the interdisciplinary Entertainment Arts and Engineering program, which resides in both the College of Engineering and College of Fine Arts. This proposed degree is designed to provide students with expertise to be successful in the interactive entertainment industry now and into the continuously evolving future. This degree helps students develop skills in one of three graduate emphasis areas; game arts, game engineering, and game production. This degree is intended to attract full-time students who want to increase an understanding of their own unique discipline, while benefitting from the cross-disciplinary contact that is integral to the program and reflects the current state of the industry. This degree is designed as a pure cohort model and is a two-year full-time post-baccalaureate degree that is comprised of four semesters spread over two years. During each of these semesters, students take two classes (7 hours) as a group, and then they take a class in their own area of interest (3 hours). These courses, combined with a required Internship (3 hours), make a total of 43 credit hours (minimum). The degree is proposed to start Fall Semester, 2013.

<u>MEAE Required Core Courses</u>

First Fall Semester
- Combined Track Courses
  - Game Design I (3 hours)
  - Game Projects I – rapid prototyping (4 hours)
- Arts Track
  - Game Arts I – Character Animation (3 hours)
- Engineering Track
  - Game Engineering I – C++ for Game Programming (3 hours)
- Production Track
  - Game Production I – Business Practices (3 hours)

First Spring Semester
- Combined Track Courses
  - Game Projects II – Beginning Thesis Project (4 hours)

- Arts Track
    - Game Arts II (3 hours)
    - Elective*
- Engineering Track
    - Game Engineering II (3 hours)
    - Elective*
- Production Track
    - Game Production II – Technologies Overview (3 hours)
    - Elective*

Second Fall Semester
- Combined Track Courses
    - Game Design II (3 hours)
    - Game Projects III – Continuing Thesis Project (4 hours)
- Arts Track
    - Game Arts III (3 hours)
- Engineering Track
    - Game Engineering III (3 hours)
- Production Track
    - Game Production III – Art Technologies Overview (3 hours)

Second Spring Semester
- Combined Track Courses
    - Game Projects IV – Final Thesis Project - Publish & Polish (4 hours)
- Arts Track
    - Game Arts IV – Intensive Portfolio (3 hours)
    - Elective*
- Engineering Track
    - Game Engineering IV (3 hours)
    - Elective*
- Production Track
    - Elective*
    - Elective*

- See Appendix A for Examples of Electives

In addition, and in order to take advantage of the complementary elements in the two programs, the program is requesting the formation of a joint MEAE/MFA in Film and Media Arts. The MEAE/MFA in Film and Media Arts is based on the demonstrated intellectual benefit that exists in studying game arts or game production and the cinematic arts in a coordinated program. A student enrolled in the joint degree program would be able to earn both degrees in less time and with a lower overall credit requirement than were that student enrolled in each program separately.

Specifically, MEAE/MFA students would take all of the listed MEAE requirements, and then would also take FILM 6010 Introduction to Grad Studies (0.5) in their first semester and then one four credit hour FILM seminar or regular elective for three semesters and a four credit hour FILM project class for one semester. This gives a total of 60 hours for the joint degree. Note: since four, four credit hour classes plus the intro grad studies class totals 16.5 credit hours, students in the joint program must choose an EAE elective that is four credits instead of three, giving them 60.5 credit hours.

MEAE/MFA Game Arts Track Program Schedule

	Course Prefix & Number	Title	Credit hours	Totals
Year 1 Fall	FILM 6701	Game Design I	3	
	FILM 6711	Game Projects I	4	
	FILM 6721	Game Arts I	3	
	FILM 6010	Intro to grad studies	0.5	
	FILM Elective/Seminar		4	
Total				14.5
Year 1 Spring	FILM 6712	Game Projects II	4	
	FILM 6722	Game Arts II	3	
	EAE Elective		4	
	FILM Elective/Seminar		4	
Total				15
Summer	FILM 6900	Internship	3	
Total				3
Year 2 Fall	FILM 6702	Game Design II	3	
	FILM 6713	Game Projects III	4	
	FILM 6723	Game Arts III	3	
	FILM Elective/Seminar		4	
Total				14
Year 2 Spring	FILM 6714	Projects IV	4	
	FILM 6724	Game Arts IV	3	
	EAE Elective		3	
	FILM Project		4	
Total				14
Total Credit Hours				60.5

MEAE/MFA students will also take the required MFA comprehensive exams. Some students may choose to take three years to complete the joint degree. In that case, the students will take the three FILM Electives and the FILM Project classes in the third year. This will preserve the cohort model of the MEAE degree.

Purpose of Degree

The purpose of the MEAE and the MEAE/MFA is to prepare graduate level students for a career in game development with specialized foci on game arts, game engineering, or game production. The proposed degree programs will include an intense focus on industry application that incorporates both theory and research, and will provide students with an advanced knowledge of key areas required to be successful in the game industry. The proposed degrees will allow students to gain knowledge in advanced subjects including theories of game design, level design, artificial intelligence programming, virtual reality programming, character animation, rigging, and modeling. Presently, none of these advanced topics are taught in an in-depth manner at the undergraduate level, and no other master's program at the University of

Utah can offer the interdisciplinary curriculum to apply these topics to game development.

The proposed MEAE degree and the MEAE/MFA degree are expected to generate the following outcomes:

1. Graduates will have the knowledge and skills required to fill the market needs for game programmers, game artists, and game producers for employers within Utah and across the nation.

2. Graduates will help with economic development in Utah and the rest of the nation through the application of their advanced knowledge and skills at work.

