



COURSE CATALOG ADDENDUM: VERSION 2

2015-2016

Published November, 2015

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General Policies

ABOUT DIGIPEN'S FACILITIES

[Updated: November 2015]

[Student-to-faculty ratio added.]

DigiPen Institute of Technology's 150,000 sq. ft. campus features auditoriums, classrooms, and open lab areas with dedicated game production suites, conference rooms, art labs, a music production studio, a ceramics lab, an Academic Advising and Tutoring Center, a Student Affairs Office, a Housing Office, a library, staff and faculty offices, a commercial software engineering research and development lab, and a professional kitchen and cafeteria.

Weekly student access to the DigiPen campus is usually from 7:45 a.m. to midnight, Monday through Friday, and from 12 p.m. to 10 p.m. on Saturday and Sunday. On certain holidays, lab hours are from 12 p.m. to 8 p.m. Core office hours for the administration staff are from 9 a.m. to 5 p.m., Monday through Friday.

The majority of the student computers have either Intel i7 quad-core, hyper-threaded processors with 8GB-16GB RAM, Intel i3 processors with 4GB RAM, or Core2 Duo-3GHz processors with 2GB RAM. All computers are on an internal network and have access to printers, servers, and archival media. DigiPen upgrades the computer equipment on a regular basis. Many classrooms are equipped with microphones and either DLP or LCD high-definition projection systems. Presentation materials may be shown on a variety of formats, including Blu-ray and DVD players, VCRs, document cameras, and CD players.

Classrooms vary in size from a large auditorium accommodating up to 263 students to small classrooms for 12 students. Labs range in size to accommodate 12-30 students. Two large open production areas of approximately 11,000 sq. ft. and 6,500 sq. ft. accommodate approximately 182 and 131 students respectively and have dedicated production suites for group projects. DigiPen's student-to-faculty ratio is 14 to 1 as reported in the Integrated Postsecondary Education Data System (IPEDS).

Standards of Progress

[Updated: November 2015]

[Milestone chart updated with BFA in Digital Art and Animation credit milestones.]

SATISFACTORY ACADEMIC PROGRESS

Federal Regulations mandate that Institutions of Higher Education create a Satisfactory Academic Progress (SAP) standard for students receiving financial assistance under the Title IV programs. SAP standards measure a student's progress toward the completion of their education program. The Office of Financial Aid is responsible for ensuring that all students receiving federal financial aid are meeting these standards by conducting an evaluation at the end of each term.

The SAP standards established in this policy apply to all Title IV Financial Aid programs administered by the Institute. This includes Unsubsidized loans, Subsidized loans, PLUS loans, Grad PLUS loans, and Federal Pell Grant.

The Institute's SAP policy is the same for all students, regardless of whether they are receiving federal financial aid or not. To be eligible for any of the types of financial aid listed above, a student must be:

1. Enrolled
2. Meeting the terms of the SAP policy

The SAP policy is comprised of two standards: qualitative and quantitative. The qualitative standard measures academic performance by the cumulative grade point average. The quantitative standard measures the total number of academic credits earned within the specified time periods and satisfactory pace towards completion. Financial aid recipients must meet all of these standards to qualify for aid.

A program of study must be completed within a reasonable period of time for a student to be eligible for graduation; that is, the credit hours attempted cannot exceed 1.5 times the credit hours required to complete the program. For example, the BFA in Digital Art and Animation program normally takes 131 credits to complete. Students in this program have up to 196.5 credits to complete their program. The Registrar will withdraw students from the Institute who do not meet this requirement.

In addition, frequent withdrawals from courses or from the Institute, failed or repeated courses, changes of major, or taking courses that are not related to the student's degree program could put the student's financial aid eligibility at risk. All attempted hours at the Institute and accepted transfer credits will count toward the maximum time frame for SAP. Students who have completed sufficient hours to finish their degree program are no longer eligible for financial aid. For financial aid recipients, if it is determined that a student will not be able to complete their degree within the maximum allowable time frame, eligibility for student financial aid may be revoked.

CHANGING MAJORS AND SATISFACTORY ACADEMIC PROGRESS (SAP)

All courses that are deemed transferable to a student's new degree program are considered when calculating a student's satisfactory progress (SAP). Courses that are not part of the new major are not used.

Students should refer to the *Change of Major and Graduation* sections for more information.

UNDERGRADUATE STUDENTS

A student must be in good academic standing based on the cumulative grade point average of all courses taken at DigiPen Institute of Technology to meet the qualitative standard of SAP. Students may reference the Course Catalog of their matriculation cohort for milestone credits and cumulative

GPA information for their cohort. Good academic standing for students in cohorts that began in 2015 or later is charted below.

GRADUATE STUDENTS

Graduate students who take the undergraduate-level classes to fulfill the contingency for acceptance into the graduate programs must earn a “B” (or 3.0 quality points) or better for such a class to meet the minimum requirement. During the course of graduate study at DigiPen, students are required to maintain a cumulative GPA of 3.0 at the graduate level. If the cumulative GPA falls below the required standard, the student will be placed on Academic Warning. Students on warning must earn 3.0 GPA or better in their graduate-level classes in subsequent semesters until the cumulative GPA reaches 3.0 or above. Students who fail to attain a cumulative GPA of 3.0 in graduate-level classes during their Academic Warning will be academically terminated. Terminated students may apply for readmission after a 12-month period.

