DIGIPEN
INSTITUTE OF TECHNOLOGY

Redmond, Washington

Catalog for the Academic Year
2004/2005

Print Date: September 2004

Notices

Registration:
DigiPen Institute of Technology is authorized by the Washington Higher Education Coordinating Board and meets the requirements and minimum educational standards established for degree-granting institutions under the Degree Authorization Act. This authorization is valid until May 15, 2006 and authorizes DigiPen Institute of Technology to offer the following degrees:

Associate of Applied Arts in 3D Computer Animation
Associate of Science in Real-Time Interactive Simulation
Bachelor of Fine Arts in Production Animation
Bachelor of Science in Computer Engineering
Bachelor of Science in Real-Time Interactive Simulation
Master of Science in Computer Science

Any person desiring information about the requirements of the Act or the applicability of those requirements to the institution may contact the board office at P.O. Box 43430, Olympia, WA 98504-3430.

Accreditation:
DigiPen Institute of Technology is accredited by the Accrediting Commission of Career Schools and Colleges of Technology, a national accrediting agency recognized by the U.S. Department of Education.

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ProjectFUN™ is a trademark of DigiPen (U.S.A.) Corp.

All other product names mentioned in this booklet are trademarks or registered trademarks of their respective companies and are hereby acknowledged.

Important Notices:
*All items including, but not limited to, application forms, transcripts, reference letters, resumes, software, and any accompanying documentation or works of art (collectively "the Items"), forwarded to DigiPen by any person (the "Sender") whether at the request of DigiPen or otherwise, become the exclusive property of DigiPen unless otherwise agreed to in writing by DigiPen, and DigiPen shall be under no obligation whatsoever to return the Items to the Sender. At DigiPen's discretion, the Items may be destroyed after being reviewed.

*DigiPen Institute of Technology reserves the right to make changes to the curricula and calendar without any prior notice.

Caution: The course offerings and requirements of DigiPen Institute of Technology are under continual examination and revision. This catalog is not a contract; it merely presents the offerings and requirements in effect at the time of publication and in no way guarantees that the offerings and requirements will not change. The Institute specifically reserves the right to change requirements for any major during any particular year. Whenever changes in course offerings or requirements occur, students will be notified by a posting outside the Office of the Registrar. The individual student assumes full responsibility for compliance with all current academic requirements. Current course offerings may be obtained from the Office of the Registrar. Current major and degree requirements may also be obtained from the Office of the Registrar.

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Rules and Policies

General Information

Name of the School
DigiPen Institute of Technology

Contact Information
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USA 98052
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Web: www.digipen.edu

Degree Authorization
DigiPen Institute of Technology is authorized by the Washington State Higher Education Coordinating Board (HECB) and meets the requirements and minimum educational standards established for degree-granting institutions under the Degree Authorization Act. This authorization was first received in 1996. HECB authorizes the DigiPen Institute of Technology to offer the following degree programs:

- Associate of Science in Real-Time Interactive Simulation
- Bachelor of Science in Real-Time Interactive Simulation
- Bachelor of Science in Computer Engineering
- Associate of Applied Arts in 3D Computer Animation
- Bachelor of Fine Arts in Production Animation
- Master of Science in Computer Science

Any person desiring information about the requirements of the Act or the applicability of those requirements to the institution may contact the HECB office at P.O. Box 43430, Olympia, WA 98504-3430.

Accreditation
Accreditation is a voluntary system of non-government, self-regulation of the nation's education institutions. Through the accrediting process, institutions and their programs are evaluated and recognized for quality education. This recognition is extended through national, specialized, or regional accrediting agencies who themselves are recognized by the U.S. Department of Education.

Accreditation is a formal status granted to an institution meeting or exceeding stated educational quality criteria. The purposes of accreditation are to assess and enhance the educational quality of an institution, assure consistency in institutional operations, promote institutional improvement, and provide for public accountability.

DigiPen Institute of Technology applied for accreditation with the Accrediting Commission of Career Schools and Colleges of Technology (ACCSCT), recognized by the U.S. Department of Education as a national accrediting agency. One of the steps in the application process is a team visit by the ACCSCT. During the visit, the team met with the institution's administrative staff, faculty, and students to assess its educational programs and overall effectiveness. DigiPen Institute of Technology received three "Items of Excellence" in the Team Summary Report:
- The team commends the school (DigiPen Institute of Technology) for its two innovative training opportunities offsite. The training is to motivate high school students to become more interested in mathematics and sciences through the implementation and programming of video games.

- The team commends the school on its facilities, which provide an environment highly conducive to learning. In addition, extensive equipment in the laboratories is available to students for thirteen hours each day, six days a week.
- The team commends the school for the level of student satisfaction achieved at the school. Specifically, of the students surveyed, 93% (84 of 90) felt good about their decision to attend the school and would recommend the school to a friend.

At its November 2002 meeting, the ACCSCT voted to grant accreditation to DigiPen Institute of Technology.

By becoming an accredited institution, DigiPen has joined in partnership with other educators and institutions committed to providing programs of quality and conducting their affairs with honesty, integrity, and dignity. We take this responsibility seriously and proudly embrace accreditation as a means of continuous self-analysis and the achievement of our educational mission and goals.

Brief History of DigiPen

Founded in 1988, DigiPen began as a computer simulation and animation company. Frustrated with the lack of qualified computer graphics employment candidates, DigiPen decided to offer training in the area of 3D computer animation. After three to four years, the city of Vancouver became known as an excellent source of computer animators. In 1991 discussions with Nintendo of America initiated the idea of offering educational training in the area of computer/video game programming. Nintendo and other video game development companies have constantly expressed the need for qualified game programmers.

With advisory support from Nintendo of America, DigiPen's engineers developed a two-year program with a unique curriculum in video game programming. In 1993 DigiPen Applied Computer Graphics School opened in Vancouver, BC, Canada, offering programs in computer/video game programming as well as continuing the training in 3D Computer Animation. Prior to DigiPen's course offering in video game programming, this type of training was unheard of in North America. The inaugural class graduated in 1996, and nineteen graduates gathered about thirty job offers from various game development companies, such as Nintendo, Iguana, Sierra Online, Konami, Electronic Arts, Bandai Entertainment, Sony of America, etc.

To fulfill the growing number of positions available in the digital entertainment industry, DigiPen decided to offer a unique degree program – a Bachelor of Science in Real-Time Interactive Simulation. As many of DigiPen's students came from the U.S., DigiPen decided to apply to the Washington State Higher Education Coordinating Board for the authorization to grant such a degree. The authorization was received in 1996. Thus, DigiPen Institute of Technology became the world's first and only school that offered a Bachelor degree program dedicated to game programming. DigiPen Institute of Technology was opened in Redmond, WA in January 1998, offering both Bachelor and Associate degree programs in Real-Time Interactive Simulation. In September 1999, DigiPen added an Associate degree program in 3D Computer Animation.

Today we continue to fulfill the needs of the interactive simulation and 3D computer animation industries, encouraging our students to learn the skills and knowledge necessary to succeed in their field of training.

Mission of Institution

The mission of DigiPen Institute of Technology is to offer higher education to those who would like to pursue studies and careers in fields of interactive computer technologies, which include graphics and real-time interactive simulation, and provide highly qualified personnel to the interactive computer industries to sustain their growth and productivity.

Notice of Non-Discrimination

DigiPen Institute of Technology is committed to maintaining a diverse community in an atmosphere of mutual respect and appreciation of differences.

DigiPen Institute of Technology does not discriminate in its educational and employment policies on the basis of race, color, creed, religion, national/ethnic origin, sex, sexual orientation, age, or with regard to the basis outlined in the Veterans' Readjustment Act and the Americans with Disabilities Act.

Program of Studies Offered
Currently, the Institute offers the following degree programs:
- Associate of Science in Real-Time Interactive Simulation
- Bachelor of Science in Real-Time Interactive Simulation
- Bachelor of Science in Computer Engineering
- Associate of Applied Arts in 3D Computer Animation
- Bachelor of Fine Arts in Production Animation
- Master of Science in Computer Science

About our Facilities
DigiPen encompasses over 52,000 square feet of built space, including a library, lunchroom, auditorium, and dedicated computer labs for each cohort of students, as well as additional classrooms for lectures and instruction. For 2004-2005, our largest auditorium can seat up to 100 students in a classroom setting, and our largest lab can hold up to 140 students.

Major equipment items include microphone and LCD projection systems in several of the classrooms, multiple presentation media in the auditorium including VCR, document camera, DVD, Laser Disc, and CD player. Students also have access to recording equipment. Computers currently range in power depending on program requirements. DigiPen upgrades the computer equipment on a regular basis.

Description of the Library Facilities and Internet Access
Library Facilities
The 1,600 square foot library is a place for study, group work, and research. The library currently holds over 1,200 books, 20 magazines and journal subscriptions related to the fields of gaming, simulation, and animation, and over 200 PC and console video games. Over 500 networked computers, located in dedicated computer labs, form an integral part of the library resources available to students.

Internet Access
Internet access is a regulated service. The Institute provides this service to students free of charge. Students may lose this privilege if they do not abide by the Internet Access rules and regulations.

Important Dates

Institutional Calendar

The Institute is closed on all statutory holidays. Exam periods and breaks may be subject to change if necessary.

The laboratory facilities may be closed for a period of two consecutive days per month for maintenance. It is usually the last two working days of the month unless otherwise posted.

Enrollment occurs once a year in September.

Aug. 30 – Sept. 3, 2004	Orientation – First Year Students	
Sept. 6, 2004	Labor Day	No Class
Sept. 7, 2004	Classes Begin – Fall Semester	
Nov. 11, 2004	Veterans Day	No Class
Nov. 25-28, 2004	Thanksgiving	No Class
Dec. 13-17, 2004	Final Exams	
Dec. 17, 2004	Fall Semester Ends	
Dec. 18, 2004-Jan. 2, 2005	Winter Holidays	No Class
Jan. 3-9, 2005	Intersession	No Class
Jan. 10, 2005	Classes Begin – Winter Semester	
Jan. 17, 2005	M.L. King Day	No Class
Feb. 3, 2005	Founder's Day	No Class
Feb. 21, 2005	Presidents Day	No Class
Mar. 7-11, 2005	Spring Break	No Class
Apr. 25-29, 2005	Final Exams	
Apr. 29, 2005	Winter Semester Ends	
May 1, 2005	Commencement	
May 2-May 8, 2005	Intersession	No Class
May 9, 2005	Classes Begin – Summer Session	
May 30, 2005	Memorial Day	No Class
Jul. 4, 2005	Independence Day	No Class
Jul. 25-29, 2005	Summer Session Final Exams	
Jul. 29, 2005	Summer Session Ends	

Deadlines

April 20, 2004	Tuition deposit for Fall Semester due
June 20, 2004	Tuition balance for Fall Semester due
Sept. 13, 2004	Last day to add classes for Fall Semester; Withdrawal deadline for 90% refund
Sept. 17, 2004	Automatic withdrawal date from classes missing pre-requisites Final day to drop class without academic penalty
Sept. 20, 2004	Tuition deposit for Winter Semester due; Withdrawal deadline for 75% refund
Oct. 27, 2004	Final day to withdraw from classes for Fall Semester; 50% refund and a "W" will appear on transcript
Nov. 20, 2004	Balance of tuition for Winter Semester due
Jan. 16, 2005	Last day to add classes for Winter Semester; Withdrawal deadline for 90% refund
Jan. 21, 2005	Final day to drop class without academic penalty
Feb. 5, 2005	Withdrawal deadline for 75% refund

Feb. 15, 2005	Tuition deposit for Summer Session due
March 2, 2005	Final day to Withdraw from classes for Winter Semester; 50% refund and a "W" will appear on transcript
March 20, 2005	Balance of tuition for Summer Session due

Tuition and Fees

All tuition and fees are in U.S. dollars.

Enrollment Application Fee
A $75.00 application fee must accompany the application form. $50.00 of the fee is refundable if the applicant is not accepted to the Institution.

Registration Fee
Upon acceptance into a degree program, a $150.00 non-refundable registration fee must be paid to confirm enrollment.

Tuition

	Undergraduate U.S. Citizen & Resident	Undergraduate Non-U.S. Citizen or Resident	Graduate U.S. Citizen & Resident	Graduate Non-U.S. Citizen or Resident
Cost/Credit	$345.00*	$450.00*	$500.00*	$650.00*
Total Cost B.S. in R.T.I.S. & B.S. in C.E.	$53,130.00* (154 credits)	$69,300.00* (154 credits)	N/A	N/A
Total Cost B.F.A.	$49,680.00* (144 credits)	$64,800.00* (144 credits)	N/A	N/A
Total Cost A.S. in R.T.I.S.	$28,290.00* (82 credits)	$36,900.00* (82 credits)	N/A	N/A
Total Cost A.A.A.	$27,600.00* (80 credits)	$36,000.00* (80 credits)	N/A	N/A
Total Cost M.S. in C.S.	N/A	N/A	$15,000* (30 Credits)	$19,500* (30 Credits)

*Tuition is subject to change with 6 months notice.
Students re-registering for a failed course must pay the regular course fees.

Tuition Fee Payment
Please see the payment schedule in your student enrollment agreement for dates and amounts due. The payment of tuition and all associated fees is the sole responsibility and obligation of the registering student. Tuition increases will be announced six months before taking effect.

Late Registration Fee
Students are responsible for registering for classes each semester by the posted date. All late class registrations will cost $100.00 to cover administrative costs due to late registrations.

Books
Text and reference books are estimated to be approximately $700.00 per year. This cost is not included as a part of the tuition.

Parking
On-campus parking is available for $320.00 per academic year. Please see the Administration Office for details regarding parking applications.

Administrative Fee
This fee covers a limited number of transcript requests, add/drop requests, late registrations, and re-registrations. This fee is $40.00 per semester for all students.

Technology Fee
This fee covers paper and toner for the student-use printers and maintenance costs associated with the upkeep of the computer labs. This fee is $40.00 per semester for all students.

Graduation Fee
This $60.00 fee covers the cost of the graduation gown, graduation application, degree audit, and graduation ceremony. This fee must accompany the graduation application.

Transfer and Waiver Fees
Course transfers and waivers are processed at $25.00 per credit. Waiver exams, when required, have an associated $100.00 fee.

Course Fees
Some courses may require lab or material fees. Please refer to course descriptions on course registration forms.

Cancellation and Refund Policies 2004-2005

Tuition Refund Schedule
Registration fees are non-refundable.

Students who submit an official withdrawal in writing or who are determined by the Administration to have withdrawn from the Institute:
- Before the beginning of classes are entitled to a tuition refund of all money paid towards tuition for the upcoming semester.
- Before the close of the seventh calendar day after the beginning of classes must pay 10% of the semester's tuition. Any portion of tuition paid above this percentage will be refunded.
- Before the close of the 27th calendar day of the semester must pay 25% of the semester's tuition. Any portion of tuition paid above this percentage will be refunded.
- Before the close of the 52nd calendar day of the semester must pay 50% of the semester's tuition. Any portion of tuition paid above this percentage will be refunded.
- After the 52nd calendar day of the semester must pay 100% of the semester's tuition.

All other assessed fees are refunded on the same schedule as tuition payments.

Termination Date
The termination date for refund purposes for institutional withdrawal is the last date of actual attendance by the student. The termination date for refund purposes for withdrawal from individual classes is the date of receipt of the appropriate withdrawal form. Notice of cancellation or withdrawal should be given by completing the appropriate withdrawal form, whether it is withdrawal from the Institute or from specific classes for which the student is registered.

If the student's account remains delinquent for over 30 days, the Institute reserves the right to cancel the student's registration. Late tuition payments are subject to an interest charge of 1% per month or 12% per annum.

Special Cases
In the documented event of prolonged illness or accident, death in the family, or other special circumstances that make it impractical to complete the program, the Institute shall make a settlement that is reasonable and fair to both parties. These will be judged on a case-by-case basis.

Application of Policy
Any monies due the student shall be refunded within 60 days from the last date of student attendance or within 60 days from the date of receipt of payment in the event that the date of such receipt is after the student's last date of attendance.

If a student's financial obligation is not fulfilled, the Institute is authorized to do the following until the owed monies are paid:
- Withhold the release of the student's academic records or any information based upon the records.
- Withhold the issue of the student's transcripts.

If the student's account remains delinquent, the Institute reserves the right to cancel the student's registration. Late tuition payments are subject to an interest charge of 1% per month or 12% per annum.

Financial Assistance

Federal Student Financial Aid
As a Title IV institution, DigiPen offers several federal student financial aid options to eligible students, including the Pell Grant, Stafford Loan, and PLUS Loan programs. Students interested in receiving federal aid should complete the Free Application for Federal Student Aid (FAFSA) using the school code 037243, as well as the DigiPen Financial Aid Application. Alternative loans are also available through KeyBank, TERI, and Educaid. Information on all financial aid options may be found on the financial aid page of the DigiPen website.

Veterans Benefits
DigiPen Institute of Technology's academic programs of study are approved by the Higher Education Coordinating Board's State Approving Agency (HECB/SAA) for enrollment of persons eligible to receive educational benefits under Title 38 and Title 10, US Code.

The Associate of Applied Arts degree program is approved by the Workforce Training and Education Coordinating Board for the training of veterans and other eligible beneficiaries under Chapters 30, 32, and 35, Title 38; and Chapter 1606, Title 10, US Code.

Applying to DigiPen

Part-Time Studies
Part-time study may be available for the upcoming school year. Please inquire with the Registrar's Office to determine course availability.

Admission to the Programs of Study
The Institute determines eligibility for acceptance into a program. In general, admission is competitive; those who exceed the minimum admission requirements are more likely to be accepted into the program.

Undergraduate Application Process
All undergraduate applicants must submit the following:
1. DigiPen Institute of Technology Application for Admission.
2. $75.00 application fee (U.S. funds only).

3. Official high school transcripts or official GED/equivalency scores.
4. Official transcripts from ALL post-secondary institutes attended (if applicable). This includes transcripts for high school concurrent enrollment programs.
5. Official SAT or ACT exam scores.
6. Two letters of recommendation from professors, employers, or other supervisory individuals. Letters from family members will not be considered.
7. Personal statement. Guidelines for the personal statement will be included on the application checklist.
8. Other official documentation. This includes but is not limited to: TOEFL scores, copy of Permanent Resident card, etc.
9. Portfolio (3D Computer Animation and Production Animation applicants only).

Real-Time Interactive Simulation (A.S. & B.S.) and Computer Engineering (B.S.)
Minimum Admission Requirements:
1. Proficiency in the English language. Non-native English speakers must provide a minimum TOEFL score of 550 (paper exam) or 213 (computer exam).
2. Completed grade 12 or the equivalent with a minimum 2.5 cumulative GPA.
3. B average or 3.0 GPA in mathematics courses including Algebra, Geometry, Algebra II/Trigonometry, Pre-Calculus (at minimum), plus Calculus/AP Calculus if possible. Other courses that will be considered include Physics, Chemistry, and Computer Science.

Entrance Examination
Applicants who no not meet the minimum requirements for admission to the RTIS program may be invited to take the DigiPen entrance examination. This exam is given at DigiPen's sole discretion in order to ensure that applicants have the background in mathematics necessary for success in our programs.

Applicants taking the entrance examination are competing for a limited number of seats; therefore, a passing grade on the exam does not guarantee acceptance to the program. Furthermore, the entrance examination may not be available if more eligible students have already filled the designated number of seats.

3D Computer Animation (A.A.A.) and Production Animation (B.F.A.)
Minimum Admission Requirements:
1. Proficiency in the English language. Non-native English speakers must provide a minimum TOEFL score of 550 (paper exam) or 213 (computer exam).
2. Completed Grade 12 or high school equivalence with a minimum of a 2.5 overall GPA.
3. Supply 10 to 20 samples from their art portfolio for competitive review. Fifty percent of the student's portfolio should demonstrate his or her artistic range and skill. Samples of animation, figure/animal studies, character designs, architectural renderings, landscape studies, sculpture, and painting are preferred. The second half of the portfolio must be drawings from direct observation. This work may not be from photos or other 2D reference or from the student's imagination. If necessary, DigiPen may request more samples for review. Submissions will not be returned.