Institutional Readiness
In 2007, an undergraduate Entertainment Arts and Engineering emphasis was created in both the School of Computing and Department of Film and Media Arts. These interdisciplinary undergraduate emphases allow students to study and explore computer video games, computer animation, and other areas where computers and arts interact. There are currently have about 150 undergraduate students between the two departments pursuing the emphases, and the program is ranked number three in North America by the Princeton Review for video game design programs, just behind number one University of Southern California and number two Massachusetts Institute of Technology.

In November 2009, then Senior Vice President Pershing approved a three-year Memo of Understanding to create a pilot Entertainment Arts and Engineering (EAE) master's program in order to investigate if a program focused on game development could be sustainable and viable. At the end of the period those involved agreed to re-evaluate and determine its future.

In the Fall of 2010, an initial group of students applied for either an MS in Computing through the School of Computing, or an MFA in Film and Media Arts, but attended EAE specific classes (in the case of the MFA students, they also took one Film seminar for the first three semesters). Funding for the program came from a combination of tuition plus program fees that were roughly double the normal graduate student tuition. This funding source allowed the program to quickly become self-sufficient and these funds were used to buy out faculty, pay adjuncts, hire one part-time staff member, and paid for equipment, software, and enough hardware to make a first-class educational experience. After that first year, the fee became a differential tuition with the Board of Regents approval in 2011. The program has exceeded all expectations and on July 1, 2012 was deemed viable and given hard funding.

As of July 1, 2012 the Entertainment Arts and Engineering program has four full-time faculty, who are currently teaching EAE specific courses. Two are tenured, one in the School of Computing, the other in the Film and Media Arts Department (who is also a USTAR hire). The other two are full-time adjunct/lecturer professors. Appointments for these faculty remain in their respective departments, while funding comes from the EAE program hard funding. Four adjunct part-time instructors with extensive industry experience are also currently filling out the teaching requirements. The budget includes funding for one additional full-time lecturing faculty position.

No additional faculty resources are required to offer the MEAE or the MEAE/MFA. It is projected that the tuition-to-program revenues will support hiring to meet additional faculty needs as they arise

Faculty

Faculty Category	Faculty Headcount – Prior to Program Implementation	Faculty Additions to Support Program	Faculty Headcount at Full Program Implementation
With Doctoral Degrees (Including MFA and other terminal degrees, as specified by the institution)			
Full-time Tenured	2		2
Full-time Non-Tenured	1		3
Part-time Tenured			
Part-time Non-Tenured			
With Master's Degrees			
Full-time Tenured			
Full-time Non-Tenured	1		
Part-time Tenured			
Part-time Non-Tenured			
With Bachelor's Degrees			
Full-time Tenured			
Full-time Non-Tenured			
Part-time Tenured			
Part-time Non-Tenured	3		3
Other			
Full-time Tenured			
Full-time Non-Tenured			
Part-time Tenured			
Part-time Non-Tenured	1		1
Total Headcount Faculty			
Full-time Tenured	2		2
Full-time Non-Tenured	2		3
Part-time Tenured			
Part-time Non-Tenured	4		4
Total Department Faculty FTE (As reported in the most recent A-1/S-11 Institutional Cost Study for "prior to program implementation" and using the A-1/S-11 Cost Study Definition for the projected "at full program implementation.")	6		7

Staff

The Entertainment Arts and Engineering program currently has two full-time and one part-time staff member to handle all the administrative duties of the program. No additional staff are required.

Library and Information Resources
The library holdings are adequate.

Admission Requirements
An admission committee consisting of regular and clinical faculty serving on the Entertainment Arts and Engineering Steering Committee will review applications for admission to the degree program. The degree requires the successful completion of a baccalaureate degree as a pre-requisite for the master's degree. Admission requirements will conform to the requirements of the Graduate School, and will be competitive within the pool of applicants each year. The deadline for applying to the program is March 31st. Dependent upon the track a student applies for, the admission requirements vary slightly. All applicants are required to provide a thousand-word statement of personal and professional goals, undergraduate transcripts, the Test of English as a Foreign Language (TOEFL) score (if applicable), three letters of recommendation, and a sample of scholarly writing such as a term paper are required. Applicants to the engineering track are also required to submit programming code samples, and applicants to the art track are required to provide a portfolio of their work (both 2D and 3D art work is required). The interdisciplinary nature of the degree encourages applicants from a wide variety of undergraduate programs, non-traditional students, and applications from traditionally underrepresented groups are encouraged.

Students applying for the MEAE/MFA degree will be required to be accepted by both the MEAE program and the Film and Media Arts MFA program.

Student Advisement
Each track in the proposed MEAE will have a director, and these directors will provide program of study and career advising. In most cases, these directors will serve as the chair on the student's supervisory committee, however, if the student wishes they may find another chair of their choosing. In consultation with the supervisory committee chairperson, the student will select additional faculty as potential members of their supervisory committee. This committee will then consult on the student's selection of electives in the final semesters of the program.

Students in the joint MEAE/MFA degree will have a committee made up of both EAE and Film and Media Arts faculty.

Justification for Graduation Standards and Number of Credits
To receive the MEAE degree, a student must:
- Complete the required 43 hours of coursework according to the track of choice.
- Receive at least a 3.0 GPA each year in the program.
- Receive a B grade or higher from the Master's Project advisor and their committee members.

Because of the breadth of material necessary to prepare someone for a professional position in the game industry, students will be taking courses in four primary areas of study (track coursework, game design, industry or research internship, and a group thesis project). These areas necessitate more credit hours than a typical master's degree. As a professional degree, the MEAE is analogous to an MPA in number of credit hours required.

Students in the MEAE/MFA program will earn a minimum total of 60.5 hours, which is similar to existing MFA programs in the College of Fine Arts.