Graduate students who fail to complete their program within 1.5 times the attempted credits will be placed on Academic Warning. Students on Academic Warning shall work with their graduate advisors to develop a completion plan that outlines the quickest path to completion. Failure to meet the terms of this plan will result in academic termination.

STUDENTS WHO BEGAN IN THE 2015 COHORT OR LATER

MILESTONE – UNDERGRADUATE	MINIMUM GPA REQUIREMENT
<p>Up to 50% of program 77 attempted credits* for BS in Computer Science in Real-Time Interactive Simulation 75 attempted credits for BS in Computer Science 77 attempted credits for BS in Computer Science and Game Design 77 attempted credits for BS in Computer Engineering 71 attempted credits for BS in Engineering and Sound Design 65 attempted credits for BFA in Digital Art and Animation 76 attempted credits for BA in Game Design 70 attempted credits for BA in Music and Sound Design</p>	<p>1.8 or better cumulative GPA</p>
<p>Over 50% of program 78-153 attempted credits for BS in Computer Science in Real-Time Interactive Simulation 76-149 attempted credits for BS in Computer Science 78-153 attempted credits for BS in Computer Science and Game Design 78-153 attempted credits for BS in Computer Engineering 72-142 attempted credits for BS in Engineering and Sound Design 66-130 attempted credits for BFA in Digital Art and Animation 77-152 attempted credits for BA in Game Design 71-139 attempted credits for BA in Music and Sound Design</p>	<p>2.0 or better cumulative GPA</p>
<p>100% of program 154 earned credits or greater for BS in Computer Science in Real-Time Interactive Simulation 150 earned credits or greater for BS in Computer Science 154 earned credits or greater for BS in Computer Science and Game Design 154 earned credits or greater for BS in Computer Engineering 143 earned credits or greater for BS in Engineering and Sound Design 131 earned credits or greater for BFA in Digital Art and Animation 153 earned credits or greater for BA in Game Design 140 earned credits or greater for BA in Music and Sound Design</p>	<p>2.0 or better cumulative GPA</p>

**An attempted credit is defined as any credit that is awarded a final letter grade (“A” to “F”). Credits earning a “W” or “I” are not considered attempted credits for the purpose of calculating GPA. Credits earning a “W” or “I” are considered attempted credits for the purpose fo calculating pace.*

Degree Programs for the Academic Year 2015-2016

Bachelor of Science in Computer Science in Real-Time Interactive Simulation

[Updated: November 2015]

[Corrected errors in the Recommended Course Sequence - Semester 1: ENG 110 is a Core course

Semester 7: ART 210 has been added, the ART and MUS Elective requires ART 400 or ART 410 in the place of ART 105, and the Open Elective is a minimum required 2 credits
Semester 8: The ENG Elective is a minimum required 2 credits]

Program Overview

The real-time interactive simulation field, which includes the software and digital entertainment industries, is one of the fastest growing and most exciting career choices of the future. The video game, movie, and military industries are only a few of those that demand well-trained, enthusiastic programmers, designers, artists, and managers. DigiPen Institute of Technology is a key provider of these individuals, and the Bachelor of Science in Computer Science in Real-Time Interactive Simulation degree program prepares programmers for these industries. Designed and developed by industry experts and DigiPen faculty, the Institute's four-year BS in Computer Science in Real-Time Interactive Simulation degree program is a computer science degree that is highly focused on the areas of graphics and simulations. Participants in the BS in Computer Science in Real-Time Interactive Simulation degree program specialize in the skills and tools necessary to create realtime simulations of real-life events and imaginary situations.

The BS in Computer Science in Real-Time Interactive Simulation degree program offers extensive training in mathematics and physics as a foundation for the various topics presented in general computer science and computer graphics. Throughout the degree program, BS in Computer Science in Real-Time Interactive Simulation students participate in several teambased projects. These substantial projects are designed to give students concrete experiences in which they apply the theoretical knowledge gained from their courses. Forming the cornerstone of the program, these projects exemplify many of the skills necessary in the video game industry today: teamwork, design, implementation, follow through, and business knowledge, among others. BS in Computer Science in Real-Time Interactive Simulation students gain the experience of designing, programming, and testing a variety of simulations and games, including text-based, scrolling, simulation, and 2D and 3D games.

Students in this degree program work both individually and collaboratively to learn the fundamentals of software programming, game design, and production. Additionally, they write game design documents and technical design documents, learn how to schedule tools and techniques, and participate in the full production of several games. These game-oriented

productions are a perfect media to present complicated subjects in a format agreeable to students. These productions:

- Are graphics-oriented simulations, including 2D and 3D simulations.
- Can realistically reproduce or simulate natural phenomena and real-life events.
 - » Flight simulators are excellent examples of such simulations.
- Are highly interactive, requiring an elaborate and efficient graphical user interface (GUI). The development of a GUI requires the management of windows, menus, dialog boxes, and hardware resources including keyboards, mice, and display monitors.
- React in real time. The implementation of such simulations requires a thorough knowledge of computer hardware and computer languages.
- Are story-based simulations requiring a plot in which game objects must interact intelligently with each other. Therefore, in order to make games challenging and interesting, students must design and implement good artificial intelligence algorithms, which serve as the cognitive processes for the computer-controlled game objects.
- Could be designed for either a single-player or multi-player environment. The development of the latter requires the understanding of subjects such as computer networks, TCP/IP, and internet programming.
- Are excellent examples of large and complex productions. Teamwork is essential to the successful completion of such productions. Therefore, students are divided into teams and are rigorously trained in object-oriented programming languages, paradigms, and software engineering techniques and practices.