Graduate Application Process
All graduate applicants must submit the following:
1. DigiPen Institute of Technology Application for Admission.
2. $75.00 non-refundable application fee (U.S. funds only).
3. Official Graduate Record Examination (GRE) scores for the General Test **and** the Subject Test in Computer Science. GRE code: 4193.
4. Official transcripts from ALL colleges and universities attended.
5. Two letters of recommendation from professors, employers, or other supervisory individuals. Letters from family members will not be considered.

6. Statement of Purpose. Guidelines for the Statement of Purpose will be included on the application checklist.
7. Other official documentation. This includes but is not limited to: TOEFL scores, copy of Permanent Resident card, etc.

Computer Science (M.S.)
Minimum Admission Requirements:
1. Proficiency in the English language. Non-native English speakers must provide a minimum TOEFL score of 550 (paper exam) or 213 (computer exam).
2. Have completed a Bachelor's degree in Computer Science or a related field with a minimum of a 2.5 cumulative GPA.

Admission/Denial to the Program
Accepted applicants will receive an enrollment packet via standard mail. This packet will include an enrollment agreement, information on financial aid, student services information, and, if applicable, a request to furnish proof of high school graduation before the start of classes in the fall. By returning the signed enrollment agreement, proof of high school graduation, and the enrollment fee, an applicant has confirmed enrollment.

Applicants who are not accepted to the Institute will receive a letter of denial by mail. If an applicant is denied admission to an undergraduate program, $50.00 of the application evaluation fee will be refunded to them.

Passing Classes and Graduation
In addition to the pre-requisites set forth in the Catalog, Associate of Arts students must successfully complete all 100 level PRJ courses in order to proceed to any 200 level courses. All students must have a cumulative GPA of at least 2.0 to graduate.

Waiver, Credit, AP Examinations, CLEP, and Other Credit

Students who can demonstrate that their knowledge and skills are equivalent to those gained by courses offered at DigiPen Institute of Technology – whether they were gained by formal education, exam, work experience, or life experience – may apply for academic credit or course waivers. Credit may be granted through other means: Advanced Placement (AP) Exam scores, International Baccalaureate courses, College-Level Examination Program (CLEP) subject exam scores, or transfer credits from other post-secondary institutions. A maximum of 9 credits per semester may be earned by these means. In all cases, no less than 75% of a student's total program must be taken at DigiPen. Course transfers and waivers are processed at $25.00 per credit. Waiver exams, when required, have an associated $100.00 fee.

Course Waiver Examinations
A student may meet an academic requirement, within specified limits, by passing a waiver examination at least equal in scope and difficulty to a final examination in a course. Successful completion of the examination waives the curricular requirement but does not result in credit earned. Rather than reducing the total number of semester hours required for a degree, it will increase the available number of elective hours. The department in which the course is offered considers waiver requests at its discretion. Waiver examinations must be taken prior to the final semester of residence and may not be repeated.

Students have the opportunity to waive designated core courses by demonstrating mastery of the material in two steps:
1. A waiver petition to the respective department, indicating prior academic coursework and relevant work experience in the subject area; and

2. Performance on a placement exam offered by the respective department at the beginning of each term.

To petition to waive a core course, the student must complete a waiver request form for each course, attach a transcript or photocopy of transcript with relevant coursework highlighted, to each waiver request, and submit the requests to the Registrar. Copies of the waiver request form are available from the Registrar. Each department will designate the courses for which a waiver exam or credit exam may be offered.

For waiver requests received by July 1, students will receive notification by August 1. Waiver requests arriving in the Registrar's Office after July 1 will be handled on a rolling basis, at faculty convenience. Because of faculty schedules, results of waiver requests received after the deadline are not guaranteed to be available before the start of classes.

It is not possible to predict the results of faculty review of core course waiver requests. Core courses generally include intermediate level material so a student who has completed only introductory work in a subject is not likely to be granted a waiver. Faculty take many factors into consideration, including the academic caliber of the school where the course was taken, the difficulty of the text, the grade received, and the time elapsed since completion of the course.

The following restrictions apply to all waiver examinations:
1. A student must have an approved waiver request on file before credit by examination can be recorded on the permanent record.
2. A student must be currently enrolled before a waiver examination can be recorded on the permanent record.
3. A maximum of 15 semester hours may be waived toward a baccalaureate degree and a maximum of 9 semester hours may be waived toward an associate degree.
4. Examinations may not be repeated.
5. Repeat course work and F grades are not open to waiver requests.
6. Students may not take waiver examinations on courses they have audited.

Advanced Placement Examination
Waiver hours or credit may be earned by successful completion of an Advanced Placement examination in the last ten years. These tests are graded on a scale of one to five.

Course waivers or credit may be granted for satisfactory attainment on Advanced Placement Exams of the College Entrance Examination Board. An exam score of four or above earns from three to six course waiver hours or credit. No grades will be assigned to the courses, nor will they be figured into a student's grade point average. Courses waived or transferred are entered on students' transcripts, but no grades or quality points are awarded. Official results must be sent to the Registrar for analysis before course waivers or transfers are granted.

A maximum of two courses may be waived or transferred through AP examinations, which may be applied to satisfy DigiPen's degree requirements. The examinations and the courses for which waiver hours or credit are granted are listed below. Waiver/credit granted for a specific course count toward the satisfaction of any requirement toward which the listed course counts.

AP Exam	Score
Art – History of Art	4
English – Composition	4
English – Creative Writing	4
English – Literature	4
Mathematics – Calculus AB	4
Mathematics – Calculus BC	4
Physics – Physics	4

International Baccalaureate (IB)

In general, three semester credit hours are waived for each Higher Level subject in which a score of five or greater was earned in the last ten years.

The IB courses and scores listed below are eligible for waiver hours at DigiPen.

Course & Level	Score
Computer Science – HL	5, 6, 7
English (A1 & A2) – HL	5, 6, 7
Mathematics – HL	5, 6, 7
Philosophy – HL	5, 6, 7
Psychology – HL	5, 6, 7
Social Anthropology – HL	5, 6, 7
Theatre Arts – HL	5, 6, 7

College-Level Examination Program (CLEP)

There are two types of CLEP examinations, General and Subject. DigiPen grants credit for Subject Examinations only. These tests may not be repeated. Examination must be taken prior to the student's completion of a total of 40 hours of college credit.

CLEP offers a number of subject-matter examinations. Students obtaining the percentiles established by the mathematics, computer science, and general education departments will receive credit toward that basic requirement. Students wishing credit in courses other than those listed above should consult the appropriate departmental chair.

Credit or course waivers may be granted for satisfactory attainment on Subject Examinations of the College-Level Examination Program (CLEP) of the College Entrance Examination Board. These tests may be taken at any of a number of test sites, and the responsibility for scheduling such examinations is the student's. Credit will be given only in those areas in which comparable courses are offered at DigiPen. For further details and information concerning test centers and dates, students should check with the College Board at www.collegeboard.org. Hours granted or courses waived are entered on students' transcripts, but no grades or quality points are awarded. Official results must be sent to the Registrar for analysis before credit or course waivers are granted.

DigiPen Institute of Technology will grant credit to students who pass the CLEP Subject Examinations approved by the department appropriate to the examination. The score necessary to receive credit through a Subject Examination will be the mean score achieved by C students in the national norms sample. The appropriate department will determine the number of course credits to be given for passing a Subject Examination.

Transfer Credit

Credit earned by examination at other colleges or universities in the last ten years may be transferred provided such credit meets the guidelines used by DigiPen Institute of Technology.

The Registrar will evaluate college credits earned elsewhere with respect to curricular requirements at DigiPen. Transfer credit is granted for academic classes appearing on official transcripts of post-secondary institutions in which students earn a grade of B or better. Transfer credit is not granted for developmental classes, orientation classes, or for classes in which a student receives a Pass. Current DigiPen students are advised to confer with the Registrar prior to enrolling in course work at other institutions if they intend that the credit be applied toward graduation from DigiPen. Class standing of transfer students will be based on the number of credits accepted for transfer. Hours earned and courses waived are entered on transcripts, but no grades or quality points are awarded. Students who wish to

have transfer credit applied to their major at DigiPen may be required to take a challenge exam for that course.

Transfer credit may be accepted subject to the following conditions and restrictions:
1. The course(s) offered for transfer must be taken at an accredited institution.
2. The course(s) must be comparable in academic quality to DigiPen courses; transfer credit will be denied for courses not meeting this standard. Accordingly, current students are strongly urged to seek transfer approval from their advisor and the Registrar using the form provided for this purpose prior to enrollment in any course for which transfer approval might be sought.
3. Transfer credit will be considered for courses in which the grade of B or better is recorded.
4. Courses transferred to a student's major may also require a validation examination in order to be accepted.
5. Credit or Pass grades will not be accepted for transfer.

If a course is accepted for credit, it will be counted as a transfer credit. No grade points from such transfer courses will be calculated in the DigiPen grade point average. However, grades transferred for courses taken in residence at institutions for which DigiPen has direct, formal institutional exchange agreements are exempt from this policy and will be recorded. Courses transferred in may not be used to substitute improved grades for passing grades earned at DigiPen.

Validation Examinations and Course Challenges
Students who have transcripts from non-accredited colleges and/or transcripts showing nontransferable college courses from the last ten years may request to take validation examinations in courses which are comparable to those offered by DigiPen. Upon successful completion of the examination(s), the student will be given waiver credit as specified.

Departments may designate certain courses involving primarily substantive materials or technical proficiencies as challenge courses. A student at the appropriate level of classification may, with the approval of the department chair, challenge the course by taking an examination. If the student makes a satisfactory grade on the examination, waiver credit for the course will be given.

A challenge examination is a college-prepared or standardized examination that, if successfully completed, will yield waiver credit. The student must take the examination before enrolling for further study in his or her program. The challenge examination may not be repeated and must be taken prior to the final semester of residence.

Credit Evaluation Forms
Application forms for challenge, and/or waiver examinations may be obtained from the Registrar or online. A student must have approval for an exam prior to taking an exam.

Transferability of Credits to Other Institutions
DigiPen will furnish transcripts and other documents necessary for a receiving institution to judge the quality and quantity of a student's work. The Institute advises all prospective students that the work reflected on their transcript may or may not be accepted by a receiving institution. Students should inquire with the specific receiving institution about transferability of Institute credits.

Granting Credits for Experience
At this point the Institute does not grant credits for experience.

Standards of Progress

Semester Credit Hour

The semester credit hour (sch) is the basic unit of credit. As a rule, one semester credit hour of academic credit is given for each lecture class hour per week for a fifteen-week semester. In laboratory or studio situations, one semester credit hour normally is given for two to five contact hours per week for a fifteen-week semester. In addition, undergraduate students typically will be expected to spend two hours in preparation outside of class for each lecture or recitation hour; additional outside work may be required for laboratory or studio classes. During shorter summer sessions, the student earns semester credit hours for class contact hours that are essentially equivalent in number to those provided in the regular semesters. Where semester hour is used in this Catalog, it is synonymous with semester credit hour (sch).

Grading System

The following grading system is in use and, except where otherwise specified, applies both to examinations and term work. The weight of a final examination grade is a matter individually determined by each instructor. See the following Grade Point Average section for additional information.

A Excellent = 4.0 quality points
A- Excellent = 3.7 quality points
B+ Good = 3.3 quality points
B Good = 3.0 quality points
B- Good = 2.7 quality points
C+ Fair = 2.3 quality points
C Fair = 2.0 quality points
C- Fair = 1.7 quality points
D Poor = 1.0 quality points lowest passing grade, failing grade for major
F Failure = 0 quality points
FN Failure for Never Attending = 0 quality points
FS Failure for Stopping Attendance = 0 quality points

Grade A

A distinguished grade for superior work:
1. You mastered the content and objectives of the course, can apply what you learned to new situations, and can relate it to other knowledge.
2. You consistently distinguish yourself in examinations, reports, projects, class participation, and laboratory or training situations.
3. You show independent thinking in assignments and class discussion.
4. Your work is consistently in proper form, shows satisfactory evidence of careful research (where required), and is submitted punctually.
5. Where achievement in the course involves development of analytical skills, you consistently demonstrate superior skills, ability, and performance.
6. You complied with the instructor's attendance requirements.

Grade B

A better-than-acceptable grade:
1. You consistently show mastery of the course content and objectives and usually apply what you learned to new situations or related it to other knowledge.
2. Your work is in proper form, shows satisfactory evidence of research (where required), and is submitted punctually.
3. Where achievement in the course involves development of analytical skills, you consistently demonstrate above average skills, ability, and performance.
4. You complied with the instructor's attendance requirements.

Grade C
An acceptable grade permitting progress forward in course sequence:
1. You show evidence of a reasonable comprehension of the subject matter of the course and have an average mastery of the content sufficient to indicate success in the next course in the same field.
2. You consistently make average scores in examinations, reports, projects, class participation, and laboratory or training situations.
3. If the subject carries transfer credit, your work indicates sufficient competence in the content to continue in the subject field upon transfer.
4. You complete your assignments in good form and on time.
5. Where achievement in the course involves development of analytical skills, you consistently demonstrate average skills, ability, and performance.
6. You complied with the instructor's attendance requirements.

Grade D
A less-than-acceptable, passing grade; failing grade for core courses in your major:
1. You fall below the average in examinations, projects, reports, class participation, and laboratory or training situations, but show some competence in the assigned subject matter of the course.
2. The competence demonstrated is insufficient to indicate success in the next course in the subject field.
3. Assignments are completed in imperfect form, are sometimes late, or of inconsistent quality.
4. Where achievement in the course involves development of analytical skills, you consistently demonstrate below-average skills, ability, and performance.
5. You complied with the instructor's attendance requirements.

Grade F
A failing grade:
1. With respect to examinations, projects, reports, class participation, and laboratory or training situations, you fail to perform at the D grade level.
2. You show little or no competence in the assigned subject matter of the course.
3. Where achievement in the course involves development of analytical skill, you fail to perform at the D or above grade level.
4. You did not comply with the instructor's attendance requirements.

Grade FN – Failure for Never Attending
Given when a student has officially registered but never attended and never dropped.

FS – Failure for Stopping Attendance
Given when a student stops attending but never officially drops a course.

The following grades do not affect the GPA:
AU – Audit
Indicates course was attended without expectation of credit or grade.

I – Incomplete
The Incomplete is intended for use when circumstances **beyond a student's control** prohibit taking the final exam or completing course work. The Incomplete is not intended as a mechanism for allowing a student to retake a course. A student who has fallen substantially behind and needs to repeat a course can drop the course prior to the end of the eighth week of classes. Otherwise, the instructor should assign the appropriate final grade (D or F, for example).

An Incomplete may not be used simply to allow a bit more time for an undergraduate student who has fallen behind for no good reason. An I may be granted only to students who have a legitimate excuse. Examples of unacceptable reasons for approving an Incomplete include the need to rewrite a paper, the

demands of a time-consuming job, the desire to leave town for a vacation or family gathering, the desire to do well on tests in other courses, and the like.

The I indicates one of the following two circumstances:
1. Some work remains to be completed to gain academic credit for the course. An I is assigned in the first instance at the discretion of the instructor. This assignment shall not be automatic but shall be based upon an evaluation of the student's work completed up to that point and an assessment of the student's ability to complete course requirements within the allowed time limit. Work to remove an I must be performed within the 12 months following the last day of the semester in which the I is incurred or earlier if the instructor so requires. When such work is completed, the instructor will assign a final grade for the course. Should the work not be completed, the instructor will assign a final grade based on required material submitted to date.
2. When work is not completed because of documented illness or other "emergency" occurring after the eighth week of the semester.

Registrar's Note: An "emergency" is formally defined as a situation or event which could not be foreseen and which is beyond the student's control, preventing the student from taking the final examination or completing other work during the final examination period. Also note that as previously defined, a student may not request an I before the end of the eighth week; the rationale is that the student still has the option to drop the course until the end of the eighth week. The grade I exists so there is some remedy for illness or emergencies that occur **after** the drop deadline.

Arrangements for the grade of I and its completion must be initiated by the student and agreed to by the instructor prior to the final examination. An Assignment of Final Grade for Completion of an Incomplete (I) Form must be completed each time a grade of I is assigned. On the form, the instructor will specify to the student and the department the work remaining to be done, the procedures for its completion, the grade in the course to date, and the weight to be assigned to work remaining to be done when the final grade is computed.

If make-up work requires classroom or laboratory attendance in a subsequent term, the students should not register for the course again; instead, the student must audit the course and pay audit fees. If the make-up work does not require classroom or laboratory attendance, the instructor and student should decide on an appropriate plan and deadline for completing the course.

When the student completes the course, the instructor will submit a change of grade to the Registrar's Office. These procedures cannot be used to repeat a course for a different grade. An I grade should not be assigned to a student who never attended class; instead, instructors may assign a failing grade.

W – Withdrawal
Indicates withdrawal from the course before the end of the eighth week of classes or withdrawal from the Institute. The grade of W will not be assigned to any student who has taken the final examination in the course. An instructor may not withdraw a student from a course.

S – Satisfactory
Given only in non-credit courses.

U – Unsatisfactory
Given only in non-credit courses.

P – Pass
Given for internship courses and to students who successfully challenge classes for credit or waiver.

Grade Reports
Reports of the final grade in each subject will be mailed to the student soon after the close of each semester. However, grade reports are withheld from students who have delinquent accounts with the Administration Office, Security, or Library.

Grade Point Average
The academic standing of each student is determined on the basis of the grade point average (GPA) earned each semester. The GPA is determined by using the quality points assigned to each student's grade.

The quality point value for each grade earned during a semester is multiplied by the number of credit hours assigned to that course as listed elsewhere in this catalog. The sum of these points is the total number of quality points earned during the semester. This sum is divided by the number of credit hours attempted (hours from courses with grades of A through FS) to obtain the GPA.

The cumulative GPA is obtained by calculating the GPA for all courses attempted at DigiPen. Course grades of AU, I, W, S, U, and P are non-punitive grades. They are not calculated in the overall GPA since they carry no quality points.

The following example will help you calculate your grade point average:

Course	Credits	Grade	Points
CS 100	3	A	12.0 (3 x 4.0)
MAT100	4	A-	14.8 (4 x 3.7)
CS 105	3	B	9.0 (3 x 3.0)
ENG110	3	D	3.0 (3 x 1.0)
CS 120	3	B+	9.9 (3 x 3.3)
TOTALS	16		48.7

Total grade points divided by total credits equals the cumulative grade point average. Therefore, the grade point average for the above example is 48.7 divided by 16 for a 3.04 GPA.

Satisfactory Progress
Satisfactory progress toward a degree by a full-time student is defined as a **full attempt** of 24 credits during an academic year. This should include registration for at least 12 credits per semester and successful completion of at least 12 credits per semester. Full attempt is defined as the receipt of a final letter grade (A to FS) but not the receipt of a W or an I. Successful completion is defined as the receipt of a passing letter grade (A to C- in the major core courses and A to D in non-major courses). Core Courses and non-major courses are denoted under each individual degree program's "recommended sequence of required classes" outline. The Registrar makes decisions on student status.

A program of study must be completed within a reasonable period of time to be eligible for graduation; that is, the credit hours attempted cannot exceed 1.5 times the credit hours required to complete the program. Full-time students who do not complete their studies during this time frame will be withdrawn from the Institute by the Registrar.

Undergraduate Students
To maintain satisfactory progress, undergraduate students must attain a minimum cumulative grade point average at various points in their program of study.

Milestone	Minimum GPA Requirement
At the end of the first semester	1.0 or better cumulative GPA
25% of program (38.5 attempted credits for B.S., 20 attempted credits for A.S. and A.A.A., 36 attempted credits for B.F.A.)	1.5 or better cumulative GPA
50% of program (77 attempted credits B.S., 40 attempted credits for A.S. and A.A.A., 72 attempted credits for B.F.A.)	2.0 or better cumulative GPA
100% of program (154 attempted credits B.S., 80 attempted credits for A.S. and A.A.A., 144 attempted credits for B.F.A.)	2.0 or better cumulative GPA

*An attempted credit is defined as any credit that is awarded a final letter grade (A to FS). Credits earning a W or I are not considered attempted credits.

Appeals involving extenuating circumstances may be addressed to the Dean of Faculty for resolution by an appropriate faculty committee.