External Review and Accreditation

The EAE faculty have interacted with industry veterans at Microsoft, Electronic Arts, Disney Interactive, Disney Animation, Pixar, Sony, Zynga, and Smart Bomb Interactive, as well as game scholars and faculty in other similar programs across the country about the need and curriculum design for the new MEAE. We have invited executives from these and other companies as well as faculty from other universities to serve on the external Advisory Board.

There are no nationwide accreditation standards for game development programs. The MEAE courses are well covered by regular, tenure-track or academically qualified faculty members, and have been designed with a curriculum behooving a research one institution.

Projected Program Enrollment and Graduates; Projected Departmental Faculty/Students:

Data Category	Current – Prior to New Program Implementation	Projected Year 1	Projected Year 2	Projected Year 3	Projected Year 4	Projected Year 5
Data for Proposed Program						
Number of Graduates **in** Proposed Program	~36	30	30	35	35	40
Total # of Declared Majors **in** Proposed Program	60	65	70	75	80	80
Departmental Data – For All Programs Within the Department						
Total Department Faculty FTE (as reported in Faculty table above)	6	7	7	8	8	8
Total Department Student FTE (Based on Fall Third Week)	60	65	70	75	80	80
Student FTE per Faculty FTE (ratio of Total Department Faculty FTE and Total Department Student FTE above)	10	9.3	10	9.4	10	10

Expansion of Existing Program

Data Category	2010-11	2011-12	2012-13
Total Number of Students **in** Viability Study program	20	48.5	57.5
# of Game Engineering Students	8.5	22.5	33
# of Game Arts Students	6.5	14	10.5
# of Game Production Students	5	12	14

Curriculum Change Approval Process

As the EAE program resides in the College of Engineering and College of Fine Arts, curriculum changes to the MEAE degree begin with approval by the EAE Curriculum committee. Those changes are then

forwarded to the college curriculum committees in both colleges for approval. Changes to the requirements for the program of study above the MEAE degree to take a student to the MEAE/MFA joint degree require approval by the EAE Curriculum Committee, the Department of Film and Media Arts Curriculum Committee and then the College of Fine Arts Curriculum Committee.

Section III: Need

Program Need

With the guidance of then Senior Vice President Pershing, and the encouragement of the chairs of the School of Computing and Department of Film and Media Arts, the program administrators set out three years ago to test whether they could take the highly successful, highly ranked undergraduate EAE program and turn it into a fully functioning, self-sustaining, successful master's program. They created a track in the School of Computing's Master of Computing degree (and requested and received approval for a Game Engineering graduate emphasis) and adapted the Department of Film and Media Arts Master of Fine Arts degree with two new emphases: Game Arts and Game Production. The administrators carefully studied the offerings of other Universities and then developed the curriculum, created the classes, recruited the first cohort of students, taught the classes, and just this past May 2012, successfully graduated the students in that first cohort. With approximately 60 students currently enrolled, it was demonstrated that there is a strong demand for the program.

The proposed Masters of Entertainment Arts and Engineering unifies these two degrees with emphases into a common degree. It will permit unified admissions/enrollment, unified curriculum, unified student advising and program of study, and a unified number of credit hours under a common degree.

Labor Market Demand

The game design and development market is growing fast in the United States, and particularly in Utah, where we have seen a jump in digital arts employment and revenue. Software developers, digital artists, and competent project managers are in high demand.

It is anticipated that the MEAE and MEAE/MFA students will be sought after not only by game development companies, but also non-traditional entities, such as the healthcare industry and armed forces, as they seek to create new ways to teach, learn, research, and implement innovative ideas. Game artists, (e.g. 3D and 2D animators, illustrators, texture artists, riggers, and musicians), game producers (e.g. project managers, strategic planners, business planners, designers, writers, and directors), and game developers (e.g. Artificial Intelligence developers, and software programmers) have seen a rapid upturn in employment and compensation nationwide, and Utah boasts some of the top salaries in the industry.

Local and multinational companies including Electronic Arts (EA), Disney Interactive, and Microsoft actively recruit the programs graduates. A critical component of the program is the student's ability to work with students in other disciplines. The engineers learn art to better understand the artists' motivations and techniques, and visa versa. This creates employees that can enter the workforce with valuable communication and technical skills, and are ready to function in teams.

Occupational Employment and Wages, May 2011

Occupation (SOC Code)	Employment(1)	Hourly Mean Wage	Annual Mean Wage (2)	Annual Median Wage	Annual 90th Percentile Wage
Computer Programmers (15-1131)	320,100	$36.54	$76,010	$72,630	$115,610
Software Developers, Applications (15-1132)	539,880	$44.27	$92,080	$89,280	$136,490
Software Developers, System Software (15-1133)	387,050	$48.28	$100,420	$96,600	$147,030
Producers and Directors (27-2012)	82,880	$44.34	$92,220	$70,660	*This wage is equal to or greater than $90.00 per hour or $187,199 per year.
Computer and Information Systems Managers (11-3021)	300,830	$60.41	$125,660	$118,010	$185,150
Art Directors (27-1011)	30,680	$45.92	$95,500	$81,260	$166,620
Multimedia Artists and Animators (27-1014)	28,400	$32.72	$68,060	$60,830	$109,370
Graphic Designers (27-1024)	191,550	$23.41	$48,690	$44,010	$77,370
Music Directors and Composers (27-2041)	25,290	$25.84	$53,760	$47,410	$85,770
Sound Engineering Technicians (27-4014)	14,930	$26.98	$56,110	$46,750	$98,240

Source:http://www.bos.gov/oes/current/oes_nat/htm
SOC Code: Standard Occupational Classification code - see http://www.bls.gov/soc/home/htm for more information. Data extracted 13.Aug.2012
(1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.
(2) Annual wages have been calculated by multiplying the hourly mean wage by a "year-round, full-time" hours figure of 2,080 hours; for those occupations where there is not an hourly mean wage published, the annual wage has been directly calculated from the reported survey data.