Graduates of this degree program will be prepared to enter the video game industry as entry-level computer scientists and software engineers. Possible entry-level position titles include Computer Scientist, Software Engineer, Software Developer, Software Development Engineer, Software Development Engineer in Test, Software Analyst, Computer Programmer, Gameplay Programmer, Engine Programmer, Physics Programmer, Graphics Programmer, Networking Programmer, Artificial Intelligence Programmer, User Interface Programmer, Tools Programmer, Web Programmer, or Game Scriptor. After several years in the industry, graduates may attain titles such as Lead Engineer, Lead Developer, Development Manager, Principal Engineer, Technical Director, and Chief Technology Officer. This degree program also includes secondary training that can contribute directly to a graduate obtaining positions with titles such as Producer, Program Manager, Technical Program Manager, Technical Writer, and Technical Designer.

Students in the BS in Computer Science in Real-Time Interactive Simulation program who are interested in pursuing a graduate degree at DigiPen or taking graduate level coursework during their undergraduate studies may participate in the "BS/MS in Computer Science Accelerated Schedule" option, which

permits students to obtain the Bachelor of Science and Master of Science (both in Computer Science) degrees within five years. Students who meet the minimum requirements to take selected graduate-level courses during the junior and senior years of their undergraduate study can apply up to 15 credits towards both BS and MS degree requirements. Students who pursue the accelerated schedule can successfully complete their BS in Computer Science in Real-Time Interactive Simulation degree and Master of Science in Computer Science in five years sequentially. Please refer to the BS/MS in Computer Science Accelerated Schedule section for more details. This degree program provides an intensive education in a specialized and highly complex scientific area, and it prepares students for a career in several rapidly expanding industries.

For details about graduation rates, median debt for students who complete this program, and other important information visit digipen.edu/fileadmin/disclosures/RTIS.html.

Degree Requirements

NUMBER OF CREDITS AND GPA

The BS in Computer Science and Real-Time Interactive Simulation requires completion of at least 154 credits with a cumulative GPA of 2.0 or better. The program usually spans eight semesters of 15 weeks each, or a total of four academic years.

GRADE REQUIREMENTS AND CORE COURSES

Students must receive a grade of “C-” (or 1.7 quality points) or higher in all core courses for the BS in Computer Science and Real-Time Interactive Simulation major. (In a non-core course, a grade of “D” [or 1.0 quality points] or higher is considered passing.) The core courses are all those taken to fulfill the GAM, MAT, and CS requirements. PHY 200 is also a core course.

ART AND MUSIC

The following courses are required: ART 210, CG 130 and 2 additional credits from the following: ANI 125, ART 400, ART 410, FLM 115, FLM 151, FLM 152, or MUS 115. (Total: 7 credits)

COMPUTER SCIENCE

The following courses are required: CS 100, CS 100L, CS 120, CS 170, CS 180, CS 200, CS 225, CS 230, CS 250, CS 260, CS 280, CS 300, CS 315, CS 330, CS 350, and CS 365. Students must select four more courses (12 credits) numbered higher than 200. (Total: 60 credits)

HUMANITIES AND SOCIAL SCIENCES

The following courses are required: COL 101, ENG 110, and COM 150. Five additional ENG credits are required from ENG 116 and above. Students must take an additional three credits in HIS, PSY, or SOS. (Total: 15 credits)

MATHEMATICS

The following courses are required: MAT 140, MAT 150 or MAT 180, MAT 200 or MAT 230, MAT 250, MAT 258, and two MAT electives numbered 200 or higher. (Total: 24 credits)

PHYSICS

The following courses are required: PHY 200 and PHY 250. (Total: 6 credits)

PROJECTS

The following courses are required: GAM 100, GAM 150, GAM 200, GAM 250, GAM 300, GAM 350, GAM 400, and GAM 450. (Total: 34 credits)

OPEN ELECTIVES

At least eight credits from any courses in any department at DigiPen. (Total: 8 credits)

NOTE ON GENERAL EDUCATION COURSES

The following courses satisfy the general education requirement for the Bachelor of Science in Computer Science in Real-Time Interactive Simulation: ART 210 (2), ART elective (2), COM 150 (3), ENG 110 (3), ENG electives numbered ENG 116 or higher (5), a social science elective in HIS, PSY, or SOS (3), MAT 150 or MAT 180 (4), MAT 250 (3), PHY 200 (3), and PHY 250 (3), for a total of 31 credits.