Graduate Students
During the course of study, graduate students may not receive more than three C grades and must have an overall 3.0 GPA to graduate.

Grade Changes
The faculty person who administered the grade makes grade changes. In cases where the faculty is not available to consider a grade change, the department chair in consultation with the Dean of Faculty may make such a change. Grade appeals go to the department chair responsible for the course then to the Dean of Faculty.

Repeating Courses
A student may repeat any course in which he or she has not received a passing grade (an A to C- in a core course, an A to D in a non-core course), as long as the student is in good standing with the school and eligible to continue his or her studies.

All grades and attempted classes remain on the student's transcript and are calculated in the student's GPA. Courses in which a student has earned a passing grade may be repeated as audit courses only.

Withdrawing from School and the W Grade
To formally withdraw from classes, the student should submit a written withdrawal notice to the attention of the Admissions office. Withdrawal notice forms may be obtained at the Administration Office. Students below the legal age must have a parent or guardian submit the withdrawal notice.

A student may withdraw from the Institute before the end of the eighth week of instruction of a semester:
1. If a student withdraws before the end of the third week of instruction, no course entries will appear on the student's transcript for that quarter.
2. If a student withdraws after the end of the third week of instruction and before the end of the eighth week of instruction, the registrar will assign a final grade of W to the student for each course in which the student was enrolled at the beginning of the fourth week of instruction.
3. Each student will receive a final grade for each course in which the student was enrolled at the end of the eighth week of instruction of the semester.

Dean's Honor List Requirements
The Dean's Honor List, prepared at the end of the fall and spring semester, officially recognizes and commends students whose grades for the semester indicate distinguished academic accomplishment. Both the quality and quantity of work done are considered.

You must meet the following qualifications to be a recipient of this honor:
1. You must be matriculated.
2. You must be registered full-time in credit-bearing courses.
3. Full-time students must complete 12 or more credits in one semester.
4. Only passing grades (A, B, C, and D) in credit-bearing courses are counted for eligibility.
5. No failing grades: a grade of F in any course makes the student ineligible, regardless of other grades.
6. Minimum GPA Required:
   a. 12 credits – 3.65 or higher
   b. 15 or 16 credits – 3.55 or higher
   c. 17 or more credits – 3.45 or higher
7. Any courses that do not count towards the degree are excluded.
8. AP, Internship, and Independent Study credits are excluded.
9. Pass/Fail credits are NOT to be counted when calculating qualifying credits.
10. Incomplete grades will be evaluated after they are made up. The student must have qualified for the Dean's Honor List before and after the Incomplete grade was made up.

The student's cumulative grade-point average is not considered; only the grade-point average for that particular semester is relative.

If you believe you fulfilled the criteria indicated above, please stop in at the Registrar's Office to fill out a special form requesting a review of your semester grades. No action can be taken without this form. Assuming you qualify, you will receive a confirming letter. If you did not qualify, you will be informed of this fact with the reason(s) indicated.

Grievance and Appeal Process
Academic Standing
Students who would like to file an appeal against a decision regarding their academic standing in a particular course should discuss the matter with their instructor. If a satisfactory resolution is unattainable, the student may file an appeal with the Head of the Department. If the resultant solution is still unsatisfactory, then the student may file an appeal with the Dean of the Institute.

Students may appeal grades and review exams no later than two weeks after transcripts are issued.

The Administration reserves the right to destroy any examination papers after the two-week appeal period. However, academic records will be kept indefinitely.

Appeal for Refund of Tuition
Students who would like to file an appeal against a decision regarding their tuition refund shall file **a written request** to the Registrar. If dissatisfied with the decision of the Registrar, the student may file a second appeal with the Chief Operating Officer. If still unsatisfied with the decision, he or she may appeal to the Executive Director of the Higher Education Coordinating Board of the State of Washington at:

Higher Education Coordinating Board of the State of Washington
P.O. Box 43430
Olympia, WA 98504-3430

Schools accredited by the Accrediting Commission of Career Schools and Colleges of Technology must have a procedure and operational plan for handling student complaints. If a student does not feel that the school has adequately addressed a complaint or concern, the student may consider contacting the Accrediting Commission. All complaints considered by the Commission must be in written form, with permission from the complainant(s) for the Commission to forward a copy of the complaint to the school for a response. The complainant(s) will be kept informed as to the status of the complaint as well as the final resolution by the Commission. Please direct all inquiries to:

Accrediting Commission of Career Schools and Colleges of Technology
2101 Wilson Blvd./Suite 302
Arlington, VA 22201
(703) 247-4212

A copy of the Commission's Complaint Form is available at the school and may be obtained by contacting Meighan Shoesmith, Sr. Vice President, Administration.

Academic Ineligibility

Students with a cumulative GPA between .01 and .50 below the minimum GPA required for the number of credit hours attempted to date must meet with their academic advisor to develop an academic plan for the following semester. These students will be placed on Academic Probation for the following semester and must improve their GPA to at least the minimum GPA required for satisfactory progress.

Failure to improve his or her GPA during the period of Academic Probation will result in dismissal of the student for a period of one year. The student may re-apply to the Institute after the one-year suspension period has ended. The Institute will thoroughly review this application and make the final decision on acceptance. All applicants must meet the Institute's entrance requirements applicable at the time of re-registration. Students may appeal this suspension by making an application to the Academic Review Committee.

Students with a cumulative GPA too low to be eligible for Academic Probation (see above) become academically ineligible to continue with their courses and cannot re-register for a period of one year. The student may re-apply to the Institute after the one-year suspension period has ended. The Institute will thoroughly review this application and make the final decision on acceptance. All applicants must meet the Institute's entrance requirements applicable at the time of reapplying.

Attendance

Students more than 15 minutes late to class will be marked as absent for that entire class. Students may not leave class early without instructor permission.

Students absent without explanation for a period of two weeks or more are considered to have withdrawn as of their last date of attendance.

Exams

All students are required to be in attendance at the times scheduled by DigiPen for final exams. Instructors are not required to make arrangements for individuals to write final exams at a different time than the rest of the class. Should a student miss an exam, it is the student's responsibility to notify the instructor within 24 hours of the missed exam. In the event that a student fails to provide such notification to an instructor, or if the Institute does not find the reasons for missing an exam justifiable, the student will be given a failure grade for the exam(s).

Should a student miss a final exam and notify his or her instructor within 24 hours of the missed exam, the Registrar shall review the individual circumstances. Only medical reasons accompanied by a doctor's note will be considered acceptable reasons for missing exams. Exam retakes shall be allowed at the sole discretion of the Registrar and Department Chair.

A retaken exam shall be different than the original one taken by the students, and the timing of it shall be at the sole discretion of the individual instructors. In all cases, the retakes shall be administered no later than one week after the original, missed exam.

Leaves

The Registrar must approve leaves or absences longer than one week. They must be requested in writing four weeks prior to the start date of the leave. In the case of catastrophic situations, the Institute must be notified as soon as possible.

Leaves without approval may result in the termination of student status.

In all cases, it is the student's responsibility to make up missed work. Extensive leaves may result in repeating an entire semester, for which the student will be charged full tuition.

Student Internship Guidelines

The student internship at DigiPen Institute of Technology is a carefully monitored work or service experience in which the student has intentional learning goals and reflects actively on what he or she is learning throughout the experience. The experience may be a professional workplace activity under general supervision of an experienced professional that places a high degree of responsibility on the student.

The goals for the internship may include:
1. Academic learning – applying knowledge learned in the classroom to tasks in the workplace.
2. Career development – gaining knowledge necessary to meet minimum qualifications for a position in the student's field of interest.
3. Skill development – an understanding of the skills and knowledge required in a specific job category.
4. Personal development – gaining decision-making skills, critical thinking skills, and increased confidence and self-esteem.

Internships may vary in duration: they can last from a month (or less) to one semester. They can take place in any work or service setting. Internships can be part-time or full-time, paid or unpaid. They are part of the educational program, and as such, they are carefully monitored and evaluated for academic credit. The important element that distinguishes an internship from a short-term job or community service is the intentional learning agenda that the intern brings to the experience.

More detailed information about student internships can be found in the Internship Guidelines available in the Administration Office.

Degree Status and Graduation

Graduation Requirements

Degrees and certificates will be granted during the semester in which the final requirements are completed. For example, if you receive an I in a course required for graduation in your final semester, you will not graduate until the semester in which the I is replaced by a letter grade. During that semester, you must reapply for graduation.

A program of study must be completed within a reasonable period of time to be eligible for graduation; the credit hours attempted cannot exceed 1.5 times the credit hours required to complete the program. Therefore, a full-time student registered in an associate degree program must complete the program in three academic years, and a student enrolled in a baccalaureate degree program must complete the program in six academic years. Full-time students who do not complete their studies during this time frame will be withdrawn from the institute by the Registrar.

A student may request a change in their degree status by completing the Degree Status Form (Part I) provided by the Registrar. The student must sign the form and submit it to the Registrar for approval. The Registrar reserves the right to review each request on a case-by-case basis.

The conditions for changing are:
1. The student must be in good standing at the time of the official request.
2. Students changing from the bachelor's degree to the associate degree must request the change by the end of their sixth semester.
3. Students changing from the associate degree to the bachelor's degree must request the change by the end of their third semester.
4. Students requesting a change in degree status from the bachelor's to the associate degree must complete 75% of the required core courses at DigiPen. Transfer credits from other institutions will be reviewed on a course-by-course basis.
5. Students may transfer excess credits beyond the associate degree to the bachelor's degree if they choose to re-enroll in the Bachelor of Science degree program at a later date.

Applying for Graduation
The Institute sets minimum requirements for all students seeking undergraduate degrees. **The Institute reserves the right to change graduation requirements at any time. Every degree candidate is expected to comply with changes in requirements as they relate to the uncompleted portion of coursework.**

Most students will follow the graduation requirements published in the catalog for the year they enter DigiPen. Students who interrupt their attendance may be held to the requirements of the current catalog when they return.

Students are responsible for ensuring that all graduation requirements have been completed.

Approximately four to six weeks after students apply for graduation, a degree audit report will be issued. This report identifies courses students have taken to complete the bachelor's degree requirements. This report is used to assist students in planning future coursework to ensure that all graduation requirements are met. Students should take the degree audit report with them when checking progress toward graduation with their academic advisor and/or the Registrar.

Students are responsible for notifying the Registrar of any changes in their proposed programs and questions resolved prior to registration for their final term at DigiPen.

Undergraduate students who feel there is justification for an exception to these graduation requirements may petition the Graduation Committee. Information on filing a petition is available at the Registrar's Office.

All Incomplete grades and conditions affecting graduation must be removed from the student's record by the last regular class period of the term.

All credit course work affecting graduation must be completed by the regular class period of the term.

A letter of instruction is mailed to degree candidates in March regarding deadlines and procedures for commencement-related activities.

Graduation Application Process
1. The student completes **Parts I & II** of **the Graduation Application** and submits the $60.00 graduation fee.
2. The **academic advisor should review the most recent transcript or degree plan to verify progress and sign Part III** if the student has completed all courses satisfactorily to date, and, if upon satisfactory completion of courses for which the student is currently registered, he or she will be eligible for graduation.
3. After this review, **the Registrar will make a preliminary review of progress during final semester of enrollment and sign Part IV**.

4. Final approval will not be made until after final grades are submitted and posted to student's record. Degrees will be mailed as soon as possible after that process, which should be from four to six weeks after completion. The student needs to keep the Registrar informed of address changes so that degrees are mailed to the correct address.

Student Services

Open House
DigiPen offers a weekly open house to the general public free of charge. Any person interested in finding out more about the offered programs is welcome to attend an information session held at the Institute. Currently, the information session is held every Friday at 4:00 P.M., excluding holidays. Students who are accepted are required to attend an official orientation session prior to the start of the program.

Admissions
Staff members are available to assist potential applicants in determining a relevant course of study required for acceptance into a program of study at DigiPen. Staff will also assist students who are enrolled in the program to determine their recommended course load according to their academic objectives (i.e. honors program, specialization, etc.).

Placement Services
The Institute continues to establish relationships with various companies, and prospective employers wishing to recruit DigiPen students are cordially invited to conduct on-campus interviews. However, employment upon graduation is not guaranteed. Advice on career options is available for enrolled students. The Institute also provides placement services in the form of internships that may be available during the summer; the placement program bases its recommendations of students on their academic performance.

Special Needs
DigiPen Institute of Technology strives to ensure that all students are provided with an equal opportunity to participate in the college's programs, courses and activities. Students requiring special assistance must self-identify to the Student Services Director and provide current documentation supporting their disability. Students must assist in identifying the proper accommodations and negotiate these accommodations at the beginning of each semester. As outlined by the American with Disabilities Act and Section 504 of the Rehabilitation Act of 1973, DigiPen will provide reasonable accommodations and academic adjustments as long as provisions do not fundamentally alter the nature of the program or the academic requirements that are considered essential to the program of study.

Lockers
The Institute provides lockers free of charge for voluntary student use. A deposit of $5.00 is required when a locker is requested. The Institute will provide combination locks to be used with the lockers, and a copy of the combination code will be kept with the Administration. The $5.00 deposit will be returned when the student returns the combination lock in good and working condition.

The Institute is not responsible for any loss or damage to the contents placed in the lockers, and the Institute reserves the right to search the contents of the lockers at any time, without prior notification to the student, to ensure that no illegal substances are being brought to the premises and for other reasons deemed appropriate by the Institute.

Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act (FERPA) reserves for students certain rights with respect to their education records. These rights are:

1. The right to inspect and review the student's education records within 45 days of the day the Institute receives a request for access. Students should submit to the Registrar, Dean, or head of the academic department (or appropriate official) written requests that identify the record(s) they wish to inspect. The Institute official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the Institute official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.

2. The right to request the amendment of the student's education records that the student believes is inaccurate. Students may ask the Institute to amend a record that they believe is inaccurate. They should write the Institute official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate. If the Institute decides not to amend the record as requested by the student, the Institute will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

3. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent. One exception, which permits disclosure without consent, is disclosure to school officials with legitimate educational interests. A school official is defined as a person employed by the Institute in an administrative, supervisory, academic, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the Institute has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility. Upon request, the Institute discloses education records without consent to officials of another school in which a student seeks or intends to enroll.

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by the Institute in compliance with the requirements of FERPA. The name and address of the Office that administers FERPA is:

Family Policy Compliance Office
U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, DC 20202-4605

Release of Student Directory Information

The Family Educational Rights and Privacy Act (FERPA) of 1974 protects the privacy of your education records. However, the following information is considered public or directory information and may be released to anyone unless you inform the Office of the Registrar that you do not wish any information released:

1. Name
2. Local telephone number
3. Institute e-mail address
4. Major field of studies
5. Dates of attendance
6. Degrees and awards received
7. Full or part-time enrollment status
8. Educational institutions attended

NO to Release of Information

If you do not wish to authorize directory release and do not want your directory information to appear in any published or electronic Student Directory, you may restrict access through the Administration Office. No information will be released on students or to students who have restricted release of directory information, including degrees awarded and dates of attendance.

Change from NO to YES

If you restricted release of directory information and now wish to change your authorization and allow release, you must go to the Administration Office and present photo identification and a completed release/restrict of directory authorization form.

Regulation of Conduct and Disciplinary Procedures

The Institute has the right to take whatever disciplinary action deemed to be warranted by a student's misconduct. The specific provisions as to offenses, penalties, and disciplinary procedures, which are set out below, should not be construed as limiting the general authority of the Institute.

Offenses

Misconduct subject to penalty includes, but is not limited to, the following offenses:
1. Bringing in or out of the premises any magnetic media or optical media, diskettes, prints, slides, videos, etc. other than for academic or approved usage. Additionally, it is forbidden to bring in any personal computers or software, as well as any video or audio recording equipment.
2. Possessing food and/or drink that could damage equipment and/or facilities anywhere within the training areas of the premises.
3. Smoking anywhere within the premises, including washrooms, elevators, or stairwells.
4. Students are responsible for keeping their work area clear. All personal belongings brought to the premises must be left in the indicated storage areas. The Institute does not assume any responsibility for any personal belongings brought to the premises.
5. Student ID tags must be worn visibly when on the premises. Lost or stolen ID tags must be reported to Security as soon as possible. There is a $25 replacement fee for lost ID tags.
6. All student projects must receive approval from DigiPen's instructors prior to commencement of any production. DigiPen reserves the right to reject ideas or stop production of any student game, animation, or project for reasons deemed appropriate to DigiPen. The Institute will not allow the production of any student work that contains or makes a direct or indirect references to any of the following material/subjects:
    - Religious content
    - Religious symbols
    - Pornographic material
    - Excessive violence
    - Sexual and nude content
    - Promotion of illegal substances
    - Promotion of racism or hate
    - Demeaning to any group or society
7. Plagiarism is a serious form of academic misconduct in which an individual submits or presents the work of another person as his or her own. Possession of source code, artwork, concept, or other material without the explicit permission from the owner is also construed to be plagiarism. When excerpts are used in paragraphs or essays, the author must be acknowledged through footnotes or other accepted practices. Two forms of plagiarism are defined below:
    - Substantial plagiarism exists when the student gives no recognition to the author for phrases, sentences, and ideas incorporated in an essay or other academic presentation submitted for evaluation.
    - Complete plagiarism exists when the student copies and presents as original work an entire essay or other academic presentation composed by another person.

    Students who are unsure as to what constitutes a case of plagiarism should consult their instructor.
8. Submitting the same essay, presentation, or assignment more than once whether the earlier submission was at this or another Institute, unless prior approval has been obtained.
9. Cheating on an examination or falsifying material subject to academic evaluation. Cheating includes having any materials other than those authorized by the examiners during an exam.

10. Impersonating a candidate at an examination or availing oneself of the results of such impersonation.
11. Submitting false records or information, in writing or orally, or failing to provide relevant information when requested.
12. Falsifying or submitting false documents, transcripts, or any other academic credentials.
13. Disrupting instructional activities, including making it difficult to proceed with scheduled lectures, seminars, examinations, and tests, for example.
14. Evidencing symptoms of alcohol or drug use while on school property, or the procurement or possession of illegal substances on school property.
15. Damaging, removing, or making unauthorized use of the Institute's property, or the personal property of faculty, staff, students, or others at the Institute. Without restricting the generality of property, this includes information, however it may be recorded or stored.
16. Using any equipment in the premises to produce any commerical work. The equipment is only to be used for homework and training purposes. Any attempt to produce commercial work will result in legal action against the offenders.
17. Tampering, moving, defacing, or otherwise altering the premises, equipment, or building property.
18. Defacing, such as graffiti or other forms of mural art, or the posting of signs anywhere in the premises and the building without permission of the Administration.
19. Using office quipment, such as photocopier, fax, or office phone, for student's personal use.
20. Assaulting individuals, including conduct which leads to the physical or emotional injury of faculty, staff, students, or others at the Institute, or which threatens the physical or emotional well-being of faculty, staff, students, or others at the Institute.
21. Attempting to engage in, or aiding and abetting others to engage in, conduct which would be considered an offense.
22. Downloading or installing software on school equipment without express permission from school authorities.
23. Tampering with the emergency exit doors, any safety devices, or alarm systems. Students are responsible for becoming familiar with the emergency exits on the premises and should not use the elevator in case of fire.
24. Failing to comply with any penalty imposed for misconduct.
25. All students must abide by DigiPen's Computer and Network Usage Policy, which may be amended from time to time.

Penalties
The penalties that may be imposed, singly or in combination, for any of the above offenses may include, but are not limited to, the following:
1. A failing grade or mark of zero for any course, examination, or assignment in which the academic misconduct occurred.
2. Suspension from the Institute for a specified period of time or indefinitely. Students will not receive credit for courses taken at another institution during a suspension.
3. Reprimand, with the letter placed in the student's file.
4. Restitution, in the case of damage to property or unauthorized removal of property.
5. A notation on the student's permanent record of the penalty imposed.
6. Legal action against the student committing the offense.

Warning
1. The penalty for plagiarism or for cheating is normally suspension from the Institute.
2. Charges filed under federal or state legislation or the commencement of civil proceedings do not preclude disciplinary measures taken by the Institute.

Procedures
An alleged instance of student misconduct deemed serious enough for action by the Institute shall be referred to a disciplinary committee. After an investigation and hearing at which the student is invited to appear, the committee reports to the Dean of Faculty. The student then has the opportunity to meet with the Dean of Faculty, if he or she wishes, before a decision is made.