State of Utah Employment Statistics (May 2011)

Occupation	Employment	Hourly Mean Wage	Annual Mean Wage	Annual Median Wage	Annual 90th Percentile Wage
Computer Programmers (15-1131)	5050	$36.61	$76,150	$67,910	$111,140
Software Developers, Applications (15-1132)	4580	$39.01	$81,130	$80,060	$115,450

Software Developers, System Software (15-1133)	3340	$40.95	$85,170	$67,060	$122,420
Producers and Directors (27-2012)	380	$30.03	$62,460	$58,490	$95,250
Computer and Information Systems Managers (11-3021)	2130	$53.21	$110,680	$107,360	$150,460
Art Directors (27-1011)	170	$34.13	$70,990	$65,910	$112,920
Multimedia Artists and Animators (27-1014)	250	$27.17	$56,520	$54,810	$82,360
Graphic Designers (27-1024)	2070	$20.10	$41,810	$39,140	$62,640
Music Directors and Composers (27-2041)	n/a	n/a	$45,110	$33,640	$94,030
Sound Engineering Technicians (27-4014)	40	$21.27	$44,250	$38,510	$70,980

Western States Occupational Employment Statistics
Computer and Information Systems Managers (SOC code 113021)

Area name	Employment[1]	Hourly mean wage	Annual mean wage[2]	Annual median wage[2]	Annual 90th percentile wage[2]
Arizona	5020	53.23	110720	104400	165390
California	41760	69.34	144240	137310	n/a
Colorado	4960	61.40	127710	122310	180890
Idaho	1070	42.59	88600	83920	131610
Montana	400	44.20	91940	87750	133070
Nevada	1300	53.27	110800	100780	164520
New Mexico	860	50.77	105600	97030	157770
Oregon	3750	52.59	109380	106410	151340
Utah	2130	53.21	110680	107360	150460
Washington	9240	62.75	130520	122610	185920
Wyoming	180	39.99	83190	81930	108590

[1] Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.
[2] Annual wages have been calculated by multiplying the hourly mean wage by 2,080 hours; where an hourly mean wage is not published, the annual wage has been directly calculated from the reported survey data.

Occupation: Computer Programmers (SOC code 151131)

Area name	Employment[1]	Hourly mean wage	Annual mean wage[2]	Annual median wage[2]	Annual 90th percentile wage[2]
Arizona	5600	37.22	77410	74810	123640
California	37680	41.11	85510	84250	126130
Colorado	4520	39.67	82500	78790	137160

Idaho	2130	26.28	54660	52980	89530
Montana	680	30.41	63250	60830	92120
Nevada	1040	33.61	69910	68060	104750
New Mexico	1070	40.64	84540	80350	120280
Oregon	2890	33.60	69890	71030	101380
Utah	5050	36.61	76150	67910	111140
Washington	10610	44.20	91940	91670	125910
Wyoming	120	24.82	51620	52670	72660

Footnotes:
(1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.
(2) Annual wages have been calculated by multiplying the hourly mean wage by 2,080 hours; where an hourly mean wage is not published, the annual wage has been directly calculated from the reported survey data.

Occupation: Software Developers, Applications (SOC code 151132)

Area name	Employment(1)	Hourly mean wage	Annual mean wage(2)	Annual median wage(2)	Annual 90th percentile wage(2)
Arizona	8500	43.11	89660	87470	129630
California	87430	50.22	104450	103350	147680
Colorado	19980	43.17	89790	88920	129880
Idaho	1290	33.12	68880	64130	105790
Montana	450	33.75	70190	58850	105280
Nevada	1380	38.94	81000	79860	114600
New Mexico	1120	39.74	82660	77610	117910
Oregon	7510	42.62	88640	86450	127430
Utah	4580	39.01	81130	80060	115450
Washington	33970	46.73	97190	96400	136370
Wyoming	150	31.12	64720	61390	85890

Footnotes:
(1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.
(2) Annual wages have been calculated by multiplying the hourly mean wage by 2,080 hours; where an hourly mean wage is not published, the annual wage has been directly calculated from the reported survey data.

Occupation: Software Developers, Systems Software (SOC code 151133)

Area name	Employment(1)	Hourly mean wage	Annual mean wage(2)	Annual median wage(2)	Annual 90th percentile wage(2)
Arizona	9440	45.63	94900	92520	139510
California	74410	54.78	113940	113320	165640
Colorado	12360	46.90	97550	97390	141420
Idaho	n/a	38.73	80550	80360	96120
Montana	320	36.55	76030	67110	117750
Nevada	1310	40.56	84360	82150	125080
New Mexico	2070	46.20	96100	91870	143230
Oregon	2800	44.64	92850	94940	135380

Utah	3340	40.95	85170	85160	122420
Washington	14820	49.25	102440	95690	143860
Wyoming	50	31.46	65450	66250	98720

Footnotes:
(1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.
(2) Annual wages have been calculated by multiplying the hourly mean wage by 2,080 hours; where an hourly mean wage is not published, the annual wage has been directly calculated from the reported survey data.

Occupation: Art Directors (SOC code 271011)

Area name	Employment(1)	Hourly mean wage	Annual mean wage(2)	Annual median wage(2)	Annual 90th percentile wage(2)
Arizona	320	29.62	61620	58210	91140
California	5890	52.13	108430	95080	185320
Colorado	510	36.65	76240	72220	117290
Idaho	100	29.91	62210	56940	93350
Nevada	130	36.80	76540	64560	115720
New Mexico	40	31.90	66350	60420	103650
Oregon	470	32.09	66740	61850	102620
Utah	170	34.13	70990	65910	112920
Washington	650	44.41	92360	88070	143930

This table excludes Montana and Wyoming due to a lack of data
Footnotes:
(1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.
(2) Annual wages have been calculated by multiplying the hourly mean wage by 2,080 hours; where an hourly mean wage is not published, the annual wage has been directly calculated from the reported survey data.