Recommended Course Sequence for the Bachelor of Science in Computer Science in Real-Time Interactive Simulation

SEMESTER	COURSE	COURSE TITLE	CORE*	CREDITS
Semester 1	MAT 140	Linear Algebra and Geometry	X	4
	CS 100	Computer Environment	X	3
	CS 100L	Computer Environment Lab	X	1
	CS 120	High-level Programming I: The C Programming Language	X	4
	GAM 100	Project Introduction	X	3
	ENG 110	Composition	X	3
	COL 101	College Life and Academic Skills		1
	Semester Total			
Semester 2	MAT 150 or MAT 180	Calculus and Analytic Geometry I or Vector Calculus I	X	4
	CS 170	High-level Programming II: The C++ Programming Language	X	4
	CS 230	Game Implementation Techniques	X	3
	GAM 150	Project I	X	3
	COM 150	Interpersonal and Work Communication		3
	Semester Total			
Semester 3	MAT 200 or MAT 230	Calculus and Analytic Geometry II or Vector Calculus II	X	4
	CS 180	Operating System I: Man-Machine Interface	X	3
	CS 200	Computer Graphics I	X	3
	CS 225	Advanced C/C++	X	3
	GAM 200	Project II	X	4
	PHY 200	Motion Dynamics	X	3
Semester Total				20
Semester 4	PHY 250	Waves, Optics, and Thermodynamics		3
	CS 250	Computer Graphics II	X	3
	CS 365	Software Engineering	X	3
	CS 280	Data Structures	X	3
	GAM 250	Project II	X	4
	MAT 250	Linear Algebra	X	3
	Semester Total			
Semester 5	CS 300	Advanced Computer Graphics I	X	3
	CS 260	Computer Networks I: Interprocess Communication	X	3
	CS 330	Algorithm Analysis	X	3
	MAT 258	Discrete Mathematics	X	3
	CG 130	3D Computer Animation Production I		3
	GAM 300	Project III	X	5
Semester Total				20

SEMESTER	COURSE	COURSE TITLE	CORE*	CREDITS
Semester 6	Math Elective	MAT 256 or any MAT course greater than 300	X	3
	CS 350	Advanced Computer Graphics II	X	3
	CS 315	Low-level Programming	X	3
	Computer Science Elective	Any 200-level or higher CS course not required	X	3
	GAM 350	Project III	X	5
	Open Elective	An elective of the student's choice from any department at DigiPen		3
	Semester Total			
Semester 7	ART and MUS Elective	Select one: ANI 125, ART 400, ART 410, FLM 115, FLM 151, FLM 152, or MUS 115		2
	ART 210	Art Appreciation		2
	English Elective	One English elective chosen from any ENG course, ENG 116 and above		3
	Computer Science Elective	Any 200-level or higher CS course not required	X	3
	Math Elective	MAT 256 or any MAT course greater than 300	X	3
	GAM 375	Advanced Project	X	5
	Open Elective	An elective of the student's choice from any department at DigiPen		2
Semester Total				20
Semester 8	English Elective	One English elective chosen from any ENG course, ENG 116 and above		2
	Computer Science Elective	Any 200-level or higher CS course not required	X	3
	Computer Science Elective	Any 200-level or higher CS course not required	X	3
	GAM 450	Project IV	X	5
	Open Elective	An elective of the student's choice from any department at DigiPen		3
	HSS Elective	One humanities and social science elective from any three-credit HIS, PSY, or SOS courses		3
Semester Total				19
Degree Total				154 minimum

*Note: Please see the previous section for an explanation of core courses.

Bachelor of Fine Arts in Digital Art and Animation

[Updated: November 2015]

[Total credit reduction to 131 credits and consequent revisions.]

Program Overview

The Bachelor of Fine Arts in Digital Art and Animation degree program is a four-year undergraduate degree program designed to prepare artists for a career in the entertainment industry. In this program artists are challenged to tell visual stories through games, short films, and narrative illustrations. This begins with a strong foundation in fine arts, animation, film, and digital arts. These topics are applied in cinematic projects and game projects following pipelines adapted from the professional world. An artist may choose to specialize in a specific field through individual projects, team-based projects, and other coursework.

Graduates of the Bachelor of Fine Arts in Digital Arts and Animation degree program have utilized software packages and technical tools common to the industry. In addition, they will have developed strong interpersonal communication skills and critical thinking strategies. These skills are augmented by general education courses ranging from programming and natural sciences to ethics and intellectual property.

Graduates of the program are prepared for the following entry- and intermediate-level positions: 2D Animator, 3D Animator, Character Modeler, Environment and Asset Modeler, Technical Artist, Concept Artist, Illustrator, UI Designer, Rigger, Lighter, Texture Artist, Scene Planner, Composer, Match-move Artist, Visual Effects Artist, Simulation Artist, Storyboard Artist, Maquette Sculptor, Producer, Project Manager, Web Designer, and Art Instructor.

Degree Requirements

NUMBER OF CREDITS AND GPA

The Bachelor of Fine Arts in Digital Art and Animation requires completion of at least 131 credits with a cumulative GPA of 2.0 or better. The program usually spans eight semesters of 15 weeks each, or four academic years.

GRADE REQUIREMENT AND CORE COURSES

Core courses, both required and elective, must be passed with a final grade of "C-" (or 1.7 quality points) or higher. Certain required courses are survey or introductory courses, which include PHY 115, SOS 115, CS 115, and LAW 115. They are considered to be non-core courses; therefore credit is given if the class is passed with a grade of "D" (or 1.0 quality points) or higher.