A student suspected or apprehended in the commitment of an offense shall be notified, within a reasonable period of time, of intention to report the alleged offense to a department head, Student Services Director, or other appropriate person. The student shall also be given the opportunity to explain the incident and, if he or she requests, to meet with a department head, Student Services Director, or other appropriate person, before the alleged offense is reported to the Dean of Faculty.

Dismissal by the Institute

By written notice to a student, the Institute may, at its sole discretion, dismiss a student at any time if he or she is in default of any of the terms, covenants, or conditions of the Institute. Furthermore, the Institute reserves the right to withdraw a student if he or she is unable to maintain the minimum required GPA in his or her courses at the end of each semester. Upon dismissal, the student shall immediately return all materials in his or her possession to the Institute relating to the program, whether created by the student, other students, or provided by the Institute.

Appeals

A student has the right to dispute the decision of the Dean of Faculty. A student who wishes to make an appeal must notify the Chief Operating Officer in writing and must provide a full explanation of the reasons for appealing.

Appeal hearings take place before a committee called together by the Chief Operating Officer. A student is entitled to be represented or assisted throughout the appeal process by an advocate who may be a friend, relative, or legal counsel. The student is entitled to explain the reasons for appealing either orally or in writing, and he or she may call witnesses. The Dean of Faculty is also present and puts forth the reasons for the original decision.

The members of the committee may ask questions of both the student and the Dean of Faculty. As soon as possible after the hearing is completed, the Chief Operating Officer will notify the student of the final decision in writing.

Degree Programs for the Academic Year 2004/2005

Degree Programs Table of Contents

Listed below are the page numbers for the following degree programs.

Undergraduate Degrees

Graduate Degree

Associate of Science in Real-Time Interactive Simulation

Program Overview

This associate degree program focuses on the subject of computer simulation with an emphasis on real-time interactive simulation technologies. It offers extensive training in mathematics and physics as a foundation for the various topics presented in general computer science and computer graphics. The various lectures offered each semester converge towards the creation of a practical project. Each project embodies the theoretical knowledge gained from the courses offered in the previous and current semesters. These projects are game-oriented productions since games are a perfect media to present complicated subjects in a format agreeable to students. The advantages of game-oriented productions are:

- Games are graphics-oriented simulations, including two and three-dimensional based simulations.
- Games can realistically reproduce or simulate natural phenomena and real-life events. Flight simulators are excellent examples of such simulations.
- Games 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.
- Games react in real time. The implementation of such simulations requires a thorough knowledge of computer hardware and computer languages.
- Games 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.
- Games could be designed for either a single or multiple-player environment. The development of a multiple-player game requires the understanding of subjects such as computer networks, TCP/IP, and Internet programming.
- Games 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. These collaborative efforts reinforce student ability to work competently within a group while completing projects.

Graduates of this program will gain the skills required to successfully pursue careers in the rapidly growing world of computer technologies in general, and computer graphics and simulations in particular. Some of the job titles that graduates of this program may aspire to are Software/Lead Tester, Compatibility or Playability Tester, Game Analyst, Quality Assurance Engineer, Quality Assurance Supervisor, Computer or Software Programmer, Software Engineer, Game Programmer, Engine and Tools Programmer, Game Graphics Programmer, Artificial Intelligence Programmer, Audio Programmer, Web Programmer, or Solutions Architect.

Students should note that those completing a bachelor degree program will have an additional two years of academic and practical training in advanced concepts of mathematics, graphics, and simulations. Since successful graduates of both programs will have developed an extensive portfolio of games, the computer/video game industry may be their prime choice in choosing a career field. Graduates of the bachelor degree program may expect intermediate level job opportunities, while associate degree graduates will be prepared for entry-level jobs in the industry.

This degree program is an intensive educational experience in a specialized, highly technical area. Rather than attempt to provide a broad, general education, this program directly prepares students for a rapidly expanding career field. Staff and faculty are prepared to guide students desiring more general education course work about supplementary opportunities available through other institutions.

Length

The Associate of Science in Real-Time Interactive Simulation consists of 82 credits offered over 4 semesters of 15 weeks each. This program usually takes two academic years to complete.

Associate of Science in Real-Time Interactive Simulation
Recommended Sequence of Required Classes (82 Credits)

Semester	Course	Course Title	Core	Credits
Semester 1	MAT 100 or MAT 140	Algebra and Trigonometry or Linear Algebra and Geometry	X	4
	CS 100	Computer Environment I	X	3
	CS 120	High Level Programming I – The C Programming Language	X	3
	GAM 100	Project Introduction	X	3
	ENG 110	Composition		3
	ART 210	Art Appreciation		2
		Semester Total		18**
Semester 2	MAT 150	Calculus and Analytic Geometry	X	4
	CS 105	Computer Environment II	X	3
	CS 170	High Level Programming II – The C++ Programming Language	X	3
	CS 180	Operating System I, Man-Machine Interface	X	3
	GAM 150	Project I	X	3
	ENG 150	Mythology for Game Designers		3
	SOS 150	Society and Technology		3
		Semester Total		22**
Semester 3	MAT 200	Calculus and Analytic Geometry II	X	4
	CS 200	Computer Graphics I	X	3
	CS 225	Advanced C/C++	X	3
	CS 230	Game Implementation Techniques	X	3
	GAM 200	Project II	X	4
	PHY 200	Motion Dynamics	X	3
		Semester Total		20
Semester 4	CS 250	Computer Graphics II	X	3
	CS 260	Computer Networks I	X	3
	MAT 258/ 358	Discrete Math	X	3
	CS 280	Data Structures	X	3
	GAM 250	Project II	X	4
	MAT 250	Linear Algebra	X	3
	PHY 250	Waves, Optics and Aerodynamics		3
		Semester Total		22
		Total		82

Note: Students must achieve a grade of C- or higher in the Core courses to earn credit toward this degree.
**Students must receive special permission from the Dean to take more than 18 credits first semester and 22 credits second semester

Bachelor of Science in Real-Time Interactive Simulation

Program Overview

Like the associate's degree, the bachelor's degree in R.T.I.S. focuses on the subject of computer simulation with an emphasis on real-time interactive simulation technologies. It offers extensive training in mathematics and physics as a foundation for the various topics presented in general computer science and computer graphics. The various lectures offered each semester converge towards the creation of a practical project. Each project embodies the theoretical knowledge gained from the courses offered in the previous and current semesters. These projects are game-oriented productions since games are a perfect media to present complicated subjects in a format agreeable to students. The advantages of game-oriented productions are:

- Games are graphics-oriented simulations, including two and three-dimensional based simulations.
- Games can realistically reproduce or simulate natural phenomena and real-life events. Flight simulators are excellent examples of such simulations.
- Games 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.
- Games react in real time. The implementation of such simulations requires a thorough knowledge of computer hardware and computer languages.
- Games 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.
- Games could be designed for either a single or multiple-player environment. The development of a multiple-player game requires the understanding of subjects such as computer networks, TCP/IP, and Internet programming.
- Games 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. These collaborative efforts reinforce student ability to work competently within a group while completing projects.

Graduates of this program will gain the skills required to successfully pursue careers in the rapidly growing world of computer technologies in general, and computer graphics and simulations in particular. Some of the job titles that graduates of this program may aspire to are Software/Lead Tester, Compatibility/Playability Tester, Game Analyst, Quality Assurance Engineer, Quality Assurance Supervisor, Computer or Software Programmer, Software Engineer, Game Programmer, Engine and Tools Programmer, Game Graphics Programmer, Artificial Intelligence Programmer, Audio Programmer, Web Programmer, or Solutions Architect.

Students should note that those completing a bachelor degree program will have an additional two years of academic and practical training in advanced concepts of mathematics, graphics, and simulations. Since successful graduates of both programs will have developed an extensive portfolio of games, the computer/video game industry may be their prime choice in choosing a career field. Graduates of the baccalaureate degree program may expect intermediate level job opportunities, while associate degree graduates will be prepared for entry-level jobs in the industry.

This degree program is an intensive educational experience in a specialized, highly technical area. Rather than attempt to provide a broad, general education, this program directly prepares students for a

rapidly expanding career field. Staff and faculty are prepared to guide students desiring more general education course work about supplementary opportunities available through other institutions.

Length
The Bachelor of Science in Real-Time Interactive Simulation consists of 154 credits offered over 8 semesters of 15 weeks each. This program usually takes four academic years to complete.

Math Minor
Students who fulfill a total of 27 credits in MAT courses numbered above (and not equal to) 100 or PHY 300, with a C- or better, will earn a math minor. Of those 27 credits, 6 credits must be completed from MAT courses numbered 300 or higher, and at least 9 credits must be taken at DigiPen Institute of Technology.

Recommended Course Sequence
Listed on the following page is the recommended course sequence for the Bachelor of Science in Real-Time Interactive Simulation. Please note the following:

Note: Students must achieve a grade of C- or higher in the Core courses to earn credit toward this degree.
**Students must receive special permission from the Dean to take more than 18 credits first semester and 22 credits second semester

Bachelor of Science in Real-Time Interactive Simulation
Recommended Sequence of Required Classes (154 credits)

Semester	Course	Course Title	Core	Credits
Semester 1	MAT 100 or 140	Algebra and Trigonometry or Linear Algebra and Geometry	X	4
	CS 100	Computer Environment I	X	3
	CS 120	High Level Programming I – The C Programming Language	X	3
	GAM 100	Project Introduction	X	3
	ENG 110	Composition		3
	ART 210	Art Appreciation		2
			Semester Total	18**
Semester 2	MAT 150	Calculus and Analytic Geometry I	X	4
	CS 105	Computer Environment II	X	3
	CS 170	High Level Programming II – The C++ Programming Language	X	3
	CS 180	Operating System I, Man-Machine Interface	X	3
	GAM 150	Project I	X	3
	ENG 150	Mythology for Game Designers		3
	SOS 150	Society and Technology		3
			Semester Total	22**
Semester 3	MAT 200	Calculus and Analytic Geometry II	X	4
	CS 200	Computer Graphics I	X	3
	CS 225	Advanced C/C++	X	3
	CS 230	Game Implementation Techniques	X	3
	GAM 200	Project II	X	4
	PHY 200	Motion Dynamics	X	3
			Semester Total	20
Semester 4	CS 250	Computer Graphics II	X	3
	CS 260	Computer Networks I	X	3
	MAT 258/358	Discrete Math	X	3
	CS 280	Data Structures	X	3
	GAM 250	Project II	X	4
	MAT 250	Linear Algebra	X	3
	PHY 250	Waves, Optics and Aerodynamics		3
			Semester Total	22
Semester 5	CS 300	Advanced Computer Graphics I	X	3
	CS 315	Low-Level Programming	X	3
	CS 330	Design and Analysis of Algorithms	X	3
	MAT 300	Curves and Surfaces	X	3
	GAT 300	3D Computer Animation Production I		3
	GAM 300	Project III	X	5
			Semester Total	20
Semester 6	One of: MAT 350-359, 361	One Math Elective chosen between MAT 350 – MAT 359, 361 See course descriptions section for titles of individual courses.		3
	CS 350	Advanced Computer Graphics II	X	3
	CS 365	Software Engineering	X	3
	Elective	One CS Elective chosen from CS 245, 370, 380, 381, 400, 460, or PHY 350. See course descriptions section for titles of individual courses.	X	3
	GAM 350	Project III	X	5
	Elective	An elective of your choice in CS, MAT, GENED, or ART		3
			Semester Total	20
Semester 7	ART 400	Drawing Fundamentals		2
	ENG 400	Creative Writing for Game Design		3
	Elective	One CS Elective chosen from CS 370, 380, 381, 400, 460, or PHY 350 See course descriptions section for titles of individual courses.	X	3
	GAM 400	Project IV	X	5
	Elective	An elective of your choice in CS, MAT, GENED, or ART		3
			Semester Total	16
Semester 8	ENG 450	Elements of Media for Game Developers		2
	Elective	One CS Elective chosen from CS 370, 380, 381, 400, 460, or PHY 350 See course descriptions section for titles of individual courses.	X	3
	CS 420	Graphics File Format	X	3
	GAM 450	Project IV	X	5
	Elective	An elective of your choice in CS, MAT, GENED, or ART		3
			Semester Total	16
			Total	154

*Note:** Please see the explanation of Core Courses and the [*] on the preceding page.

BACHELOR OF SCIENCE IN COMPUTER ENGINEERING

Program Overview

Millions of desktop and portable computers are produced every year. Less obvious but more widespread are "embedded systems," a term that refers to any device that uses a microprocessor or microcontroller. Examples of embedded systems include TV receivers, TV remote controls, GPS receivers, bar code readers, digital cameras, talking dolls, aircraft flight recorders, entertainment robots, and countless others. Design teams that include mechanical engineers, electrical engineers, and computer engineers produce these devices. The job of the computer engineer is typically to develop the software that produces the functionality, and sometimes even to architect the hardware/software system. The software ranges from fairly simple in the case of a watch or toaster to highly complex in the case of an aircraft autopilot system.

Applications of computer engineering include:

Technology Areas:	Application Domains:
• Telecommunications • Robotics & Automation • Artificial Intelligence • Operating Systems • Information Systems • Signal Processing • Control Systems • Instrumentation • Multimedia	• Aerospace and Avionics • Automotive • Consumer Electronics • Medical Sciences • Internet • Entertainment • Military

The U.S. Department of Labor ranks computer software engineering as the fastest growing occupation through 2010 (http://www.bls.gov/oco/ocos267.htm). However, Washington State's institutions of higher education do not appear capable of producing sufficient computer engineering graduates to satisfy this demand.

The DigiPen Institute of Technology's Bachelor of Science in Computer Engineering seeks to address the needs of this demanding industry. The R.T.I.S. program has been highly successful due to its emphasis on projects that mirror real-world working conditions. Many of the graduates from the R.T.I.S. program have been placed into companies such as Nintendo Software Technology, Electronic Arts, DreamWorks Interactive, Sony Entertainment, Microsoft, etc. We plan to continue the mix of solid academic fundamentals with hands-on projects for the Bachelor of Science in Computer Engineering. Students who successfully complete the Computer Engineering curriculum will possess the following skills and appropriate samples of professional work:

- A broad foundation in mathematics, physics and computer science. This base allows the student to remain current in the profession as tools and techniques evolve.
- A foundation in electrical engineering that includes the basic principles of circuits with an emphasis on digital electronics, microprocessors, microcontrollers and embedded systems.
- The ability to work in small teams to design, build and test prototype systems typical of those current in the industry. The development of significant projects each year will allow students to translate theoretical concepts into practical applications.
- Strong foundation skills in system design, software engineering, coding and system integration.
- Strong foundational skills in applied technology using industry standard hardware and software. Students will be thoroughly familiar with a range of software and hardware tools typical of those used in industry. They will also understand how to learn new software while maintaining a production schedule.

- A solid foundation in professional work habits and attitude. Students will understand how to utilize and integrate professional criticism into their work. They will be able to identify and create work that meets professional quality standards. They will understand production flow and be able to generate and maintain appropriate schedules and production goals for their work. They will understand the stresses of production and methods for positively managing this stress.
- Social perspective and civic accountability relative to the roles that technology plays in our society. Students will explore the long-term ramifications of this industry and be able to intelligently discuss their responsibilities to the betterment of society as a whole.

Computer technology pervades modern society. Those who thoroughly understand it have a wide range of rewarding career options. At DigiPen, the Bachelor of Science in Real-Time Interactive Simulation, the Associate of Applied Arts in 3D Computer Animation, the Bachelor of Fine Arts in Production Animation and the Master of Science in Computer Science are intended for students planning to work in the entertainment industry. The Bachelor of Science in Computer Engineering prepares students for a much wider range of career options, as can be seen in the lists above. Some positions that graduates of this program may hold are Project Engineers, System Architects, System Analysts, Design Engineers, Software Engineers, and Hardware/software Engineers. Often, games are used as a teaching paradigm with the understanding that the techniques used on games apply to a wide range of endeavors.

Length
The Bachelor of Science in Computer Engineering consists of 154 credits offered over 8 semesters of 15 weeks each. This program usually takes 4 academic years to complete.

Math Minor
Students who fulfill a total of 27 credits in MAT courses numbered above (and not equal to) 100 or PHY 300, with a C- or better, will earn a math minor. Of those 27 credits, 6 credits must be completed from MAT courses numbered 300 or higher, and at least 9 credits must be taken at DigiPen Institute of Technology.

Bachelor of Science in Computer Engineering
Recommended Sequence of Required Classes (154 credits)

Semester	Course	Course Title	Core	Credits
Semester 1	MAT 100 or MAT 140	Algebra and Trigonometry or Linear Algebra and Geometry	X	4
	CS 100	Computer Environment I	X	3
	CS 120	High Level Programming I – The C Programming Language	X	3
	GAM 100	Project Introduction		3
	ENG 110	Composition		3
	ART 210	Art Appreciation		2
		Semester Total		18
Semester 2	MAT 150	Calculus and Analytic Geometry I	X	4
	CS 105	Computer Environment II	X	3
	CS 170	High Level Programming II – The C++ Programming Language	X	3
	CS 180	Operating System I, Man-Machine Interface	X	3
	GAM 150	Project I		3
	MAT 258/358	Discrete Math and Combinatorics	X	3
		Semester Total		19
Semester 3	MAT 200	Calculus and Analytic Geometry II	X	4
	CS 315	Low Level Programming	X	3
	EE 200	Electric Circuits	X	3
	EE 210	Digital Electronics I	X	3
	LAB 210	Introduction to Robotics	X	4
	PHY 200	Motion Dynamics	X	3
		Semester Total		20
Semester 4	MAT 225	Calculus and Analytic Geometry III	X	3
	CS 260	Computer Networks I, Interprocess Communication	X	3
	CS 280	Data Structures	X	3
	CS 380	Robotic Intelligence	X	3
	EE 260	Digital Electronics II	X	3
	PHY 270	Electricity and Magnetism	X	3
	LAB 260	Real-time Operative Systems	X	4
		Semester Total		22
Semester 5	CS 225	Advanced C/C++	X	3
	MAT 256	Differential Equations I	X	3
	EE 300	Embedded Microcontroller Systems	X	3
	Elective	CS Elective	X	3
	Elective	GENED Elective		3
	LAB 310	Project III Hand Held Gaming Device	X	5
		Semester Total		20
Semester 6	MAT 340	Probability and Statistics	X	3
	CS 365	Software Engineering	X	3
	CS 370	Image Processing	X	3
	EE 350	Linear Control Systems	X	3
	ECN 350	Engineering Economics		3
	LAB 360	Project III Hand Held Gaming Device	X	5
		Semester Total		20
Semester 7	EE 400	Motors and Sensors	X	3
	ART 410	Mechanical Drawing		3
	ENG 400	Creative Writing for Game Design		3
	LAB 410	Project IV Robots	X	5
	Elective	GENED Elective		3
		Semester Total		17
Semester 8	ENG 450	Elements of Media for Game Developers		2
	LAB 460	Project IV Robots	X	5
	SOS 150	Social and Cultural Perspectives on Technology		3
	Electives	GENED Electives to total at least 5 credits		5
	Elective	An elective of your choice in CS, MAT, or PHY	X	3
		Semester Total		18
		Total		**154**

Note: Students must achieve a grade of C- or higher in the Core courses to earn credit toward this degree.

Associate of Applied Arts in 3D Computer Animation

Program Overview

As the 3D computer animation industry matures, companies increasingly seek employees with skills beyond simply a working knowledge of a specific commercial 3D software package. More than ever, employers need computer animators who have strong content creation skills. Studios like to see strong traditional art skills in addition to an understanding of fundamental animation principles. If they wish to be successful, animators must also have a good grasp of story development, character design, storyboarding, lighting, camera composition, and sound design. Graduates receiving the associate degree can anticipate eligibility for entry-level jobs as 3D artists in various industries, including game development, electronic media, and graphic design. Some of the job titles that graduates of this program can aspire to are beginning Storyboard Artist, Texture Artist, Character Animator, 3D Lighting and Camera Designer, Props and Environment Modeler, 3D Broadcast Graphics Modeler and Animator, Level Designer, Effects Animator, or Character Rigger.