Occupation: Multimedia Artists and Animators (SOC code 271014)

Area name	Employment(1)	Hourly mean wage	Annual mean wage(2)	Annual median wage(2)	Annual 90th percentile wage(2)
Arizona	160	24.94	51880	50330	81660
California	8840	40.26	83730	74830	147940
Colorado	260	27.76	57730	54650	85140
Idaho	40	25.43	52900	49790	73500
Montana	50	14.57	30310	28100	38390
Nevada	230	23.21	48280	44360	76740
New Mexico	60	30.36	63140	68210	88850
Oregon	530	28.90	60110	55270	95120
Utah	250	27.17	56520	54810	82360
Washington	2340	32.28	67140	60760	107940

This table excludes Wyoming due to a lack of data
Footnotes:
(1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.
(2) Annual wages have been calculated by multiplying the hourly mean wage by 2,080 hours; where an hourly mean wage is not published, the annual wage has been directly calculated from the reported survey data.

Occupation: Graphic Designers (SOC code 271024)

Area name	Employment(1)	Hourly mean wage	Annual mean wage(2)	Annual median wage(2)	Annual 90th percentile wage(2)
Arizona	3190	21.04	43750	41110	67090
California	26450	27.47	57140	52400	90740
Colorado	4050	21.61	44940	41940	68930
Idaho	940	18.06	37570	34210	58800
Montana	610	18.54	38570	31250	61510
Nevada	1560	23.06	47960	44670	74240
New Mexico	710	20.05	41700	37890	66960
Oregon	2690	23.16	48160	44500	72030
Utah	2070	20.10	41810	39140	62640
Washington	4200	24.97	51940	47430	82250
Wyoming	260	16.59	34510	29910	54590

Footnotes:
(1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.
(2) Annual wages have been calculated by multiplying the hourly mean wage by 2,080 hours; where an hourly mean wage is not published, the annual wage has been directly calculated from the reported survey data.

Occupation: Producers and Directors (SOC code 272012)

Area name	Employment(1)	Hourly mean wage	Annual mean wage(2)	Annual median wage(2)	Annual 90th percentile wage(2)
Arizona	770	26.95	56050	52200	90460
California	23720	61.92	128790	108010	n/a
Colorado	950	29.45	61270	54390	106250
Idaho	210	19.20	39930	34050	66970
Montana	200	18.60	38680	34860	58990
Nevada	560	35.49	73820	61920	149640
New Mexico	580	24.23	50390	50800	71450
Oregon	910	31.37	65250	51250	124580
Utah	380	30.03	62460	58490	95250
Washington	1280	33.46	69590	63100	118360
Wyoming	110	25.36	52750	47390	75080

Footnotes:
(1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.
(2) Annual wages have been calculated by multiplying the hourly mean wage by 2,080 hours; where an hourly mean wage is not published, the annual wage has been directly calculated from the reported survey data.

Occupation: Music Directors and Composers (SOC code 272041)

Area name	Employment(1)	Hourly mean wage	Annual mean wage(2)	Annual median wage(2)	Annual 90th percentile wage(2)
Arizona	370	21.58	44900	43960	60360
California	2660	32.22	67010	61100	112340
Colorado	n/a	20.89	43460	43650	59730

Idaho	240	20.15	41900	39410	65030
Montana	250	16.40	34110	33700	57380
New Mexico	80	22.55	46900	45290	63710
Oregon	850	24.09	50110	42850	82620
Utah	n/a	21.69	45110	33640	94030
Washington	130	28.30	58870	46640	114490
Wyoming	50	23.41	48680	51900	69210

Footnotes:

(1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.

(2) Annual wages have been calculated by multiplying the hourly mean wage by 2,080 hours; where an hourly mean wage is not published, the annual wage has been directly calculated from the reported survey data.

Occupation: Sound Engineering Technicians (SOC code 274014)

Area name	Employment(1)	Hourly mean wage	Annual mean wage(2)	Annual median wage(2)	Annual 90th percentile wage(2)
Arizona	140	18.44	38350	33650	67990
California	3620	35.89	74640	62520	129060
Colorado	300	21.49	44710	42870	73070
Montana	50	17.38	36150	32750	48630
Nevada	240	37.10	77160	66650	97090
New Mexico	n/a	16.38	34060	28860	51670
Oregon	130	17.60	36610	32180	56040
Utah	40	21.27	44250	38510	70980
Washington	300	27.62	57450	45280	96910

This table excludes Idaho and Wyoming due to a lack of data

Footnotes:

(1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.

(2) Annual wages have been calculated by multiplying the hourly mean wage by 2,080 hours; where an hourly mean wage is not published, the annual wage has been directly calculated from the reported survey data.