ANIMATION

The following courses are required: ANI 101 and ANI 151. (Total: 6 credits)

ART

The following courses are required: ART 101, ART 115, ART 120, ART 125, ART 130, ART 150, ART 151, ART 200, ART 201, ART 251, ART 300, ART 350, ART 401, and ART 450. (Total: 42 credits)

COMPUTER GRAPHICS

The following courses are required: CG 201, CG 225, CG 275, and CG 300. (Total: 12 credits)

FILM

The following courses are required: FLM 115 and either FLM 201 or FLM 210. (Total: 6 credits)

HUMANITIES AND SOCIAL SCIENCE

The following courses are required: COL 101, COL 230, COM 250, LAW 115, SOS 115, ENG 116, and any ENG elective 150 or higher. (Total: 17 credits)

PROJECTS

The following courses are required: PRJ 101, PRJ 201 or PRJ 202, PRJ 251 or PRJ 252, PRJ 300, PRJ 350 or PRJ 352, PRJ 400 or PRJ 402, and PRJ 450. Please note that internship courses INT 390 and INT 450 may be taken in place of PRJ 400, PRJ 402, and PRJ 450. (Total: 27 credits)

SCIENCE

The following courses are required: CS 115 and any 3 credit course with the PHY designation. (Total: 6 credits)

ELECTIVES

Students must take one open elective, one general education elective, and three designated electives from any of the following 300 level or higher courses: ART, ANI, FLM, or CG. The following courses are excluded: ART 102, ART 126, ART 210, ART 400, CG 102, CG 125, and CG 130. (Total: 15 credits)

NOTE ON GENERAL EDUCATION COURSES

The following courses satisfy the general education requirement for the BFA in Digital Art and Animation: ART 115 (3), ENG 116 (3), any ENG elective 150 level or higher (3), FLM 115 (3), LAW 115 (3), SOS 115 (3), CS 115 (3), COM 250 (3), and any 3 credit course with the PHY designation (3). Additionally, students must take a general education elective (any ENG, LAW, HIS, SOS, PSY, or MAT course) (3). (Total: 30 credits)

Recommended Course Sequence for the Bachelor of Fine Arts in Digital Art and Animation

SEMESTER	COURSE	COURSE TITLE	CORE*	CREDITS
Semester 1	ANI 101	Animation Basics I	X	3
	ART 101	The Language of Drawing I	X	3
	ART 125	Tone, Color, and Composition I	X	3
	ART 115	Art and Technology	X	3
	ENG 116	Storytelling	X	3
	COL 101	College Life and Academic Skills	X	1
	Semester Total			
Semester 2	ANI 151	Animation Basics II	X	3
	ART 120	Language of Drawing II	X	3
	ART 130	Tone, Color, and Composition II	X	3
	ART 151	Life Drawing I	X	3
	ART 150	Human Anatomy	X	3
	PRJ 101	The Basics of Production	X	3
	Semester Total			
Semester 3	ART 201	Life Drawing II	X	3
	CG 201	Introduction to 2D Computer Graphics	X	3
	CG 225	Introduction to 3D Computer Graphics	X	3
	FLM 115	History of Film and Animation	X	3
	PRJ 201 or PRJ 202	2D Animation Production or Game Art Project I	X	4
	Semester Total			
Semester 4	COL 230	College Success for Artists	X	1
	ART 251	Character Design	X	3
	ART 300	Perspective, Backgrounds, and Layouts	X	3
	ART 350	Storyboards	X	3
	CG 275	Introduction to 3D Animation	X	3
	PRJ 251 or PRJ 252	2D Animation Production or Game Art Project I	X	4
	Semester Total			
Semester 5	DAA Elective	300 level or higher: ART, ANI, FLM, or CG	X	3
	FLM 201 or FLM 210	Cinematography or Cinematography for Visual Effects	X	3
	ART 200	Animal Anatomy	X	3
	CG 300	3D Environment and Level Design	X	3
	PRJ 300	3D Production Pipeline	X	4
	Semester Total			
Semester 6	DAA Elective	300 level or higher: ART, ANI, FLM, or CG	X	3
	DAA Elective	300 level or higher: ART, ANI, FLM, or CG	X	3
	CS 115	Introduction to Scripting and Programming		3
	COM 250	Professional Communication		3
	PRJ 350 or PRJ 352	Cinematic Production or Game Art Project II	X	4
	Semester Total			

SEMESTER	COURSE	COURSE TITLE	CORE*	CREDITS
Semester 7	ART 401	Conceptual Illustration and Visual Development	X	3
	ART 450	Portfolio	X	3
	PHY Elective	Any 3 credit course with the PHY designation	X	3
	ENG Elective	Any ENG elective 150 level or higher	X	3
	PRJ 400 or PRJ 402	Cinematic Production or Game Art Project II	X	4
	Semester Total			
Semester 8	General Education Elective	Any ENG, LAW, HIS, SOS, PSY, or MAT elective	X	3
	Open Elective	An elective of the student's choice from any department at DigiPen	X	3
	SOS 115	Media and Ethics: A Social Science Perspective		3
	LAW 115	Introduction to Intellectual Property and Contracts		3
	PRJ 450	Career Preparation	X	4
	Semester Total			
Degree Total				131 minimum

*Note: Please see the previous section for an explanation of core courses.