DigiPen's Associate of Applied Arts Degree in 3D Computer Animation seeks to achieve the following:

- To provide students with the necessary practical skills using industry-standard, computer hardware and software.
- To educate students about creative content issues to ensure they have the ability to maximize the fullest potential of this digital medium.
- To help students develop a strong work ethic needed by successful production artists including the ability to work with others and to complete the work by the deadline.
- To allow students to express themselves artistically while ensuring that student portfolio work is marketable to industry companies.
- To implement a production oriented environment that will allow students to produce a high quality portfolio.

The intensive theory courses will be reinforced through multiple production cycles whereby students will be expected to complete several animation productions.

Length

The Associate of Applied Arts in 3D Computer Animation consists of 80 credits offered over 4 semesters of 15 weeks each. This course usually takes two academic years to complete.

Associate of Applied Arts in 3D Computer Animation
Recommended Sequence of Required Classes (80 Credits)

Semester	Course	Course Title	Core	Credits
Semester 1	ANI 101	Introduction to Animation – Theories and Techniques	X	3
	ART 101	The Language of Drawing	X	3
	ART 115	Art and Technology	X	4
	CG 105	Introduction to 3D Graphics	X	3
	ENG 116	Storytelling	X	3
	PRJ 105	Introduction to 3D Production	X	4
			Semester Total	20
Semester 2	ANI 151	Advanced Animation – Theories and Techniques II	X	3
	ART 155	Basic Life Drawing and Anatomy	X	3
	CG 275	3D Character Animation	X	3
	FLM 151	Visual Language and Film Analysis	X	3
	FLM 275	Sound Design and Foley	X	3
	PRJ 155	Personal 3D Production	X	5
			Semester Total	20
Semester 3	ART 205	Character and Environment Design	X	3
	ART 225	Dimensional Design and Sculpture	X	3
	CG 300	3D Environment and Level Design	X	3
	ENG 316	Story Through Dialogue	X	3
	FLM 201	Cinematography	X	3
	PRJ 205	Team Projects	X	5
			Semester Total	20
Semester 4	ANI 125	Acting for Animation	X	3
	ART 125	Tone, Color, and Composition	X	3
	ART 255	A.A.A. Portfolio	X	3
	CG 350	3D Graphics for Gaming	X	3
	FLM 250	Post-Production	X	3
	PRJ 255	Final Projects	X	5
			Semester Total	20
			Total	**80**

Note: Students must achieve a grade of C- or higher in the Core courses to earn credit toward this degree.

Bachelor of Fine Arts in Production Animation

Program Overview

As the animation industry matures, there is a noticeable shift by companies to hire employees who demonstrate more than a working knowledge of a specific commercial software package or traditional animation skills. Industry-quality standards continue to rise, and competition for entry-level positions demands that animators possess sophisticated skill sets before they can even begin their careers. Studios seek animators with a broad and integrated foundation of theoretical, practical, and technical skills in production animation, traditional art, modern computer software, and media story flow. Insight and long-term potential have become increasingly important. The studios also demand professional accountability and consistency. Simply possessing credentials is irrelevant.

For all of these restrictions, animation remains a very viable career opportunity. Animation is capable of solving informational, educational, and entertainment problems no other discipline can resolve. It provides a cornerstone for many industries including cinema, broadcast entertainment, cable television, software development, the Internet, education, simulation, product design, research, forensic science, architecture, telecommunications, advertising, travel and tourism, and video games. The fact that these industries depend upon qualified candidates accentuates the need for quality animation education.

The broad scope of these demands presents a series of significant academic challenges. Most current animation students enter collegiate training with little or no substantial background knowledge relative to this field. Many secondary schools have been forced to cut back on the level of arts training they are able to provide. Consequently aspiring animators must acquire this foundation while they are also trying to establish their professional focus. The complexity of the individual components of this field demand highly structured curricula and programmed sequencing simply to enable most students to be successful. Some students are capable of the rapid assimilation of the integrated knowledge the studios now require, but most are better served by a deeper and more sequential approach to the material.

DigiPen Institute of Technology's B.F.A. in Production Animation seeks to address these needs. Students who successfully complete this curriculum will possess the following skills and appropriate samples of professional work:

- A broad foundation of production experiences in both 2D and 3D animation. This base allows the student to gain an overview of the profession and provides long-term adaptability.
- An area of production specialization and focus. This enables the student to target a specific sector of the industry upon graduation. A thesis portfolio will support this focus.
- Strong foundational skills and a thorough grounding in applied drawing. This will include an understanding of how to maintain and continually enhance the student's drawing skill throughout his or her career, in addition to building the habits to sustain this growth.
- Strong foundational skills in storytelling. This includes visual storytelling, literary traditions, story through dialogue, story through acting, and cinematic conventions.
- Strong foundational skills in applied technology using industry-standard hardware and software. Students will be thoroughly familiar with modern interface and workflow conventions. They will also understand how to learn new software while maintaining a production schedule.
- A solid foundation in professional work habits and attitude. Students will understand how to utilize and integrate professional criticism into their work. Additionally, they will be able to identify and create work that meets professional quality standards. They will also understand production flow and be able to generate and maintain appropriate schedules and production goals for their work. Finally, they will understand the stresses of production and methods for positively managing this stress.
- Social perspective and civic accountability relative to the roles that animation plays in our society. Students will explore the long-term ramifications of this industry and be able to intelligently discuss their responsibilities to the betterment of the animation industry and society as a whole.

Some of the careers for which graduates of the B.F.A. in Production Animation are trained include Props and Environment Modelers, Texture Artists, Level Designers, Character Modelers, Character Riggers, Character Animators, 3D Lighting and Camera Design, Effects Animator, Conceptual Illustration and Character Design, or Storyboard Artists.

Length

The Bachelor of Fine Arts in Production Animation consists of 144 credits offered over 8 semesters of 15 weeks each. This course usually takes four academic years to complete.

Bachelor of Fine Arts in Production Animation
Recommended Sequence of Required Classes (144 credits)

Semester	Course	Course Title	Core	Credits
Semester 1	ANI 101	Introduction to Animation – Theories and Techniques	X	3
	ART 101	The Language of Drawing	X	3
	ART 115	Art and Technology		4
	BIO 100	Visual Perception	X	3
	ENG 116	Storytelling	X	4
	FLM 115	History of Film and Animation		3
		Semester Total		20
Semester 2	ANI 125	Acting for Animation	X	3
	ANI 151	Advanced Animation – Theories and Techniques II	X	3
	ART 125	Tone, Color, and Composition	X	3
	ART 151	Basic Life Drawing	X	3
	BIO 150	Human Muscular, Skeletal, and Kinetic Anatomy	X	3
	FLM 151	Visual Language and Film Analysis	X	3
		Semester Total		18
Semester 3	ART 201	Advanced Life Drawing	X	3
	BIO 200	Animal Muscular, Skeletal, and Kinetic Anatomy	X	3
	CG 201	2D Raster Graphics and Animation	X	3
	CG 225	Introduction to 3D Animation	X	3
	PRJ 201	2D Sprite Animation Production	X	5
		Semester Total		17
Semester 4	ART 225	3D Design and Sculpture	X	3
	ART 251	Character Design	X	3
	CG 251	2D Vector Graphics and Animation	X	3
	CG 275	3D Character Animation	X	3
	PRJ 251	2D Vector Animation Production	X	5
		Semester Total		17
Semester 5	ANI 300	Acting Through an Interface	X	3
	ART 300	Perspective, Backgrounds, and Layouts	X	3
	CG 300	3D Environment and Level Design	X	3
	FLM 201	Cinematography	X	3
	PHY 115	Introduction to Applied Math and Physics		3
	PRJ 300	Limited Scope 3D Animation Production	X	5
		Semester Total		20
Semester 6	ANI 350	Voice Acting for Animation	X	3
	ART 350	Storyboards	X	3
	CG 350	3D Graphics for Gaming		3
	ENG 315	Story Through Dialogue	X	4
	PRJ 350/INT 500	Applied 3D Animation Production Problems/Internship	X	5
		Semester Total		18
Semester 7	ART 401	Conceptual Illustration and Visual Development		3
	FLM 250	Digital Post-Production	X	3
	FLM 275	Sound Design and Foley		3
	SOS 115	Media and Ethics: A Social Science Perspective	X	3
	PRJ 400/ INT 501	Team Projects/Internship	X	5
		Semester Total		17
Semester 8	ANI 400	Cinematic Animation	X	3
	ART 450	Portfolio	X	3
	CS 115	Introduction To Scripting and Programming	X	3
	LAW 115	Introduction to Intellectual Property and Contracts		3
	PRJ 450/ INT 502	Final Projects/Internship	X	5
		Semester Total		17
			Total	144

Note: Students must achieve a grade of C- or higher in the Core courses to earn credit toward this degree.

WHICH DIGIPEN ANIMATION DEGREE IS RIGHT FOR ME

DigiPen Institute of Technology currently offers two degrees in the field of animation: an **Associate of Applied Arts (A.A.A.) in 3D Computer Animation** and a **Bachelor of Fine Arts (B.F.A.) in Production Animation**. The two degrees do share some coursework, faculty, and facilities. The degrees also have identical application packet requirements. However, the degrees have very different educational scopes and admission evaluation criteria. Unlike DigiPen's real-time interactive simulation (RTIS) degrees, the A.A.A. degree is not the first two years of the B.F.A. curriculum.

The **A.A.A. in 3D Computer Animation** is an extremely intensive, accelerated two-year study. The curriculum specifically addresses the unique needs of 3D computer animation for today's commercial production environments. Entrance into this program is highly competitive and highly restricted – only serious amateur artists with significant traditional skills should consider applying for this program. Typical applicants for this program have often already completed college level training in art, and many already have college degrees in art and/or professional experience. Previous degrees in art, however, are not a guarantee that an applicant's skill level is sufficient for admission into this program. This A.A.A. degree is best suited for a trained artist looking to supplement his or her existing foundations with animation-specific training. A typical student workload in the A.A.A. program is a minimum of 72-80 hours/week between homework and classroom instruction.

The **B.F.A. in Production Animation** is an intensive four-year study into the aspects of modern production animation. It covers a broader and deeper cross-section of the animation industry than the A.A.A. degree, including education in 2D computer animation and animation pre-production art in addition to 3D computer animation. It also allows for a sequential acquisition of skills and knowledge that will benefit many students. Entrance into this program is competitive and restricted, but does not have the same minimum standards as the A.A.A. degree. Applicants for the B.F.A. in production animation should have a strong foundation in art and a sincere willingness to work. Recent graduates from high school are strongly encouraged to consider the B.F.A. program if they are considering DigiPen Institute of Technology. This degree is best suited for any serious amateur artist wishing to prepare for a lifelong career as a commercial animator or animation artist. A typical student workload in the B.F.A. program is a minimum of 55-60 hours/week between homework and classroom instruction.

Please note that due to the intensity and integrated scope of the Institute's animation curricula, college transfer credits are highly restricted. No transfer credits are accepted for DigiPen drawing or projects classes from any student regardless of his or her educational or professional background.

MASTER OF SCIENCE IN COMPUTER SCIENCE

Program Overview

The interactive real-time simulation software and video game industry is currently worth about 35 billion US dollars worldwide, according to www.idsa.com. The number of people involved in different game activities (game console, personal computer, hand-held, on-line, wireless devices, etc.) is expected to thrive. The trend is conservatively estimated to be growing at the rate of 10% per year. The 3D computer graphics technology continues to drive innovations and new game titles as well. It is an exciting and dynamic industry and an active research field that is still young, offering tremendous opportunities to talented people.

Gaming companies increasingly demand programmers or leading engineers with an in-depth comprehension and a solid background in mathematics, physics, and 3D computer graphics. On the other hand, many developers currently working in the field have been seeking postgraduate education to update their knowledge, sharpen their professional skills, or advance in the industry. The curriculum taught in many colleges and universities, however, lacks a focus on implementation of these exclusive objectives. Both companies and individuals consequently feel that a four-year program with a bachelor degree is evidently inadequate and often limits them from advancing professionally. More extensive training at a postgraduate level is needed.

DigiPen Institute of Technology has awarded the Bachelor of Science in R.T.I.S. since 2000. This degree provides both academic and practical training for programming computer games. It has been highly successful, and DigiPen was named the top school in the world for game-degree programs by *Electronic Gaming Monthly Magazine* (Dec. 2002). The Institute is now pleased to award a Master of Science Degree in Computer Science. The new program will specialize in real-time interactive simulation and is designed to attract talented students who have recently graduated from a bachelor degree program in computer science or have game industry experience. The program offers extended education in areas of 3D computer graphics, animation and modeling techniques, artificial intelligence algorithms, image processing, and real-time rendering, combined with related training in computer science, mathematics, and physics.

The graduate program at DigiPen provides an opportunity for students to expand their knowledge of academic fundamentals in 3D computer graphics. Students who successfully complete the degree will possess and/or improve the following professional skills:

- In-depth foundation in mathematics and physics, such as implicit curves and surfaces, theory and applications of quaternions, differential geometry, computational geometry, wavelets, graph theory, advanced numerical analysis, and finite elements.
- Advanced knowledge in 3D computer graphics, including advanced animation and modeling algorithms (interpolation, rigid body, deformable object, inverse kinematics, natural phenomena facial, motion blending and capture, etc.), advanced rendering techniques (level of details, implicit surfaces, pipeline optimization, advanced intersection and collision detection, etc.), artificial intelligence, game engine design, physically-based modeling algorithms, ray tracing, and radiosity.
- Solid hands-on experience on game projects, including advanced game (single or multi-player) design, documentation, project management, marketing, networking, distributed systems, streaming media testing, and working with external contractors.
- Strong capability of academic research in the area of 3D computer graphics, including virtual reality, illumination and shading algorithms, animation techniques, surface representation and rendering, volume visualization and morphing algorithms, geometry, and modeling.

Computer technology pervades modern society. Those who thoroughly comprehend it have a wide range of rewarding career options. This graduate degree program prepares students specifically for advanced career choices.

Length

The Master of Science in Computer Science consists of 30 credits offered over 2 semesters of 15 weeks each. This program usually takes one academic year to complete but must be completed within three years.

Master of Science in Computer Science
Recommended Sequence of Required Courses (30 credits)

Semester	Course	Course Title	Credits
Semester 1	CS 500	Ray Tracing	3
	CS 560	Advanced Animation Algorithms	3
	GAM 550	Game Project I	3
	Elective	One Math Elective chosen from MAT 500 or higher	3
	Elective	One Elective in CS, PHY, or MAT; choose from CS 570 or 580, PHY 500 or 550, or MAT 500 or higher	3
		Semester Total	15
Semester 2	GAM 551	Game Project II	3
	Elective	CS Elective; choose from CS 400 or any between CS 500-600 See the course descriptions section for individual course titles.	3
	Elective	CS Elective; choose from CS 400 or any between CS 500-600 See the course descriptions section for individual course titles.	3
	CS 600	Thesis	6
		Semester Total	15
		Total	**30**

Note: During the course of study, graduate students may not receive more than three C grades and must have an overall 3.0 GPA to graduate.

Course Descriptions for the Academic Year
2004 / 2005

Course Descriptions Table of Contents

Listed below are the page numbers for the following departments and course titles.

Animation

ANI 101 Introduction to Animation – Theories and Techniques (3 Cr.)
Prerequisites: None
Description: This course introduces students to the principles of animation through classical animation techniques. Students will explore the art of creating convincing movement through good timing, spacing, and drawing. Works of master animators will be screened and analyzed frame-by-frame to illustrate the principles covered in class, and students will put their knowledge to work through a series of exercises. The ultimate goal of both this course and its sequel is to introduce methods by which animators "act" and bring characters to life through sequential images.

ANI 125 Acting for Animation (3 Cr.)
Prerequisites: None
Description: An animator's ability to express attitude, thought, and emotion through body language is a fundamental skill necessary for success. Therefore, the focus of this course is to present tools and techniques for translating thoughts and feelings into specific gestures and actions. The course introduces students to the history of acting in the theater, animation, and film. Students will explore the basic fundamentals and differences of acting for the stage, film, and animation through a series of acting exercises and problems. Special emphasis will be given to classical method acting.

ANI 151 Advanced Animation – Theories and Techniques II (3 Cr.)
Prerequisite: ANI 101
Description: In ANI 151 students will continue to explore and exercise the concepts and techniques of classical animation through a series of assignments. The exercises in this course will be considerably more demanding than those completed in ANI 101 as they will be longer and will require more refinement, subtlety, and creativity. There will also be a greater emphasis on character development – the expression of personality, mood, thought, and attitude through motion and posing.

ANI 200 Acting Through a Surrogate (3 Cr.)
Prerequisites: ANI 125, ANI 151, ART 225, CG 275
Description: An animator's ability to express attitude, thought, and emotion through a surrogate is a fundamental skill of animation. This course builds upon the earlier acting curriculum and introduces the traditions of puppetry and marionettes. Stop motion animation techniques are explored next. Finally, students will extrapolate their knowledge to 3D biped animation and 2D character animation problems.

ANI 250 Voice Acting for Animation (3 Cr.)
Prerequisite: ANI 200
Concurrent Course: ENG 215
Description: This course explores the nature of acting through the medium of the human voice. Narration, expressive reading, diction, and vocal refinement will all be considered. Students will be introduced to basic audio technology and recording equipment. The course also covers lip synchronization techniques in animation and culminates in a series of practical exercises in both 2D and 3D animation.

ANI 300 Cinematic Animation (3 Cr.)
Prerequisites: ANI 250, ART 401, FLM 275
Description: This course is a culmination of the student's ability to use animation as a storytelling medium. It is also an opportunity for the student to demonstrate his or her personal artistic

growth. Each student will work to complete a short piece of cinematic animation. Working either independently or in small groups with the instructor's approval, students may use either 2D or 3D tools.

Art

ART 101 The Language of Drawing (3 Cr.)
Prerequisites: None
Description: This course explores the nature of drawing as a language skill and the use of drawing by production artists and animators. Applied drawing goals and critical thinking skills will be given special consideration. Students will be introduced to basic professional habits in drawing practice, drill, and play. Design principles, basic research, and the design process will be introduced and applied to a series of practical problems. This course also explores basic drawing materials, drawing strategy, drawing sequence, linear drawing methodology, practice, and theory.

ART 115 Art and Technology (4 Cr.)
Prerequisites: None
Description: This course provides an overview of art history from Paleolithic times until the modern day. It traces the technological advances of society and art and considers the interplay between art and technology. Classical art materials and methods will be examined and students will explore how art has historically impacted society. This course has a worldwide scope and is not limited to just European and Western traditions.

ART 125 Tone, Color, and Composition (3 Cr.)
Prerequisite: ART 101
Description: This course continues to build upon students' abilities to draw by exploring the nature and use of tone, color, and composition in drawing. Methods of creating tone, using luminance as an organizational element, and critical thinking will be emphasized. Students will be introduced to a variety of classical tonal systems and tonal illusions including atmospheric perspective, sculptural modeling, basic direct lighting, lighting position relative to viewpoint, light intensity, local value, and reflectivity. Students will then explore the artistic use of color. Systems and traditions of organizing hue and saturation will be covered, and methods of building from tonal preliminary studies will be examined. Classical forms of compositional organization such as symmetry, asymmetry, golden mean, and figure-ground relationships will also be explored.

ART 151 Basic Life Drawing (3 Cr.)
Prerequisite: ART 101
Description: This course introduces students to the challenges of drawing the human form for animation. Life drawing for animation will be examined in addition to methods for attaining these goals. Special emphasis will be given to capturing skeletal structure, muscle form, emotion, and gesture. Using clothed and nude models of both genders, students will learn to apply lessons in anatomy to the figure, significantly expanding their understanding of human kinetics and structure. Students will also be shown how to extrapolate basic human life drawing strategies to other animals.

ART 155 Basic Life Drawing and Anatomy (3 Cr.)
Prerequisite: ART 101
Description: This course introduces students to the challenges of drawing the human form for animation. The goals of life drawing for animation will be examined, and then methods for attaining these goals will be demonstrated. Students will study human skeletal and muscular anatomy and learn to apply this knowledge to drawing. Special emphasis will be given to capturing skeletal structure, muscle form, emotion, and gesture. Using clothed and nude models of both genders, the students will learn to apply lessons in anatomy to the figure and will significantly expand their understanding of human kinetics and structure. Students will also be shown how to extrapolate basic human life drawing strategies to other animals.