National Projections

Table sorted by percent change in employment 2010-2020

Occupation		Employment (in thousands)		Employment change, 2010-2020		Percent self-employed, 2010	Job openings due to growth and replacement needs, 2010-2020 (in thousands)	2010 median annual wage (in dollars)
Title	Code	2010	2020	Number (in thousands)	Percent			
Software Developers,	15-1133	392.3	519.4	127.2	32.4	2.3	168.0	94,180

Systems Software							
Software Developers, Applications	15-1132	520.8	664.5	143.8	27.6	2.3	197.9	87,790
Computer and Information Systems Managers	11-3021	307.9	363.7	55.8	18.1	2.7	102.8	115,780
Graphic Designers	27-1024	279.2	316.5	37.3	13.4	29.4	123.8	43,500
Computer Programmers	15-1131	363.1	406.8	43.7	12.0	5.6	128.0	71,380
Music Directors and Composers	27-2041	93.2	102.8	9.6	10.2	38.4	32.2	45,970
Art Directors	27-1011	73.9	80.6	6.7	9.0	59.1	24.3	80,630
Multimedia Artists and Animators	27-1014	66.5	72.0	5.5	8.3	58.8	21.4	58,510

A key element of the program is close industry involvement. Besides having several industry colleagues helping to teach some of the classes, there area also industry colleagues involved in evaluating and critiquing the student work. This exposes the students to current trends and makes it so they are able to be productive on their first day at work. The faculty in the program also work with the students on resumé building and improving their job interview skills.

Students graduating in the first cohort have been highly successful at finding attractive jobs. Seventeen of the 20 students in the first cohort have graduated. All of the engineers, all of the producers, and all but one of the artists have found jobs in the games industry (or related field) that range in salary from $50K to $120K per year.

Student Demand
Student enrollment over the past 3 years demonstrates that there is significant student demand. There are about 60 students currently enrolled in the program.

Similar Programs
There are no similar programs in Utah. There are approximately 50 similar programs across North America. Here is the list of the top schools that offer similar programs (and the degrees that they offer):

- University of Southern California (Los Angeles, CA) - MFA in Interactive Media
- Rochester Institute of Technology (Rochester, NY) - Masters of Science in Game Design & Development

- Massachusetts Institute of Technology (Cambridge, MA) - Comparative Media Studies
- University of Central Florida (Orlando, FL) - Masters of Interactive Entertainment
- Southern Methodist University (SMU) (Plano, TX) - Master of Interactive Technology in Digital Game Development
- Carnegie Mellon University (Pittsburgh, PA) - Masters of Entertainment Technology
- Savannah College of Art and Design (Savannah, GA) - MA/MFA Interactive Game Design & Motion Graphics
- DigiPen Institute of Technology (Redmond, WA) - MA/MFA Digital Arts, or MSc Master of Science in Computer Science
- Univ. of California, Santa Cruz (Santa Cruz, CA) - MA/MFA in Digital Arts & New Media / Playable Media
- Drexel University (Philadelphia, PA) - MS or MSc in Digital Media
- DePaul University (Chicago, IL) - MSc in Game Development
- Full Sail University (Winter Park, FL) - MSc in Game Design
- Georgia Institute of Technology (Atlanta, GA) - MSc in Graphics & Visualization & MSc in Artificial Intelligence
- New York University/NYU Poly (New York, NY) - MFA in Game Design
- Parsons - The New School for Design (New York, NY) - MA/MFA in Design & Technology
- Sacred Heart University (Fairfield, CT) - MA/MFA in Game Design and Development
- The University of Texas at Dallas (Richardson, TX) - MA/MFA in Arts and Technology

Collaboration with and Impact on Other USHE Institutions

As students are recruited to attend there program, there is interaction with other USHE institutions. There has been early talks with UVU about possibly establishing a pipeline for their students into this master's program.

Benefits

Video games have become an integral part of the American culture and 75 percent of Americans play some form of video game, whether it is on traditional video game console, a computer, or a mobile device. Utah is home to over a dozen video game companies that vary from small, two-person operations to companies such as Disney Interactive and EA Salt Lake, each with over 200 employees. These businesses offer an important economic impact on the State of Utah, employing over 640 directly and over 2,100 Utahans indirectly, while adding $93.7 million to the economy in 2009 (in 2005 it was $53.6) and grew by more than 14.96% from 2005 to 2009 [Source EDC Utah]. The EAE program meets the needs of these businesses by providing talented, well-educated graduates. In addition, other software companies value the types of skills the program's students possess and find them to be well-rounded, experienced employees.

Consistency with Institutional Mission

Configuration of the Utah System of Higher Education and Institutional Missions and Roles (R312) states that the institution's mission is to discover, create, and transmit knowledge through education and training programs at the undergraduate, graduate, and professional levels; through research and development; and through service and extension programs associated with a major teaching and research university. Emphasis is placed on teaching, research, and service. The institution contributes to the quality of life and economic development at the local, state, and national levels.

The proposed MEAE and MEAE/MFA degrees meet the mission to discover, create, and transmit knowledge to each cohort of entering graduate students. Students in their required internship often choose a more research-oriented focus such as the set of students who recently worked on development of a video game for hospital patients with cancer. As mentioned above, the video game industry in Utah is a growing, vibrant community and these students will be tomorrow's employees and leaders of those companies.

Section IV: Program and Student Assessment

Program Assessment

The program is not subject to a specific agency accreditation; however, in addition to the program reviews mandated by the graduate school, the steering committee will conduct an informal review of the program at the conclusion of each of the first five academic years the degree is in place. Use of the steering committee enables internal review by current University of Utah faculty and external advice and consultation.

In addition, listed here are several goals and measures the program will use to determine if the goals are being met.

- Recruiting, Admission, and Retention:
  o Goals – to recruit high-caliber applicants and retain students in quantities that meet or exceed the fiver-year program size projections.
  o Measures – applicant pool size and program size, # of applicants recruited per recruiting channel/event, average GPA of applicants and of students, # of applicants, and students by most recent location and degree/institution.
- Student Learning and Graduation:
  o Goals – to graduate 95% of the students admitted who meet the learning goals of the MEAE.
  o Measures – the learning measures include:
    ▪ The student demonstrates knowledge and technical skills in classes with a 3.0 or higher GPA.
    ▪ The student is effective in integrating this knowledge in a real world project by achieving a B or higher grade from the student's Master's Project advisor and supervisory committee.
    ▪ The student is effective with analytical and critical thinking as measured using assignments or projects in program coursework.
    ▪ The student is effective with teamwork as measured using group projects in the program of study.
    ▪ The student is effective with written and oral communication measured using assignments, project writing, and presentations in classes.
- Placement:
  o Goals – to help MEAE graduates obtain career opportunities that leverage the knowledge gained in the program.
  o Measures - number of positions, skills used, companies and industry as well as average salaries received.
- Student Evaluation:
  o Goals – to assure positive student and graduate perceptions of program design, study benefits, and quality of cohort for improvement of the MEAE program.