Courses for the BFA in Digital Art and Animation 2015-2016 Cohort

Department of Animation and Production

ANIMATION COURSES

ANI 101 **Animation Basics I** (3 cr.)

Prerequisite(s): None

This course introduces the principles of animation through a variety of animation techniques. Topics include motion research and analysis, effective timing, spacing, volume control, stagecraft, and choreography. Weekly screenings of classic animation are held, followed by in-class critiques.

ANI 151 **Animation Basics II** (3 cr.)

Prerequisite(s): ANI 101

This course explores concepts and techniques of traditional animation. Motion and posing is explored through character development, which includes the expression of personality, mood, thought, and attitude. Emphasis is placed on the refinement of drawings, subtlety of movement, and creativity.

FILM COURSES

FLM 115 **History of Film and Animation** (3 cr.)

Prerequisite(s): None

This course examines the more than 100-year history of film and animation. Beginning with the scientific and technical advances that made these media technologies possible, students explore every major movement and genre as well as their impact on society. The course gives students critical vocabulary required for explaining story, animation, and cinematic techniques.

FLM 201 **Cinematography** (3 cr.)

Prerequisite(s): FLM 115

This course explores camera composition, lighting, and editing techniques through a series of cinematic projects. Topics include 2D and 3D camera moves, film and script analysis, storytelling conventions, choreography, and staging.

FLM 210 **Cinematography for Visual Effects** (3 cr.)

Prerequisite(s): FLM 115

This course focuses on the technical aspects of cinematography and still photography. This includes understanding how images are captured and processed, camera functionality, computer graphics theory, and image analysis.

INTERNSHIP COURSES

INT 390 **Internship I** (5 cr.)

Prerequisite(s): None

Permission of instructor required.

An internship is any carefully monitored work or service experience in which an individual has intentional learning goals and reflects actively on what she or he is learning throughout the experience. It is usually a professional activity under general supervision of an experienced professional and in a job situation, which places a high degree of responsibility on the student. Internships are structured along the Internship Guidelines available in the Administration Office.

INT 450 **Internship II** (5 cr.)

Prerequisite(s): None

Permission of instructor required.

An internship is any carefully monitored work or service experience in which an individual has intentional learning goals and reflects actively on what she or he is learning throughout the experience. It is usually a professional activity under general supervision of an experienced professional and in a job situation, which places a high degree of responsibility on the student. Internships are structured along the Internship Guidelines available in the Administration Office.

PROJECTS COURSES

PRJ 101 **The Basics of Production** (3 cr.)

Prerequisite(s): ART 101, ART 125, ANI 101

This course investigates production pipelines adopted by schools and companies. Topics include career opportunities, best practices and methodologies, efficient workflows, and basic navigation of common industry software. Projects range from small individual assignments to a limited team-based project within a game engine.

PRJ 201 **2D Animation Production** (4 cr.)

Prerequisite(s): ART 120, ART 130, ANI 151, PRJ 101

This course is the first semester of a two-semester traditional animation project. Work is completed in small teams with a special emphasis on physicality. Additional topics include research, visual development, and production pipeline management.

PRJ 202 **Game Art Project I** (4 cr.)

Prerequisite(s): ART 120, ART 130, ANI 151, PRJ 101

This course is the first semester of a two-semester project that focuses on the creation of a simple real-time game or simulation with 2D graphics. Artists work on cross-discipline teams of three or more members. Topics include visual design, game art pipeline, essential development practices, fundamentals of team dynamics, and task prioritization methods.

PRJ 251 **2D Animation Production** (4 cr.)

Prerequisite(s): PRJ 201

This course is the second semester of a two-semester traditional animation project. Work is completed in small teams with a special emphasis on production quality. Topics include cleanup, scanning, coloring, raster and vector-based software, and production pipeline management.

PRJ 252 **Game Art Project I** (4 cr.)

Prerequisite(s): CG 201, PRJ 202

This course is the second semester of a two-semester project and focuses on the creation of a simple real-time game or simulation with 2D graphics. Topics include art polish, visual consistency, formal playtesting, game pacing, and game balance.

PRJ 300 **3D Production Pipeline** (4 cr.)

Prerequisite(s): CG 275, PRJ 251 OR PRJ 252

This course introduces a limited 3D production pipeline through a one-semester individual project. A range of artistic disciplines will be covered, including modeling, texturing, rendering, rigging, and animation. Storyboards and designs for characters, environments, and assets are provided.

PRJ 350 **Cinematic Production** (4 cr.)

Prerequisite(s): ART 300, CG 300, PRJ 300, ENG 116, ART 350

This course is the first semester of a two-semester sequence on the production of a short 2D or 3D film. The course focuses on concept, pre-production, and asset creation in a team environment. Topics include effective presentations, managing scope, and team dynamics.

PRJ 352 **Game Art Project II** (4 cr.)