ART 201 Advanced Life Drawing (3 Cr.)
Prerequisites: ART 125, ART 151
Description: This course builds upon the anatomy and drawing courses the students have already taken. Students will continue to improve their ability to capture kinetics in humans and animals. By engaging in a series of exercises designed to enhance their visual memory, students will build the foundation of drawing accurate figures from their imagination. They will also explore putting the figure into an environment, figurative composition, and introductory sequential figurative composition.

ART 205 Character and Environment Design (3 Cr.)
Prerequisite: ART 155
Description: Students will apply their drawing and anatomy knowledge to the creation of animation characters. The traditions of character design and the basic structural strategies for creating animation characters will be introduced. Students will explore simplification gradients relative to human, animal, and inanimate object-based characters. Issues of costume, personality, and story interaction will also be explored. Students will then learn to place these characters into appropriately designed environments. Professional applications, techniques, and standards of quality will be emphasized.

ART 210 Art Appreciation (2 Cr.)
Prerequisites: None
Description: This introduction to art will provide students with a better understanding of the artistic influences of our modern culture. Along with the history of art, students will study the meanings, purposes, styles, elements, and principles of art and the various media used to create works of art. In helping students gain basic awareness, knowledge, and enjoyment of the visual arts, the course should provide the groundwork for further personal study in the arts. This in turn will influence the development of their creativity.

ART 225 3D Design and Sculpture (3 Cr.)
Prerequisite: ART 201 or ART 155
Description: This course introduces students to the principles of 3D design using both traditional and digital tools. Students will be acquainted with additive, subtractive, and cast sculpture. The basic concepts of architectural space, interior design, landscape design, surface interplay with light, lofted forms, and skinning systems are considered. Special emphasis will be given to using modern polymer clays and building an animation maquette.

ART 251 Character Design (3 Cr.)
Prerequisite: ART 201
Description: Students will leverage their drawing and anatomy knowledge to the creation of animation characters. This course introduces student to the traditions of character design and the basic structural strategies for creating animation characters. Students will explore simplification gradients relative to human, animal, and inanimate object-based characters. Issues of costume, personality, and story interaction will be explored. Professional applications, techniques, and standards of quality will be emphasized. The work completed in this course will serve as pre-production design for PRJ 300, PRJ 350, or ANI 300.

ART 255 A.A.A. Portfolio (3 Cr.)
Prerequisites: ART 205, PRJ 205
Description: Students will use this course to compile the elements of their professional portfolio. They will be introduced to the marketing campaign needs of modern animation portfolios including visual continuity, business documents, traditional still art portfolios, process and practice samples, digital portfolios, web sites, demo reels, and promotional items. They will then use this knowledge to assemble their own portfolios. The course also covers related information regarding job interviews, trade shows, professional standards, and contract negotiation.

ART 300 Perspective, Backgrounds, and Layouts (3 Cr.)
Prerequisites: ART 225, ART 251
Description: This course explores the animation pre-production skills of background and layout art. Students will review classical depth cue and perspective systems, applying this knowledge to the creation of animation backgrounds and layouts. Additionally, students will explore means of using drawing to create camera lens illusions, architectural space, theatrical sets, level design, matte painting, and surface texture. Professional applications, techniques, and standards of quality will be emphasized. The work completed in this course will serve as pre-production design for PRJ 300, PRJ 350, or ANI 300.

ART 350 Storyboards (3 Cr.)
Prerequisites: ART 300, ENG 115, FLM 200
Description: This course explores the animation pre-production skills of storyboard art. Students will leverage their knowledge of drawing, storytelling, and cinematography to create both production and presentation storyboards. They will also explore means of using drawing to create story flow, character development, mood, time, and place. Professional applications, techniques, and standards of quality will be emphasized. The work completed in this course will serve as pre-production design for PRJ 300, PRJ 350, or ANI 300.

ART 400 Drawing Fundamentals (2 Cr.)
Prerequisites: None
Description: The development of strong drawing skills is of extreme importance as they are essential tools for expressing ideas, particularly during the pre-production stages of an animation project. Therefore, the objective of this course is to present the basic elements of drawing and graphic design in order to improve the student's practical ability to draw with skill and imagination. Methods of observing, describing, and organizing form will be covered using various mediums such as pencil, charcoal, and color pencils.

ART 401 Conceptual Illustration and Visual Development (3 Cr.)
Prerequisite: ART 350
Description: This course explores the animation pre-production skills of conceptual illustration and visual development. Students will apply their knowledge of drawing, storytelling, and composition to create speculative drawings for animation. Compositional systems, design process, and illustration techniques will be reviewed. Students will also explore means of using drawing to visually explore story and character ideas from both existing and original story materials. Adaptation, stylization, and visual variety will all be considered. Professional applications, techniques, and standards of quality will be emphasized. The work completed in this course will serve as pre-production design for PRJ 300, PRJ 350, or ANI 300.

ART 410 Mechanical Drawing (3 Cr.)
Prerequisites: None
Description: The development of strong drawing skills is of extreme importance as they are essential tools for expressing ideas. The emphasis in this course will be on drawing mechanical objects and the utilization of CAD systems.

ART 450 Portfolio (3 Cr.)
Prerequisites: ART 401, PRJ 400, FLM 250
Concurrent Courses: ANI 400, PRJ 450
Description: Students will use this course to compile the elements of their professional portfolio, which will serve as their B.F.A. thesis. Additionally, students will be introduced to the marketing campaign needs of modern animation portfolios including visual continuity, business documents, traditional still art portfolios, process and practice samples, digital portfolios, web sites, demo reels, and promotional items. They will then use this knowledge to assemble their own portfolios. The course will also cover related information regarding job interviews, trade shows, professional standards, and contract negotiation.

Computer Graphics

CG 105 Introduction to 3D Graphics (3 Cr.)
Prerequisites: None
Description: This course covers all of the general principles of computer graphics, introducing students to the primary 3D computer animation software used to create the various productions. In addition, students will be taught how to use a 2D paint package for the creation of maps.

CG 201 2D Raster Graphics and Animation (3 Cr.)
Prerequisites: ANI 151, ART 101, ART 125
Description: This course introduces students to the industry standard software and practices of raster graphics and animation. The course begins with basic information such as interface organization strategies, system components, bit depth, resolution, memory management, and output strategies. It then explores techniques and critical thinking for digital painting, scanning, still compositing, and texture creation. It also looks at basic interface customization options and strategies in 2D raster graphics, culminating with a series of sprite animation problems.

CG 225 Introduction to 3D Animation (3 Cr.)
Prerequisites: ANI 151, ART 101, ART 125
Description: This course introduces students to the industry standard software and practices of 3D animation. The course begins with basic information such as interface organization strategies, equipment options, and production elements. It then introduces techniques and critical thinking for texture mapping, modeling, rigging, lighting, cameras, and animation. It also looks at basic interface customization options and strategies in 3D graphics, culminating in a series of applied problems in 3D production techniques.

CG 251 2D Vector Graphics and Animation (3 Cr.)
Prerequisite: CG 201
Description: This course examines the principles and practices of 2D vector graphics and animation. Students will be introduced to industry standard software, output options, and production strategies for using vector graphics in both graphic design and animation. Special consideration will be given to critical thinking and refinement strategies when modifying vector images. Methods of using vector-based tools for creating web and broadcast animation will be examined, and the course concludes with a series of applied problems in 2D vector animation.

CG 275 3D Character Animation (3 Cr.)
Prerequisite: CG 105 or CG 225
Description: Students will continue to explore and exercise the concepts and techniques of 3D animation through a series of assignments applied to characters. Exercises in this course will be considerably more demanding than those completed in CG125 as they will be longer, requiring more refinement, subtlety, and creativity. Emphasis will be on character development – the expression of personality, mood, thought, and attitude through motion and posing. Special consideration will be given to proper model rigging.

CG 300 3D Environment and Level Design (3 Cr.)
Prerequisite: CG 275
Description: This course introduces students to the principles of 3D environment design. Theatrical sets, architectural simulations, and level design will all be considered. In order to provide students with a broader skill set, this course also presents the "mechanics" of how to use another 3D animation program, with an emphasis on the unique strengths of the package.

CG 350 3D Graphics for Gaming (3 Cr.)
Prerequisite: CG 300
Description: The tremendous growth of the video game industry has resulted in a high demand for specialized 3D animation skills. Limited color palettes, file size, file formats, surface

restrictions, real-time implementation, cyclical animation, and levels of detail are some of the issues that need to be handled properly for inclusion into a game. This course examines the unique problems of creating 3D graphics for games and teaches effective production techniques for addressing these issues.

Film

FLM 115 History of Film and Animation (3 Cr.)
Prerequisites: None
Description: 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, every major movement and genre will be explored as well as their impact on society. Special consideration will be given to examining all of the various professional outlets for this technology.

FLM 151 Visual Language and Film Analysis (3 Cr.)
Prerequisites: None
Description: Animation is ultimately "film making," and animators should learn from the many "classics" how to effectively bring various film production elements together. Students review several films and study how the relationships between scripts, cameras, lighting, sets, production design, sound, acting, costumes, props, directing, and production lead to successful visual stories. They will also examine the fundamental theories underlying visual storytelling. Understanding the creative processes utilized by these influential filmmakers will provide insight into how students may improve their own animations.

FLM 201 Cinematography (3 Cr.)
Prerequisite: FLM 151
Description: Like a director of photography, computer animators must have a good understanding of appropriate camera composition and lighting techniques to enhance the visual impact of the story being told. Appropriate composition and camera movement help to reveal action, and lighting establishes focus, place, and mood. Students will analyze examples of effective cinematic techniques from a variety of different animations and films. Assignments in camera composition, movement, and lighting will help students solidify their understanding of the concepts presented.

FLM 250 Post-Production (3 Cr.)
Prerequisite: FLM 201 or FLM 150
Description: The last step of any animation project involves the assembly of various production elements ranging from rendered files to sound effects. This is also the stage where the visual effects seen in today's movies are added. This course teaches the fundamental skills that are used in post-production. Effective editing skills are the primary outcome of the course. Students will also cover the planning, execution, and addition of special effects to animation.

FLM 275 Sound Design and Foley (3 Cr.)
Prerequisites: None
Description: Every good animation relies on a well-designed soundtrack to enhance the production. While most animators do not produce the soundtrack themselves, they need to understand the effect of music, voice, and sound effects on an audience. Animators must be able to communicate their ideas to a musician and understand the technological possibilities of modern sound design. Initially students will survey a broad range of music from different cultures. Emphasis will be on developing basic listening skills in hearing rhythm, melody, harmony, color, texture, and form. The students will then learn how this understanding is applied to the production needs of animation. Special attention will be given to how sound is generated, how it is used to advance a story and how it can create mood, a sense of place, and emphasis. There may be course fees associated with this class. Please see the course registration packet for details.

Projects Note: Generally, students decide the subject of the projects class animations, but the instructor must consider the undertaking within the scope of a student's skill set, commercial marketability, academic soundness, and appropriateness in nature. DigiPen reserves the right to refuse any student production proposal that it deems inappropriate. Students are also expected to maintain an exceptional level of professionalism within these production environments, striving to produce quality work. Failure to meet this standard may result in academic discipline.

Projects

PRJ 105 Introduction to 3D Production (4 Cr.)
Prerequisites: None
Concurrent Courses: ANI 101, ART 101, ART 115, CG 105, ENG 105
Description: If one hopes to be a successful professional, it is insufficient for an animator to only understand the theory of animation and art. He or she must also understand the rigors and demands of commercial animation production. The projects classes create academic production environments where students learn the principles, practices, and habits that will help them adapt readily to the demands of the commercial animation industry. Each projects class focuses upon a series of related production problems and culminates in the students generating professional quality work on a rigid deadline. This work will serve as the foundation for their graduation portfolios. Weekly production meetings with an instructor ensure that the production stays on schedule and that a professional quality standard is maintained.

PRJ 105 introduces students to the basic concepts of the production process utilizing small-scale applied problems in 3D animation. Students will also be introduced to the professional animation production pipeline, which they must successfully navigate in order to achieve professional results and hone their professional critical thinking skills. The course culminates in students creating the pre-production work for their PRJ 155 project.

PRJ 155 Personal 3D Production (5 Cr.)
Prerequisite: PRJ 100
Concurrent Courses: ANI 151, ART 155, CG 275, FLM 151, FLM 275
Description: PRJ 155 addresses two of the more serious emotional challenges facing commercial animators: professional focus and realistic expectations. Animation is a team sport, and it requires a significant commitment of time and resources to accomplish even the most mundane tasks. During this course students will face a series of choices. Each student will use the pre-production work they created in PRJ 105 to generate a single piece of limited animation. They must limit themselves to a production scale that allows for extensive professional refinement and meets the stringent specification criteria established by the faculty. Students will be introduced to realities of commercial art direction and quality control in conjunction with production deadlines. They should be prepared to repetitively revisit the same material with a relentless attention to subtle detail.

PRJ 201 2D Sprite Animation Production (5 Cr.)
Prerequisites: ANI 150, ART 125
Concurrent Courses: ART 201, BIO 200, CG 201, CG 225
Description: It is insufficient for an animator to understand the theory of animation and art if they hope to be successful professionals. Similarly, they must also understand the rigors and demands of commercial animation production. The projects classes create academic production environments where students learn the principles, practices, and habits helping them to adapt readily to the demands of the commercial animation industry. Each class focuses upon a series of related production problems, culminating in students generating professional quality work on a rigid deadline. This work will serve as the foundation for their graduation portfolios. Weekly production meetings with an instructor ensure that production stays on schedule and that a professional quality standard is maintained.

PRJ 201 introduces students to the basic concepts of the production process utilizing small-scale applied problems in 2D Sprite animation. Sprite animations are heavily employed in handheld devices such as watches, cell phones, PDA's, and handheld game platforms. They are also a cornerstone of Internet graphics and fundamental to animated texture maps. Their restrictive nature makes them excellent teaching platforms because they cannot be readily solved through brute force. Each pixel must be accounted for, and issues such as color management and movement must be thoroughly planned. Students must successfully navigate the production pipeline in order to achieve professional results and hone their professional critical thinking skills.

PRJ 205 Team Projects (5 Cr.)
Prerequisite: PRJ 150
Concurrent Courses: ART 205, ART 225, CG 300, ENG 315, FLM 201
Description: This course introduces students to the realities of team-based production environments. Each student will pitch a proposed team project to the faculty and the class for consideration. (Select RTIS program junior and senior level projects may also be presented by academic approval.) The animation faculty will then decide which team projects will be produced and will assign students to specific teams based upon their artistic strengths and career goals. Each team will be assigned a primary and secondary faculty advisor.

Each student's individual effort will be measured as well as the overall success of each team. Student teams will not be allowed to jettison individual members due to production conflicts or performance, and all members will be evaluated for the overall teamwork and professional success of the group. Only the faculty will possess the ability to remove a team member for failure to perform.

PRJ 251 2D Vector Animation Production (5 Cr.)
Prerequisites: PRJ 100
Concurrent Courses: ART 225, ART 251, CG 251, CG 275
Description: Students will build upon the foundations of their first two years by exploring a 2D vector-based animation production. (2D vector animations are found throughout the Internet, video game, educational software, and broadcast entertainment industries.) Students will now apply the production pipeline to a sustained project spanning an entire semester. Concepts in research, project development, workflow projection, scheduling, time management, administrative documentation, and quality control will all be given special consideration. Appropriate work habits will also be emphasized.

PRJ 255 Final Projects (5 Cr.)
Prerequisite: PRJ 200
Concurrent Courses: ANI 125, ART 125, ART 255, CG 350, FLM 250
Description: Students will use this course to complete an independent or team project. This project will be geared toward rounding out the student's portfolio and will demonstrate an appropriate level of professional challenge.

PRJ 300 Limited Scope 3D Production (5 Cr.)
Prerequisites: CG 275, PRJ 251
Concurrent Courses: ANI 300, ART 300, CG 300, FLM 200, PHY 115
Description: PRJ 300 addresses two of the more serious emotional challenges facing commercial animators: professional focus and realistic expectations. Animation is a team effort, and it requires a significant commitment of time and resources to accomplish even the most mundane tasks. During this course the students will face a series of choices. First, they must choose one area of focus within 3D animation and spend the entire semester working on a project within this narrow scope. Second, they must limit themselves to a production scale allowing for extensive professional refinement. Students will be introduced to realities of commercial art direction and quality control in conjunction with production deadlines. Students

should be prepared to repetitively revisit the same material with a relentless attention to subtle detail.

PRJ 350 Applied 3D Animation Production Problems (5 Cr.)
Prerequisites: ART 300, CG 300, PRJ 300
Concurrent Courses: ANI 350, ART 350, CG 350, ENG 315
Description: This course challenges students to apply their knowledge of 3D animation and general art theory to a series of problems in 3D production. Historically memory and bandwidth limitations have forced commercial animators to restrict themselves when producing 3D animations. Often the power of the 3D software has outstripped the technical and storage capabilities of the delivery media. Using a series of game and simulation problems, students will face a series of real world production restrictions they must overcome while maintaining highly professional aesthetic standards. Problems will include polygonal face limitations, frame limitations, levels of detail, texture map scale, limited color palettes, simulated lighting illusions, compositing, and cyclical motion.

PRJ 400 Team Projects (5 Cr.)
Prerequisites: ART 350, ENG 215, PRJ 350, Senior Class Standing
Concurrent Courses: ART 401, FLM 250, FLM 275, SOC 115
Description: This course introduces students to the realities of team-based production environments. Each student must first declare an area of specialization in either 2D or 3D animation. This area of specialization will apply to PRJ 300, PRJ 350, and ANI 300. Each student will then present their pre-production work from ART 250, ART 300, ART 350, and ENG 215 to the faculty and the senior class for consideration. (Select RTIS program junior and senior level projects may also be presented by academic approval.) The animation faculty will then decide which team projects will be produced and will assign students to specific teams based upon their artistic strengths and career goals. Each team will be assigned a primary and secondary faculty advisor.

Each student's individual effort will be measured as well as the overall success of each team. Student teams will not be allowed to jettison individual members due to production conflicts or performance, and all members will be evaluated for the overall teamwork and professional success of the group. Only the faculty will possess the ability to remove a team member for failure to perform.

PRJ 450 Final Projects (5 Cr.)
Prerequisites: ART 401, PRJ 400, Senior Class Standing
Concurrent Courses: ANI 400, ART 400, CS 115, LAW 115
Description: Students will use this course to complete an independent or team project in their area of specialization as chosen in PRJ 300. This project will be geared toward rounding out the student's portfolio, demonstrating an appropriate level of professional challenge.

Department of Computer Science

Computer Science

CS 100 Computer Environment I (3 Cr.)
Prerequisites: None
Description: The objective of this course is to provide a good understanding of the fundamental elements on which computers are based. Topics include digital systems, logic circuits and algebra, and data representations. This knowledge eliminates mysteries about hardware and provides a well-rounded understanding of computers.

CS 105 Computer Environment II (3 Cr.)
Prerequisites: CS 100, CS 120
Description: This course builds on the fundamentals learned in CS 100 and introduces microprocessors, micro-controllers, computer architecture, low-level programming, microprocessor development systems. Students will apply the acquired knowledge towards building a micro-controller-based machine such as a simple robotic car. There may be course fees associated with this class. Please see the course registration packet for details.

CS 115 Introduction to Scripting and Programming (3 Cr.)
Prerequisite: CG 350
Description: This class introduces programming environments to students who are not experienced programmers. Simple logic, programming flow, and the use of variables will be discussed. Students will be introduced 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. Special topics in programming and scripting may be covered at the instructor's discretion.

CS 120 High-Level Programming I – The C Programming Language (3 Cr.)
Prerequisites: None
Description: The objective of this course is to present the C programming language. It serves as a foundation for all high level programming courses and projects. The course provides the fundamentals in programming control-flows (such as statement grouping, decision making, case selection, procedure iteration and termination test, etc.) and basic data types (such as arrays, structures, pointers, etc.) The lexical convention, syntax notation, and semantics are discussed intensively.