- o   Measures – summaries of students mid-study, exit, and alumni interviews/surveys.
- External Evaluation:
    - o   Goals – to acquire positive perceptions of students and graduates by recruiters, guest speakers, project sponsors and coordinators for MEAE students for improvement of the MEAE program.
    - o   Measures – summaries of external surveys
- Financial:
    - o   Goals – to meet or exceed the budget projection
    - o   Measures – Student credit hours, revenues from the MEAE differential tuition, and grants acquired.

Expected Standards of Performance

Outcome standards established by the steering committee will be used to assess student learning, knowledge, and skills. All students in the MEAE degree program are required to take and successfully pass Game Design I and II, and Game Projects I, II, III, and IV. These courses provide a core understanding of both theoretical views of game development and the necessary applied skills for a career in the industry, as well as a needed cohort experience for interdisciplinary students. Specific course requirements for the student's track of choice, which include three directed electives, are established on an individual bases for each student by his or her supervisory committee. A list of courses that constitute the student's formal program of study should be presented to the supervisory committee for its approval before 75% of the student's coursework is completed.

Students enrolled in the program are expected to manage their priorities to demonstrate good progress in meeting the requirements of their degree programs as well as to appropriately discharge all responsibilities of their assignments. Students must maintain a 3.0 GPA throughout their program. Further, grades lower than a 'B-' will not be counted toward degree credit.

Under normal circumstances, the MEAE will be completed within a two-year, four-semester time frame; however, all work for the MEAE must be completed within four consecutive calendar years. In rare cases deserving special consideration, the student's supervisory committee can petition the Dean of the Graduate School for a time extension.

Students in the MEAE/MFA program will be expected to perform to the standards set by both programs.

Section V: Finance

Budget

5-Year Budget Projection

EAE Data	2011-12 Prior year	2012-13 Current Year	2013-14	2014-15	2015-16	2016-17
Personnel Expense						
Faculty Salaries	$246,415	$546,875	$552,343	$632,867	$639,196	$725,588
Staff Salaries	$79,472	$94,713	$95,660	$96,616	$97,582	$98,558
Graduate Assistant Salaries	$30,257	$131,000	$132,310	$133,633	$148,469	$163,454
Benefits	$114,586	$218,310	$218,310	$243,810	$245,160	$273,710
Total Personnel Expense	$470,730	$990,897	$998,623	$1,106,926	$1,130,407	$1,261,310

Non-personnel Expense						
Travel	$41,782	$50,000	$50,000	$50,000	$50,000	$50,000
Computers	$113,152	$0	$45,000	$42,000	$68,000	$77,000
Software	$62,552	$20,800	$40,008	$40,408	$88,812	$54,700
Marketing/advertising	$28,999	$30,000	$30,300	$30,603	$30,909	$31,218
Supplies	$11,426	$20,000	$20,200	$20,402	$20,606	$20,812
Other	$18,889	$60,642	$61,248	$61,861	$62,480	$63,104
Total Non-personnel Expense	$276,800	$181,442	$246,756	$245,274	$320,807	$296,835
Total Expense	**$747,530**	**$1,172,339**	**$1,245,379**	**$1,352,200**	**$1,451,214**	**$1,558,144**
EAE Program Funding						
Tuition		$515,900	$521,059	$526,270	$531,532	$536,848
Other: Center Administration	$398,636					
Other: SCH		$149,621	$162,089	$174,558	$187,026	$199,495
Special Legislative Appropriation						
Grants and Contracts						
Special Fees/Differential Tuition	$382,594	$506,818	$576,505	$651,895	$733,382	$821,387
Total Revenue	**$781,230**	**$1,172,339**	**$1,259,654**	**$1,352,722**	**$1,451,940**	**$1,557,730**
Difference						
Revenue - Expense	$33,700	$0	$14,275	$522	$726	-$415
Number of students	55	60	65	70	75	80

Budget comments

Projects assume 1% annual raises for faculty and a 5% annual increase for tuition (differential tuition is adjusted by the university tuition increase).

Funding Sources

Central administration has agreed to provide the EAE program with a base budget of $385,000 for the 2012-13 fiscal year (the base budget money comes with benefits). Additional revenue comes from the Board of Regents approved differential tuition for the EAE program (for 2012/13 the rate is $460.40 per credit hour) and SCH for the classes.

Reallocation

The base budget funds come from tuition.

Impact on Existing Budgets

There is no impact on existing budgets.