Prerequisite(s): ART 300, CG 300, PRJ 300, ENG 116, ART 350

This course is the first semester of a two-semester team production of a game. Topics include advanced art pipeline, game engine rendering, visual consistency, and advanced testing techniques.

PRJ 400 **Cinematic Production** (4 cr.)

Prerequisite(s): ART 350, ENG 116, PRJ 350

This course is the second semester of a two-semester sequence on the production of a short 2D or 3D film. With pre-production completed, the sequence continues with final animation, rendering, and post-production. Commercial art direction, quality control, production deadlines, team dynamics, and technical challenges are addressed.

PRJ 402 **Game Art Project II** (4 cr.)

Prerequisite(s): PRJ 352

This course is the second semester of a two-semester team production of a game. Topics include advanced art pipeline, game engine rendering, visual appeal and consistency, user interface design, animation polish, and advanced testing techniques.

PRJ 450 **Career Preparation** (4 cr.)

Prerequisite(s): PRJ 400 or PRJ 402 or INT 390

This course focuses on building portfolios and reels in preparation for the professional world. Emphasis is placed on professional practices, methodologies, and presentation.

Department of Computer Science

COMPUTER SCIENCE COURSES

CS 115 **Introduction to Scripting and Programming** (3 cr.)

Prerequisite(s): None

Credit may be received for CS 115 or for CS 120, but not for both.

This course introduces programming environments to students who are not experienced programmers. This course covers simple logic, programming flow, and the use of variables. It introduces students to the history of programming and the basic vocabulary of the programming industry. The course culminates in a series of hands-on exercises using this knowledge to solve problems. At his or her discretion, the instructor may cover special topics in programming or scripting.

Department of Fine Arts

ART COURSES

ART 101 **Language of Drawing I** (3 cr.)

Prerequisite(s): None

Credit may be received for ART 101 or ART 102, but not for both.

This course explores the nature of drawing as a language skill and the use of drawing by production artists and animators. Topics include applied drawing goals, critical thinking skills, and best practices in drawing practice, drill, and play. Design principles, reference research, and the design process are applied to a series of practical problems. This course also explores drawing materials, drawing strategy, drawing sequence, and linear drawing methodology, practice, and theory.

ART 115 **Art and Technology** (3 cr.)

Prerequisite(s): None

This course provides an overview of art history from Paleolithic times through the modern day. The course examines classical

art materials and methods and traces the technological advances of society and art. It considers the interplay between art and technology and how they have historically impacted society.

ART 120 Language of Drawing II (3 cr.)

Prerequisite(s): ART 101

This course introduces construction drawing as a method to create the sensation of depth and volume in art. Particular attention is paid to planar- and value-based strategies to add a convincing sense of legitimacy and consistency in 2D art and animation.

ART 125 Tone, Color and Composition I (3 cr.)

Prerequisite(s): None

Credit may be received for either ART 125 or ART 126, not both.

This course introduces various methods for activating the picture plane, manipulating the viewer's visual experience, and visually communicating complex ideas and moods. These methods are reinforced through the study and application of light, darkness, value, color-harmony systems, and compositional strategies.

ART 130 Tone, Color, and Composition II (3 cr.)

Prerequisite(s): ART 125

This course builds upon the theories, techniques, and practices introduced in ART 125 while introducing the concepts of analysis and extrapolation in the creation of a visual reference library for implementation in subsequent coursework.

ART 150 Human Anatomy (3 cr.)

Prerequisite(s): ART 101

Corequisite: ART 151

This course explores the skeletal and muscular structures of the human body. Skeletal and muscular forms are identified from both live models and anatomical references. Topics include terminology, structural arrangement, and kinetic function. The course gives special emphasis to adapting this knowledge to the needs of artists and animators.

ART 151 Life Drawing I (3 cr.)

Prerequisite(s): ART 101

This course introduces the challenges of drawing the human form and applying lessons in anatomy to the figure. Life drawing for animation is examined in this course by studying the skeletal structure, muscle form, gesture, and emotion when drawing a live model.

ART 200 Animal Anatomy (3 cr.)

Prerequisite(s): ART 150

This course introduces the major skeletal and muscular structures of animals. Topics include terminology, structural

arrangement, and kinetic function. The course also considers standard locomotion cycles and the relationship between humans and various animals. This course gives special emphasis to adapting this knowledge to the needs of artists and animators.

ART 201 Life Drawing II (3 cr.)

Prerequisite(s): ART 125, ART 151

This course emphasizes drawing the human form from a structural perspective. Strategies for visualizing anatomy are explored. These include identifying bony landmarks and constructing the form through primitives and value. Additional topics include drawing the clothed figure and foreshortening.

ART 251 Character Design (3 cr.)

Prerequisite(s): ART 201, CG 201

This course introduces the traditions of character design and the basic structural strategies for creating animated characters. The course explores simplification gradients relative to human, animal, and inanimate object-based characters. It also considers issues of costume, personality, and story interaction. The course emphasizes professional applications, techniques, and standards of quality. The work completed in this course may serve as pre-production design for PRJ 300, PRJ 350, or ANI 300.

ART 300 Perspective, Backgrounds and Layouts (3 cr.)