CS 170 High-Level Programming II – The C++ Programming Language (3 Cr.)
Prerequisite: CS 120
Description: This course is a continuation of High Level Programming I [CS 120]. The course starts where CS 120 left off, that is, with the study of Object-Oriented Programming. OOP is discussed in detail and will be used extensively throughout the course. Students will be introduced to more advanced concepts of higher-level programming constructs using the C++ language.

CS 180 Operating System I, Man-Machine Interface (3 Cr.)
Prerequisites: CS 100, CS 120
Description: This course presents an overview of the various components of modern operating systems, including the kernel, process and thread creation and management, networking, interprocess communication and synchronization, memory management in demand-paged virtual memory systems, and file systems.

CS 200 Computer Graphics I (3 Cr.)
Prerequisite: MAT 150, CS 120
Description: The objective of this course is to provide a rigorous presentation of the mathematical elements and algorithms involved in the generation and viewing of two-dimensional graphic primitives.

CS 220 Advanced C (3 Cr.)
Pre-requisite: CS 170
Description: This course focuses on advanced topics of the C programming language. Such topics include advanced pointer manipulation techniques, pointer applications and using standard library functions more efficiently. The course also presents many methods designed to avoid common C programming errors and pitfalls. Mastering the various topics presented in this course would enable the student to become a more productive programmer.

CS 225 Advanced C/C++ (3 Cr.)
Prerequisite: CS 170
Description: This course builds on the foundation created in the first two High Level Programming courses [CS 120/170]. Advanced topics of the C/C++ programming language are presented in greater detail. Such topics include advanced pointer manipulation, utilizing multi-dimensional arrays, complex declarations, and standard library functions. Among the advanced C++ topics are class and function templates, operator overloading, multiple inheritance, runtime type information, the standard template library, and performance issues.

CS 230 Game Implementation Techniques (3 Cr.)
Prerequisite: CS 170, CS 180
Description: This course introduces students to GDI+, the latest version of Win32 Graphics Device Interface. The implementations of bitmap operations using GDI+ are then discussed in detail along with bitmap data format, loading, saving, scaling and compositing. Win32 API and the creation of dialog boxes is also covered to facilitate the interactive controls for games and tools.

CS 241 Fundamental Computer Graphics (3 Cr.)
Prerequisites: MAT 140 and MAT 200
Description: The Algorithms and Mathematics used in rendering graphics primitives are discussed. Specifically, the class covers the following subjects: graphics pipeline organization, graphical object representations, 2D and 3D coordinate systems and transformations, scan-conversion algorithms, color models and basic culling, clipping and intersection techniques.

CS 245 Introduction to Interactive Sound Synthesis (3 Cr.)
Prerequisites: CS170, CS180, MAT140, PHY100
Description: The course explores sound synthesis, auditory effects to real-time simulation and video games. The subjects include mixing audio, modulating 'dry recorded sounds using wave table synthesis, creating collision sounds using additive synthesis, wind effects using subtractive synthesis, natural sounds using granular synthesis and physical modeling, ambiences using layering and spectral filtering, 3D spatialized sound suing panning, inter-aural time difference, inter-aural intensity difference and Head Related Transforms (HRTFS). Algorithms and techniques for real-time multi-threaded programming and synthesized sound integration for the game engine are also studied.

CS 250 Computer Graphics II (3 Cr.)
Prerequisite: CS 200
Description: This course is the continuation of the Computer Graphics I [CS200] course taken in the previous semester. Particular emphasis is placed on studying the mathematical elements and algorithms used in the generation and viewing of three-dimensional graphic primitives.

CS 260 Computer Networks I, Interprocess Communication (3 Cr.)
Prerequisite: CS 170
Description: This course introduces the hierarchical network communication in a distributed computing environment. Course topics cover network technologies, architecture, and protocols. Hence, it prepares students for programming multi-player games in later semesters.

CS 261 Computer Networks II (3 Cr.)
Prerequisite: CS 260
Description: This class extends the TCP/IP protocols studied in CS 260 to wireless devices. This course goes further in depth into some topics covered in the introductory networks course, as well as additional subjects of interest. Topics include TCP/IP related protocols such as NAT, WAP, and DNS; physical media access such as aloha, OFDM, and WIDEBAND; wireless standards and protocols; and network security. Additional topics will be covered based on the state of the industry.

CS 270 Advanced C++, Designing Classes (3 Cr.)
Prerequisite: CS 220
Description: This course presents the Object-Oriented Methodologies used in the development of large software projects. Combined with the knowledge acquired in the C++ Programming Language courses [CS 120/170/220], students will be able to better manage their Game Software Design and Production and produce reusable code and libraries.

CS 280 Data Structures (3 Cr.)
Prerequisite: CS 220 or CS 225
Description: The objective of this course is to introduce the classical Abstract Data Types (ADT) in computer science. ADTs provide the hierarchical views of data organization used in programming. Among the topics covered are the algorithms and primitives of the data structures for arrays, linked lists, stacks, queues, trees, hash tables, and graphs. In addition, the course provides an introduction to algorithm complexity and notation.

CS 300 Advanced Computer Graphics I (3 Cr.)
Prerequisite: CS 250
Description: This course deals with the advanced topics of computer graphics that are involved in viewing three-dimensional environments. Particularly, the course topics cover algorithms used for detecting the visible lines and surfaces of three-dimensional objects.

CS 315 Low-Level Programming (3 Cr.)
Prerequisite: CS 105, CS 120, CS 180
Description: This course provides the students with an introduction to microprocessor architecture, as well as the knowledge required to directly address and program the microprocessor and the various hardware devices connected to it. The resulting code is usually faster than similar code written in a high-level language such as C or C++. Hence, it has great importance in improving the response speed of real-time interactive programs.

CS 330 Design and Analysis of Algorithms (3 Cr.)
Prerequisites: CS 270 or CS 225, CS 280
Description: The objective of this course is to design and analyze algorithms on the ADT such as table, queue, binary tree, and linked list. Particular emphasis is placed on studying the correctness and efficiency of these algorithms.

CS 340 Image Synthesis (3 Cr.)
Prerequisites: CS 170, MAT 150
Note: Students may not receive credit for both CS 250 and CS 340
Description: This course addresses the generation of 2D and 3D computer graphic images. Topics include scene transformations and perspectives, the representation of 3D objects by polygons and curved surfaces, lighting, shading, and texture mapping.

CS 341 Advanced Computer Graphics (3 Cr.)
Prerequisites: MAT 200, CS 200
Description: This course studies algorithms and techniques that are designed to improve the efficiency and increase the realism of 3D graphics. Two subjects are discussed: (1) algorithms that eliminate invisible objects from being further processed by graphics pipeline, including BSPTree, Octree, occlusion, portal, etc., and (2) techniques that add details on objects' surface, including lighting and shading models, texture mapping, bump mapping, environmental mapping and shadow algorithms.

CS 350 Advanced Computer Graphics II (3 Cr.)
Prerequisite: CS 300
Description: This course deals with the advanced topics of computer graphics that are involved in rendering a three-dimensional environment. Particular emphasis is placed on adding realism to the rendered surface of three-dimensional objects as a result of lighting, shading, and texture mapping.

CS 365 Software Engineering (3 Cr.)
Prerequisite: CS 170
Description: This course covers a wide range of topics in Software Engineering from the practical standpoint. It encompasses project management issues as well as technical development principles and methods. Topics include methodologies and notation, object oriented analysis and design, requirements analysis, implementation, verification, validation, maintenance, and software engineering standards. Acquired knowledge will be applied by student teams to a substantial project.

CS 370 Image Processing (3 Cr.)
Prerequisites: CS 180, CS 280
Description: This course introduces some of the popular image processing techniques. Course material covers methods students can apply in creating special effects with digital images and preparing graphics information for either human or computer interpretation.

CS 380 Robotic Intelligence (3 Cr.)
Prerequisite: CS 280
Description: The techniques developed for real-time adaptive control of mobile robots are among the AI methods most suitable for game characters. Robots and game characters must both navigate unknown terrain and avoid or overcome obstacles. All planning must be subject to instant revision. This class treats game characters as virtual robots. Robotic AI methods will be used without building any physical robots. The class covers the hierarchical control paradigm and expert systems based on LISP or related scripting languages. It then focuses on reactive agents using subsumption architecture or potential fields. The class then examines the hybrid paradigm and navigation. It concludes with implementation examples in games.

CS 381 Machine Learning (3 Cr.)
Prerequisite: CS 280
Description: This course deals with the question of how to construct computer programs that automatically improve with experience. Observed events are used to inductively construct decision trees, which can be used by computer-controlled game characters to change behaviors.

Other techniques examined include Bayesian learning, artificial neural networks, and genetic algorithms.

CS 400 Ray Tracing (3 Cr.)
Prerequisite: CS 350 or equivalent
Description: This course introduces the ray tracing technique in computer graphics. It places particular emphasis on studying the mathematical elements of light illumination models, light intersection calculations, and data structure organization.

CS 420 Graphics File Format and Data Compression Techniques (3 Cr.)
Prerequisites: CS 250 and CS 280, or CS 340
Description: This course covers data compression techniques for still images and multimedia. These include run length encoding, entropy coding, dictionary compression, transforms, and motion compensation. The techniques are illustrated by examining various popular graphic file formats such as BMP, TIFF, GIF, JPEG, DXF, MPEG, etc.

CS 460 Advanced Animation and Modeling (3 Cr.)
Prerequisites: CS 300, MAT 300, GAT 300
Description: 3D animation and modeling play significant roles in computer simulation and video game software. This course introduces algorithms for specifying and generating motion for graphical objects. It addresses practical issues, surveys accessible techniques, and provides straightforward implementations for controlling 3D moving entities with different characteristics.

CS 500 Ray Tracing (3 Cr.)
Prerequisite: Entrance into the Master of Science in Computer Science program.
Description: This course introduces the ray tracing technique in computer graphics. It places particular emphasis on studying the mathematical elements of light illumination models, light intersection calculations, and data structure organization.

CS 510 Advanced Rendering Techniques (3 Cr.)
Prerequisites: CS 350, CS 500, or equivalent
Description: This class introduces efficient algorithms and techniques concerned with making images rapidly in interactive computer simulation and video game software. The topics include level of details, implicit surfaces, pipeline optimization, advanced intersection, and collision detection.

CS 520 Reasoning Under Uncertainty (3 Cr.)
Prerequisites: CS 380, CS 381, or equivalent
Description: This class covers advanced search and path finding techniques. It explores decision making in uncertain environments, using techniques from blackboard architectures, fuzzy inference systems, and knowledge engineering.

CS 530 Advanced Game Engine Design (3 Cr.)
Prerequisites: None
Description: This class discusses the theoretical and practical issues in the game engine design.

CS 560 Advanced Animation Algorithms (3 Cr.)
Prerequisite: CS 300 or equivalent, MAT 300, GAT 300
Description: This course introduces algorithms for specifying and generating motion for graphical objects. It addresses practical issues, surveys accessible techniques and provides straightforward implementations for controlling 3D moving entities with different characteristics. The class covers two broad categories: the first group, "Interpolation-based technique", allows programmers to fill in the details of the motion or shape once the animator specifies certain basic information; the second group, "behavior-based technique", generates motion that satisfies a set of rules.

CS 561 Advanced Animation Algorithms II (3 Cr.)
Prerequisite: CS 560 or CS 460
Description: This class discusses special topics on the advanced animation and modeling algorithm and techniques in 3D simulation. The topics include natural phenomena modeling, facial animation, deformable objects, motion blending, and motion capture.

CS 570 Image Processing (3 Cr.)
Prerequisites: Entrance into the Master's program in C.S.
Description: This course introduces some of the popular image processing techniques. Course material covers methods students can apply in creating special effects with digital images and preparing graphics information for either human or computer interpretation.

CS 580 Robotic Intelligence (3 Cr.)
Prerequisite: Entrance into the Master's program in C.S.
Description: The techniques developed for real-time adaptive control of mobile robots are among the AI methods most suitable for game characters. Robots and game characters must both navigate unknown terrain and avoid or overcome obstacles. All planning must be subject to instant revision. This class treats game characters as virtual robots. Robotic AI methods will be used without building any physical robots. The class covers the hierarchical control paradigm and expert systems based on LISP or related scripting languages. It then focuses on reactive agents using subsumption architecture or potential fields. The class then examines the hybrid paradigm and navigation. It concludes with implementation examples in games.

CS 599 Special Topics (3 Cr.)
Prerequisites: None
Description: This class covers topics related to the theoretical study of 3D computer graphics.

CS 600 Thesis (6 Cr.)
Prerequisites: All course requirements for the first semester (M.S. Program) and a GPA of 3.0 or higher
Description: This class is taken simultaneously with the second semester courses, allowing students to investigate a current topic in Computer Science that is proposed and then determined between the student and advisor.

Electrical Engineering

EE 200 Electric Circuits (3 Cr.)
Prerequisite: CS 105
Description: Topics in this course include: passive components, series and parallel circuits, two-terminal networks, two-port networks, circuit reduction techniques, impedance analysis, measurement of waveforms, power, and filters.

EE 210 Digital Electronics I (3 Cr.)
Prerequisites: CS 105, EE 200
Concurrent Courses: LAB 210, EE 200
Description: Topics in this course include: digital logic, programmable logic devices, FPGA, arithmetic circuits, multiplexors and demultiplexors, logic families, memory devices, and flip-flops.

EE 260 Digital Electronics II (3 Cr.)
Prerequisite: EE 210
Concurrent Course: LAB 260
Description: This course covers counter circuits, shift registers, timers, digital/analog conversion, microprocessor architecture, ports, and interrupt handling. The course also examines the use of logic analyzers and in-circuit emulation (ICE) with particular emphasis on small-scale systems for embedded devices.

EE 300 Embedded Microcontroller Systems (3 Cr.)
Prerequisites: CS 315, EE 260
Concurrent Course: LAB 310
Description: This class provides the remaining concepts needed to build the hardware and software for a handheld gaming device. Topics include Harvard architecture, microprocessor systems, analog/digital conversions, timing control, serial ports, peripheral access, and digital signal processor (DSP) applications to real-time audio processing.

EE 350 Linear Control Systems (3 Cr.)
Prerequisite: MAT 256
Description: Topics in this course include: signals and systems, state-space description, convolution, frequency analysis of signals, feedback, Bode, Nyquist, root locus analysis, stability, phase margin, observability, errors in tracking and steady-state, motor control, PID control, and Kalman filters.

EE 400 Motors and Sensors (3 Cr.)
Prerequisite: PHY 270
Concurrent Course: LAB 410
Description: Topics in this course include: three phase circuits, transformers, power transmission, motors and generators, stepper motors and encoders, motor controllers, limit switches, and sensors – optical, acoustic, eddy current, and triangulation.

Laboratory

LAB 210 Introduction to Robotics (4 Cr.)
Prerequisites: CS 105, GAM 150
Concurrent Course: EE 210
Description: Continuing the concepts learned in CS 105, students will build a robot that uses an embedded microprocessor system. It may be entered in a competition. The class introduces concepts of software engineering and process documentation. Students will additionally document the design, production, and service of their device.

LAB 260 Real-Time Operating Systems (4 Cr.)
Prerequisites: GAM 150, CS 315
Description: Students will build a prototype consumer or industrial device that uses an embedded microprocessor system and a commercial real-time operating system (RTOS). The class covers multitasking, interrupt handling, threads, synchronization, preemption, resources, and messaging.

LAB 310/360 Project III Handheld Gaming Device (5 Cr. Each)
Prerequisites: LAB 260, CS 315
Concurrent Course: EE 300
Description: Students will work in small teams to design, build, program, and test a device similar to the Color Game Boy studied previously. Students will assemble a microprocessor with storage, input, and display devices into a handheld game platform. The project will include programming a game to run on the system.

LAB 410/460 Project IV Robots (5 Cr. Each)
Prerequisites: LAB 360
Concurrent Course: EE 400
Description: Students will build mobile or entertainment robots. The project includes specification and construction of mechanical and electrical subsystems. A CAD system will be used to design mechanical parts. The team will interact with an artist or designer from the Fine Arts Program.

Department of Game Software Design and Production

Game

GAM 100 Project Introduction (3 Cr.)
Prerequisites: None
Concurrent Courses: CS 100, CS 120
Description: This class presents an overview of the way the game development industry works, a history of game development, and exposure to the positions and job responsibilities that each member of a game development team has along with the industry requirements for the creation of a game design document (GDD) and a technical design document (TDD). Over the remainder of the semester, students will be broken into teams responsible for designing and developing text-based games, complete with a functional GDD and TDD, schedule and milestones. Additionally, each student will be required to create individual games using the ProjectFUN game development environment created by DigiPen. Games created via ProjectFUN will be graphical in nature, serving to enhance the student's retention of C/C++ coding techniques and math functions taught in the first semester CS and MAT classes.

GAM 150 Project I (3 Cr.)
Prerequisite: GAM 100
Description: Continuing with the teams they were assigned to in GAM 100, each team will be responsible for preparing a GDD and TDD for one team-based project. Teams complete the approved game design according to the schedule they establish in their technical design. Each team will present these completed games to the Institute at large during the final week of the semester. Additionally, each student will be designing and developing smaller projects using a variety of tools. These projects reinforce the game design and implementation curriculum.

GAM 200/GAM 250 Project II (4 Cr. Each)
Prerequisites: GAM 200: GAM 150, CS 170, 180, MAT 150; GAM 250: GAM 200, MAT 200, CS 200, 230
Concurrent Courses: GAM 200: MAT 200, CS 200, 230; GAM 250: CS 250, 260, 270, 280
Description: This project is divided into two semesters where students are tasked with designing and implementing a scrolling game engine. Similar to Project I, they start by writing a GDD and TDD. Along with creating a scrolling engine, students will also explore networking within conventional games, sound, and music as it affects game design during this full year project as well as an introduction to designing games for a multiplayer environment.

Since the project is intended to be a multiplayer game, in GAM 200 students create multiplayer games on one system that migrate to being networked onto multiple machines in GAM 250.

GAM 240 Intermediary Game Project I (5 Cr.)
Prerequisite: BS is Computer Science with knowledge of C++
Description: This course focuses on the game production cycle in theory and in practice. Course lectures will cover the entire production cycle of a game – from pre-production documentation, to tool creation and coding, to marketing the finished project. In addition, students will form into 3-4 member teams to create a 2D or 3D simulation game on the PC. Topics include game design theory, project management, Windows gaming environment, and user interface implementation. During the course each team will be required to complete a pitch presentation (to be presented to the faculty), Game Design Document, a Technical Design Document, and a first-playable prototype. The project and marketing campaign will be completed in GAM 340.

GAM 340 Intermediary Game Project II (5 Cr.)
Prerequisite: GAM 240
Description: Completion of the GAM240 project as a fully functional game/simulation including manual and marketing material. Topics will cover the business side of the game industry and how games are marketed. Teams will present their projects in pre-beta version to focus groups and present analyses of their responses. Successful completion of the project will require a comprehensive marketing plan and game packaging materials (box, manual, sell sheet). At the completion of the project, the team will be required to generate a postmortem suitable for submission to an online game development site.

GAM 300/350 Project III (5 Cr. Each)
Prerequisites: GAM 300: GAM 250, CS 250, 260, 270, 280; GAM 350: GAM 300, CS 300, 315, 320, 330, GEN 300.
Concurrent Courses: GAM 300: CS 300, 330, GEN 300. GAM 350: MAT 250
Description: This project is divided into two semesters whose focus is on low-level programming of a simulation type game, complete with artificial intelligence. Given the complexities and nuances of a simulation, ideally the teams will remain together for the entire year to work on a specific form of simulation (sport, vehicle, or city management).

A large component of this class will be focused on AI-related research and the requirements for AI in games from a simulation perspective. Also, since real-game and real-life physics will be required to be modeled in the projects, an understanding of what this entails will be covered in class. Additionally, students will also learn about networking up to eight players on a LAN.

Similar to Project II, students present their ideas through a concept proposal and in the form of a written GDD and TDD. These components demonstrate an understanding of low-level programming and the ability to define a memory map for their applications. After their presentation, students go through an extensive code review using professional tools.