Section VI: Program Curriculum

All MEAE Program Courses

	Course Prefix & Number	Title	Credit hours	
Required All	CS 6070 / FILM 6701	Game Design I	3	**Note** – starting with the Fall 2013 academic year, the EAE classes will be moved into their own EAE prefix classification. The course numbers for these classes have not yet been determined.
Required All	CS 6071 / FILM 6702	Game Design II	3	
Required All	CS 6080 / FILM 6711	Game Projects I	4	
Required All	CS 6081 / FILM 6712	Game Projects II	4	
Required All	CS 6082 / FILM 6713	Game Projects III	4	
Required All	CS 6083 / FILM 6714	Game Projects IV	4	
Required All	CS 6095 / FILM 6900	Internship	3	
Subtotal (Req)			25	
Eng Track (Req)	CS 6090	Game Engineering I	3	**New Courses to Be Added in the Next Five Years**
Eng Track (Req)	CS 6091	Game Engineering II	3	We likely will be adding new elective classes over the next five years. However, specifics on any of those classes have not yet been determined.
Eng Track (Req)	CS 6092	Game Engineering III	3	
Eng Track (Req)	CS 6093	Game Engineering IV	3	
Eng Track (Elec)		Electives	6	
Subtotal Eng			18	
Arts Track (Req)	FILM 6721	Game Arts I	3	
Arts Track (Req)	FILM 6722	Game Arts II	3	
Arts Track (Req)	FILM 6723	Game Arts III	3	
Arts Track (Req)	FILM 6724	Game Arts IV	3	
Arts Track (Elec)		Electives	6	
Subtotal Arts			18	
Prod Track (Req)	FILM 6731	Game Production I	3	All MEAE/MFA students will be required to take all of the above EAE courses, and then the additional 4.5 FILM courses necessary for the MFA degree.
Prod Track (Req)	FILM 6732	Game Production II	3	
Prod Track (Req)	FILM 6733	Game Production III	3	
Prod Track (Elec)		Electives	9	
Subtotal Prod			18	
Total all tracks			43	

Program Schedule

Game Engineering Track Program Schedule

	Course Prefix & Number	Title	Credit hours
Year 1 Fall	CS 6070	Game Design I	3
	CS 6080	Game Projects I	4
	CS 6090	Game Engineering I	3
		Total	10
Year 1 Spring	CS 6081	Game Projects II	4
	CS 6091	Game Engineering II	3
	Elective		3
		Total	10
Summer	CS 6095	Internship	3
Year 2 Fall	CS 6071	Game Design II	3
	CS 6082	Game Projects III	4
	CS 6092	Game Engineering III	3
		Total	10
Year 2 Spring	CS 6083	Game Projects IV	4
	CS 6093	Game Engineering IV	3
	Elective		3
		Total	10
		Total Credit Hours	43

Game Arts Track Program Schedule

	Course Prefix & Number	Title	Credit hours
Year 1 Fall	FILM 6701	Game Design I	3
	FILM 6711	Game Projects I	4
	FILM 6721	Game Arts I	3
		Total	10
Year 1 Spring	FILM 6712	Game Projects II	4
	FILM 6722	Game Arts II	3
	Elective		3
		Total	10
Summer	FILM 6900	Internship	3
Year 2 Fall	FILM 6702	Game Design II	3
	FILM 6713	Game Projects III	4
	FILM 6723	Game Arts III	3
		Total	10
Year 2 Spring	FILM 6714	Game Projects IV	4
	FILM 6724	Game Arts IV	3
	Elective		3
		Total	10
Total Credit Hours			43

Game Production Track Program Schedule

	Course Prefix & Number	Title	Credit hours
Year 1 Fall	FILM 6701	Game Design I	3
	FILM 6711	Game Projects I	4
	FILM 6731	Game Production I	3
Total			10
Year 1 Spring	FILM 6712	Game Projects II	4
	FILM 6732	Game Production II	3
	Elective		3
Total			10
Summer	FILM 6900	Internship	3
Year 2 Fall	FILM 6702	Game Design II	3
	FILM 6733	Game Projects III	4
	FILM 6723	Game Production III	3
Total			10
Year 2 Spring	FILM 6714	Game Projects IV	4
	Elective		3
	Elective		3
Total			10
Total Credit Hours			43

Section VII: Faculty

The following faculty are responsible for the program and teach the bulk of the classes (some industry adjuncts help to fill in). Electives will be approved by the student supervisory committee and taken within other departments on campus, likely including the School of Computing, the College of Business, or the Department of Film and Media Arts.

Roger Altizer, Ph.D. (expected fall 2012) (University of Utah) – Game Design and Production Track Director
Craig Caldwell, Ph.D. 1989 (Ohio State University) – Game Arts Track Director
Robert Kessler, Ph.D. 1981 (University of Utah) – Executive Director
Mark van Langeveld, Ph.D. 2009 (University of Utah) – Game Engineering Track Director
New hire

APPENDIX A

Possible Elective Courses

CS 6967   Special Topics: Character Animation (3)
CS 6967   Special Topics: Physics Based Animation (3)
CS 5600   Introduction to Computer Graphics (3)
CS 6610   Interactive Computer Graphics (3)

CS 6620   Advanced Computer Graphics II (3)
CS 6480   Advanced Networks (3)
CS 6380   Multi-agent Systems (3)
CS 6360   Advanced Networks (3)
CS 6360   Virtual Reality (3)
CS 6300   Artificial Intelligence (3)
CS 6230   Parallel Computing and High Performance Computing (3)
CS 6968   Computer IP Law (1)
CS 6969   Current IP Law (1-2)
FILM 6850 Translating Prose to Screenplay
FILM 6820-40 Graduate Screenwriting I, II, III
FILM 6630/40 Graduate Traditional Animation I, II
FILM 6610/20 Graduate Computer Animation I, II
FILM 6420 Sound for Film and Digital Media
FILM 6411 Graduate Editing I
FILM 6370 Seminar: Film
FILM 6350 Film Theory
FILM 6320 Graduate Film, Dream and Memory
FILM 6270 The Foreign Eye, Exile, Diasporic, and Border Cinema
FILM 6260 International Film and Culture
FILM 6250 Cinema of the Developing World
FILM 6220 Director(s)
FILM 6210 Film Genres
FILM 6160 Graduate Animation Film Survey

(other courses may be allowed by track faculty approval)