Prerequisite(s): ART 201, CG 201

This course explores the animation pre-production skills of background and layout art. It emphasizes professional applications, techniques, and standards of quality. Students are guided through classical depth cue and perspective systems as they apply this knowledge to the creation of animation backgrounds and layouts. Additionally, students explore means of using drawing to create elements such as camera lens illusions, architectural space, theatrical sets, game visual design, matte painting, and surface texture.

ART 350 Storyboards (3 cr.)

Prerequisite(s): ART 201, ENG 116, FLM 115

This course explores the animation pre-production skills of storyboard art. Emphasis is placed on storytelling and cinematography to create both production and presentation storyboards. Drawing is applied as a means to create story-flow, character development, mood, time, and place.

ART 401 Conceptual Illustration and Visual Development (3 cr.)

Prerequisite(s): ART 300

This course explores the animation pre-production skills of conceptual illustration and visual development. Students apply their knowledge of drawing, storytelling, and composition to create speculative drawings for animation. They review

compositional systems, design process, and illustration techniques. Additionally, students explore means of using drawing to visually explore story and character ideas from both existing and original story materials. They also consider adaptation, stylization, and visual variety. The course emphasizes professional applications, techniques, and standards of quality. The work completed in this course serves as pre-production design for PRJ 300, PRJ 350, or ANI 300.

ART 450 Portfolio (3 cr.)

Prerequisite(s): PRJ 350 or PRJ 352

This course explores elements of personal branding and professional portfolio development. Emphasis is placed on visual continuity in the creation of traditional and digital art portfolios, web sites, demo reels, and promotional items. The course also covers strategies for job interviews, contract negotiations, understanding business documents, and exhibiting at trade shows.

Department of Digital Arts

COMPUTER GRAPHICS COURSES

CG 201 Introduction to 2D Computer Graphics (3 cr.)

Prerequisite(s): ANI 151, ART 120, ART 130

This course introduces 2D computer graphics software and practices for digital painting and production. Topics include transition from traditional to digital art, photo editing and manipulation, material studies, critical thinking skills and techniques, conceptualization, and illustration.

CG 225 Introduction to 3D Computer Graphics (3 cr.)

Prerequisite(s): ANI 101, ART 120, ART 130

This course introduces students to 3D software and practices for production. Topics include organization strategies, modeling, unwrapping, texture mapping, rigging, lighting, and cameras.

CG 275 Introduction to 3D Animation (3 cr.)

Prerequisite(s): CG 225, ANI 151

This course explores and exercises the concepts and techniques of 3D animation through a series of assignments applied to characters. The course emphasizes character development in the expression of personality, mood, thought, and attitude through motion and posing.

CG 300 3D Environment and Level Design (3 cr.)

Prerequisite(s): CG 275

This course introduces students to the principles of 3D environment design. Theatrical sets, architectural simulations, and level design are considered. In order to provide students with a broader skill set, this course also presents the mechanics of how to use other 3D animation software, with an emphasis

on the unique strengths of the package. Students explore the comparative strengths of different software packages and the impact that this has on workflow. The course emphasizes critical thinking skills and strategies for tool selection.

Department of Humanities and Social Sciences

COLLEGE SUCCESS COURSES

COL 101 College Life and Academic Skills (1 cr.)

Prerequisite(s): None

This course assists students in developing the classroom and communication skills necessary to succeed in both educational and professional situations.

COL 230 College Success for Artists (1 cr.)

Prerequisite(s): PRJ 201 OR PRJ 202

This course introduces industry research, professional expectations, and requisite levels of proficiency. The course helps identify strengths, skills, interests, and areas for growth and requires the creation of an academic plan.

COMMUNICATION COURSES

COM 250 Professional Communication (3 cr.)

Prerequisite(s): none

This course prepares students for the communication challenges that await them in the professional world. Topics covered may include professional networking strategies, career search materials, self-presentation and interview skills, and effective communication across all levels and functions of the workplace.

ENGLISH COURSES

ENG 116 Storytelling (3 cr.)

Prerequisite(s): None

This course covers the principal elements of storytelling including theme, character, perspective, setting, plot, and dialogue. It emphasizes non-visual media such as short stories, novels, and plays, though visual media including film and video games may be discussed as well.

LAW COURSES

LAW 115 Introduction to Intellectual Property and Contracts (3 cr.)

Prerequisite(s): None

The animation and computer software industries are founded upon the principle of intellectual property. This course introduces students to the social concepts and traditions that

led to the idea of intellectual property. It surveys the various international legal systems governing intellectual property, giving special consideration to Title 17 and the local statutes that govern copyrights, trademarks, and patents in the United States. Students learn fundamental issues surrounding this field, such as fair use, international relations, and economics. The course also introduces students to a basic overview of contracts, including structure, traditions, and vocabulary.

SOCIAL SCIENCES COURSES

SOS 115 Media and Ethics: A Social Science Perspective (3 cr.)

Prerequisite(s): None

This course guides students in the ethical assessment of both the processes and outcomes of social decision-making. After an introduction to basic ethical theories, students acquire an understanding of the structure of social institutions and the process through which one makes social choices. Central to the analysis is a study of ethics as a criterion for assessment of social decision-making with emphasis on the study of particular issues of social choice. The course also provides a theoretical framework within which to spot and analyze ethical issues in the media.