GAM 400/450 Project IV (5 Cr. Each)
Prerequisites: GAM 400: GAM 350, CS 315, 350, MAT 250; GAM 450: GAM 400, MAT 300, PHY 200, CS 400
Concurrent Courses: GAM 400: MAT 300, CS 400; GAM 450: MAT 350
Description: This is a two-semester project, with a focus on PC-based 3D games. The requirements of modeling in a 3D (as opposed to sprite-based) game will be covered as well.

3D games offer all of the challenges of the first three projects plus the added nuance of management of polygonal (vector-based) characters as opposed to sprite-based graphics. Furthermore, analog and digital controllers and other forms of tertiary input are covered. 3D games also push the student to manage their memory effectively in order to sustain a high frame rate for polygonal animation. Advanced techniques such as pixel shading may be covered.

Similar to Project III, the students present their ideas in the form of a written GDD and TDD. The written components must include all the sections described earlier in Project III as well as marketing materials, user manuals, packaging, sell sheets, focus group responses, extensive examples of beta testing, and creation of a final version deliverable for commercial release.

GAM 390/490 Internship I/II (5 Cr.)
Prerequisites: GAM 200, GAM 250, GAM 300
Description: 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 well structured along the Internship Guidelines available in the Administration Office.

GAM 550 Game Project I (3 Cr.)
Prerequisite: B.S. in Computer Science or related field of study
Description: This course challenges the student to research the latest techniques in game design and technology and then apply their findings in a 3D game/simulation. Students will investigate issues in 3D techniques, artificial intelligence, and "next generation" game console architecture as well as such advanced game design issues as massively multi-player "persistent worlds", input/GUI theory and design, and advanced simulation theory and applications. Students will report their results to the class and then present a "pitch paper" for a product that incorporates their findings both to the class and a faculty review board. Students will then create a Game Design Document and Technical Design Document for the approved project. Depending on the scope of their projects, students will work individually or on teams. By the end of the semester, students should complete a prototype of their game/simulation.

GAM 551 Game Project II (3 Cr.)
Prerequisite: GAM 550
Description: Completion of the GAM550 project as a fully functional game/simulation including manual and marketing material. Topics will cover advanced team leadership skills, short-term project budgeting and long-term financial planning, and legal issues related to the game industry. Teams will present their projects in pre-beta version to focus groups and present analyses of their responses. Successful completion of the project will require a FLASH/XML/multimedia presentation of the finished title and marketing plan to a Creative Board. At the completion of the project, the team will be required to generate a postmortem suitable for submission to an online game development site.

Game Application Techniques

GAT 300 3D Computer Animation Production I (3 Cr.)
Prerequisites: None
Description: (Formerly GEN 300) This course deals with all the basic theories and techniques utilized in the production of computer animations. Students will be introduced to a computer-based 3D animation package, which they will use throughout the course.

GAT 350 3D Computer Animation Production II (3 Cr.)
Prerequisite: GAT 300
Description: (Formerly GEN 350) This course builds on the fundamentals taught during GEN 300. Students will learn about key framing, special effects, final rendering, and recording.

GAT 400 Multimedia Aspects of Game Making I (3 Cr.)
Prerequisites: None
Description: (Formerly GEN 400) With the introduction into the market of high-level tools allowing the assembly of video games from a set of pre-programmed components, game programmers can very quickly assemble games. More often than not, these games lack optimization and are more suitable for prototyping or creating interactive, multi-media presentations. Some of these tools include high-level programming languages in addition to the click and point Graphic User Interface.

GAT 450 Multimedia Aspects of Game Making II (3 Cr.)
Prerequisite: GAT 400
Description: (Formerly GEN 450) In this second section of the course, students take the knowledge gained in GEN 400 and apply it in the creation of a game or an interactive portfolio.

Department of General Education

Biology

BIO 100 Visual Perception (3 Cr.)
Prerequisites: None
Description: This course explores the nature of human visual perception. Beginning with the physics of light and the anatomy of the human eye, the course examines how human beings process light information and use this data to survive. Neuro-physiology, perceptual psychology, and artistic traditions will all be examined. Special consideration will be given to the modern technological and professional uses of this knowledge.

BIO 150 Human Muscular, Skeletal, and Kinetic Anatomy (3 Cr.)
Prerequisite: BIO 100
Description: This course explores the skeletal and muscular structures of the human body. Students will learn to identify skeletal and muscular forms from both live models and anatomical reference. Vocabulary, structural arrangement, and kinetic function will all be considered. Special emphasis will be given to adapting this knowledge to the needs of artists and animators.

BIO 200 Animal Muscular, Skeletal, and Kinetic Anatomy (3 Cr.)
Prerequisite: BIO 150
Description: This course introduces the major skeletal and muscular structures of animals. Students will extrapolate their knowledge of the human form to the structure and form of a variety of animal types. Special emphasis will be placed upon the impact of locomotion and feeding strategies upon form. Vocabulary, structural arrangement, and kinetic function will all be considered. The course also considers standard locomotion cycles and the relationship between man and various animals. Special emphasis will be given to adapting this knowledge to the needs of artists and animators.

Economics

ECN 350 Engineering Economics (3 Cr.)
Prerequisites: None
Description: Topics in this course include: present worth; future amounts; cash flows; salvage value; depreciation; income tax; basic cost accounting; venture capital, SBIR and other funding sources; and patents, copyright and intellectual property.

English

ENG 110 Composition (3 Cr.)
Prerequisites: None
Description: George Leonard, a leading writer on education, wrote: "To learn is to change. Education is a process that changes the learner." Writing is also a process that changes the writer. In this practical course in composition, students will spend time generating ideas for writing, sharing and critiquing their writing and ideas, revising their ideas, and learning more about themselves as a result. Emphasis will be placed on using writing as a tool to explore and discover their thought processes, beliefs, and world concepts. Students will employ writing as a tool to develop critical thinking skills. In the process of organizing ideas and, subsequently, manifesting those ideas into various compositional styles and forms, students will become conscious of the concepts which have shaped and are continually shaping their personal realities.

ENG 115/116 Storytelling (3 Cr. for 115 or 4 Cr. for 116)
Prerequisites: None
Description: Students will explore the nature of storytelling. Beginning with the psychosocial drive to tell stories, students will be exposed to the historical traditions of storytelling in all forms. The course covers the classical elements of story structure, traditional story goals, and critical thinking strategies for matching story form to a specific goal. Through a series of oral and written exercises, students will hone their storytelling skills. Special emphasis will be given to telling stories with time restrictions and the modern commercial applications of both linear and non-linear storytelling.

ENG 150 Mythology for Game Designers (3 Cr.)
Prerequisite: ENG 110
Description: The power of myth resides in its ability to touch the essence of our humanity and put meaning into our lives. Artists, filmmakers, game designers, and writers have appropriated elemental mythological premises and 'updated' them to create modern myths accessible to contemporary audiences. Whether we are playing a role-playing game wherein the task is to rescue the princess and save the planet, reading the latest cyberpunk novel, or watching an animated Disney classic, the power of mythology touches our psyches.

This course is an overview and analysis of cross-cultural mythology presented as prose, film, and game. The idea that myths have influenced cultures of the past and continue to inform and influence our culture of today will be discussed in depth throughout the course. The course will also examine the practical use of myth. Emphasis will be placed on the monomyth of the hero's journey and how a game developer may redefine the archetypal figures and adventures therein and incorporate them in a game design.

ENG 200 Literature (3 Cr.)
Prerequisite: ENG 100
Description: Students are given an overview on influential works of literature from various periods and countries in order to examine the fundamental elements that have helped these stories "stand the test of time." Providing a basic knowledge and appreciation for these works is important, as they are an incredible source of inspiration. Many of these literary works have been adapted into screenplays that were ultimately produced as films or theatrical events. Towards the end of the course, students will have an opportunity to review the films/animations and analyze whether the productions were successful or not.

ENG 240 Legends, Myths and the Art of the Tale (3 Cr.)
Prerequisites: None
Description: Students will explore the nature of storytelling. Beginning with the cultural drive to tell stories, students will be exposed to the historical traditions of storytelling in selected forms. The course covers the culturally based elements of story structure, story goals, and critical thinking strategies for matching story form to a specific goal. Through a series of oral and written exercises, students will examine and enhance their knowledge of storytelling skills in a multicultural context.

ENG 315/316 Story Through Dialogue (4 or 3 Cr.)
Prerequisite: ENG 115
Description: Dialogue is a critical element of modern storytelling. This course explores the effective uses of dialogue in fiction, drama, and film. Students will discover how dialogue serves to move the action forward, build history, and develop character. They will continue to hone their storytelling skills through a series of written and oral dialogue exercises. Additionally, students will learn traditional dialogue and scripting formats and when these formats should be used. They will also consider the aural nature of dialogue by examining topics such as onomatopoeia, alliteration, and meter. The course culminates in pre-production script proposals for use in PRJ 300, PRJ 350, or ANI 300.

ENG 352 Character Analysis and Development in Game Design (3 Cr.)
Prerequisite: ENG 110
Description: Where do effective and engaging fictional characters come from? To say simply that they spring from the creator's imagination is not enough. This course examines memorable characters and explores techniques for devising and developing new ones. In this writing-intensive course, students will analyze, criticize, and create, ultimately acquiring a clear sense of the audience-driven creative style of inventing characters.

ENG 400 Creative Writing for Game Design (3 Cr.)
Prerequisite: ENG 150
Description: Creative Writing for Game design will focus on the narrative elements of creative writing. Exercises are designed to generate thinking and hone students' basic storytelling talents including characterization, exposition, plot, conflict, back-story, dialogue, and appropriate use of language. Students will learn how symbols are used to design a story, and how the symbols can be manipulated to create character, plot, message, and a degree of interactivity in their game design. Students will be encouraged to access their own genius, culture, and life experience in the development of their stories.

ENG 450 Elements of Media for Game Developers (2 Cr.)
Prerequisites: None
Description: In this course, students will be introduced to the principles of film and other non-game media. Students will review technologically and artistically groundbreaking media. Emphasis will be placed on defining the term "media," analyzing film and TV, and examining how certain elements of historical and modern media can be adapted to the burgeoning industry of game and interactive media development. Students will have ample opportunity to brainstorm how they, as future programmers and designers, might borrow from the masters of 20th century media and utilize such knowledge to surpass the current boundaries of interactive media products.

Law

LAW 115 Introduction to Intellectual Property and Contracts (3 Cr.)
Prerequisites: None
Description: 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 will grapple with fundamental issues surrounding this field such as fair use, international relations, and economics. The course will also introduce students to a basic overview of contracts including structure, traditions, and vocabulary.

Social Sciences

SOS 115 Media and Ethics: A Social Science Perspective (3 Cr.)
Prerequisites: None
Description: 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 will acquire an understanding of the structure of social institutions and the process through which social choices are made. 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.

SOS 150 Society and Technology (3 Cr.)
Prerequisites: None
Description: This survey course examines the impact of information and computer technology on society through techniques and perspectives drawn from social science and cultural studies. This course explores the impact of several technologies on urban places throughout the world. The course seeks to comprehend technology as a significant social and cultural reality. The course also considers how information and communications technologies affect societal values and ethics.

Department of Mathematics and Physics

Math

MAT 100 Algebra and Trigonometry (4 Cr.)
Prerequisites: None
Description: This course covers basic algebra, trigonometry and vector algebra. Topics covered include: functions and their graphs, especially polynomial, rational, trigonometric, exponential and logarithmic functions, and their inverses, conics, analytic trigonometry and identities, systems of equations, matrix algebra, vector dot product, and rotation matrices.

MAT 140 Linear Algebra and Geometry (4 Cr.)
Prerequisite: DigiPen's Placement Exam
Description: A concrete and primarily 2D introduction to linear algebra. Topics to be covered include: coordinate systems, trigonometry, vectors and vector operations, representations of lines and planes, linear transformations, barycenters, and affine transformations.

MAT 150 Calculus and Analytic Geometry I (4 Cr.)
Prerequisite: MAT 100 or MAT 140
Description: This course covers functions of a single real variable, limits, techniques of differentiation, applications to graphing, analytical geometry, physics, parametric functions, and an introduction to integration.

MAT 200 Calculus and Analytic Geometry II (4 Cr.)
Prerequisite: MAT 150
Description: This course covers applications of the integral in physics, techniques of integration, sequences, series, and beginning vector calculus.

MAT 225 Calculus and Analytic Geometry III (3 Cr.)
Prerequisite: MAT 200
Description: This course covers vector-valued functions, curvature, torsion, partial derivatives, multiple integrals, vector fields, Green's, divergence, Stokes' Theorems, and beginning differential equations.

MAT 250 Linear Algebra (3 Cr.)
Prerequisite: (MAT 140 and MAT 150) or MAT 200
Description: This course presents the mathematical foundations of linear algebra. Systems of equations, Gauss-Jordan algorithm, matrices, vector spaces, determinants, subspaces, bases, linear transformations, eigenvalues. Other topics may include applications to least-squares approximations and Fourier transforms, differential equations, and computer graphics.

MAT 256 Introduction to Differential Equations (3 Cr.)
Prerequisite: MAT 200
Description: This course introduces basic theory of first and second order linear differential equations, harmonic oscillators, series solutions, and Laplace transform.

MAT 258/358 Discrete Maths (3 Cr.)
Prerequisites: MAT 150
Description: This course covers propositional and first order logic, basic number theory, enumeration, recurrence relations, mathematical induction, generating functions, basic probability graph theory, and asymptotic analysis.

MAT 300 Curves and Surfaces (3 Cr.)
Prerequisites: MAT 250 and MAT 258
Description: This course presents the mathematical foundations of parametrized polynomial curves and surfaces. Topics include Bezier curves, control points, de Casteljau algorithm, splines, de Boor algorithm for polynomial curves, bipolynomial and total degree surfaces.

MAT 340 Probability and Statistics (3 Cr.)
Prerequisites: MAT 200 and MAT 258
Description: Topics covered in this course, include: continuous and discrete probability density functions, mean, conditional probability, Bayes Theorem,expectation, variance, sums of random variables, statistical tests, distributions: binomial, poisson, chi-square, and normal, confidence intervals, central limit theorem, fuzzy sets, and logic.

MAT 350 Advanced Curves and Surfaces (3 Cr.)
Prerequisite: MAT 300
Description: Topics covered in this course include mathematical foundations for non-uniform rational B-spline (NURBS) curves and surfaces, de Casteljau and de Boor algorithms, knot insertion, and subdivision. Other topics may include subdivision surfaces, curvature of curves and surfaces, tensor products.

MAT 351 Quaternions, Interpolation, and Animation (3 Cr.)
Prerequisite: MAT 300
Description: This course covers topics in abstract algebra and geometry woven together by the thread of quaternions. Topics include: rotation operators, finite groups, real algebras, the complex numbers as an algebra, unit complex numbers as rotations in the plane, division algebras, Hamilton's quaternion algebra, quaternions as 3D rotation operators, the unit quaternion sphere, interpolation of quaternions, continuity and differentiability of interpolation, and applications to computer graphics.

MAT 352 Wavelets (3 Cr.)
Prerequisite: MAT 250
Description: Wavelets provide a method of representing and approximating functions. This course addresses applications to computer graphics including image editing, compressions, surface reconstruction from contours and fast methods of solving 3D simulation problems. The course will supply the necessary background in Fourier analysis, Haar transform, multiresolution analysis, subdivision curves and surfaces, and B-spline wavelets.

MAT 353 Differential Geometry (3 Cr.)
Prerequisite: MAT 250
Description: This course covers the topics of parametric curves in R^3: Arc Lenth, curvature, and torsion. Later in the course regular surfaces in R^3 (Fundamental forms, Gaussian curvature, the Gauss map, and intrinsic geometry) will be addressed. Finally, students will be introduced to differentiable manifolds, Riemannian metrics and the curvature tensor.

MAT 354 Discrete and Computational Geometry (3 Cr.)
Prerequisite: MAT 250 and MAT 258
Description: This course covers the topics of triangulation, Art Gallery Theorems, Voronoi diagrams, Delaunay graph, convex hulls, Minkowski sums and path finding, randomized algorithms. The course develops various data structures and algorithms along the way. A major focus will be on the mathematical analysis of these algorithms and, in particular, the mathematics that arises in this analysis. Background in $\cal O$-analysis, probability theory and geometry will be covered in the course. Students are encouraged to take CS 330 concurrently with this course for background.

MAT 355 Graph Theory (3 Cr.)
Prerequisite: MAT 250 and MAT 258
Description: This course addresses the basics of graphs and trees and the algorithms on them, connectedness, Euler tours, Hamiltonian cycles, spanning trees, coloring algorithms, planarity algorithms, and search algorithms.

MAT 356 Advanced Differential Equations (3 Cr.)
Prerequisite: MAT 250 and MAT 256
Description: This course addresses the topics of stability, dynamical systems, applications to classical mechanics, periodic phenomena, attractors, chaos theory, predator-prey problems, and calculus of variations.

MAT 357 Numerical Analysis (3 Cr.)
Prerequisite: MAT 250
Description: Topics in this course include root finding, interpolation, approximation of functions, cubic splines, integration, differential equations, stability, iterative methods, eigenvalue approximation, and FFT.

MAT 359 Computational Algebraic Geometry (3 Cr.)
Prerequisite: MAT 250
Description: This course will cover affine varieties, polynomial ideals, the algebra-geometry dictionary, monomial orderings, Grobner bases, Buchberger algorithm, resultants, Zariski closure of algebraic sets, applications to intersections of curves and surfaces, and multivariate polynomial splines.

MAT 361 An Introduction to Number Theory and Cryptography (3 Cr.)
Prerequisite: MAT 250
Description: This course will include some topics from classical number theory such as Divisibility, Euclidean Algorithm, Congruences, and Quadratic Reciprocity. Topics from modern number theory will include: Factoring Algorithms, Finite Fields, Number Fields, and the Arithmetic of Elliptic Curves. In the second half of the course there will be applications of the number theory to Basic Cryptography. Topics will include: Public Key Cryptosystems, Discrete Log Problem, Zero Knowledge Protocols, RSA algorithm, and applications of primality testing.

MAT 390 Special Topics (3 Cr.)
Prerequisite: Consent of instructor
Description: Topics and content vary according to instructor.

MAT 399 Independent Study (3 Cr.)
Prerequisite: Permission of instructor
Description: Topics and content vary according to student-instructor collaboration.

MAT 400 Introductory Analysis (3 Cr.)
Prerequisite: MAT 250 and MAT 258
Description: Real and complex numbers, metric spaces, sequences and series, continuity, differentiation, integration.

MAT 450 Abstract Algebra (3 Cr.)
Prerequisite: MAT 250 and MAT 258
Description: This course covers the basic theory of groups, rings, fields. Additionally, the topics of symmetry, quotient spaces, homomorphism theorems, and group actions are addressed along with linear algebra (forms, dual space, and matrix groups).

MAT 500 Curves and Surfaces (3 Cr.)
Prerequisite: Entrance into the Master's program in C.S.
Description: This course introduces students to mathematical foundations of parametrized polynomial curves and surfaces. Topics include Bezier curves, control points, de Casteljau algorithm, splines, de Boor algorithm for polynomial curves, and bipolynomial and total degree surfaces.

MAT 550 Advanced Curves and Surfaces (3 Cr.)
Prerequisite: Entrance into the Master of Science in Computer Science program.
Description: Mathematical foundations for non-uniform rational B-spline (NURBS) curves and surfaces, de Casteljau and de Boor algorithms, knot insertion, subdivision. Other topics may include subdivision surfaces, curvature of curves and surfaces, tensor products.

MAT 551 Quaternions, Interpolation, and Animation (3 Cr.)
Prerequisite: Entrance into the Master of Science in Computer Science program.
Description: The course covers topics in abstract algebra and geometry woven together by the thread of quaternions. Topics include: rotation operators, finite groups, real algebras, the complex numbers as an algebra, unit complex numbers as rotations in the plane, division algebras, Hamilton's quaternion algebra, quaternions as 3D rotation operators, the unit quaternion sphere, interpolation of quaternions, continuity and differentiability of interpolation, and applications to computer graphics.

MAT 552 Wavelets (3 Cr.)
Prerequisite: Entrance into the Master of Science in Computer Science program.
Description: Wavelets provide a method of representing and approximating functions. This course addresses applications to computer graphics including image editing, compressions, surface reconstruction from contours and fast methods of solving 3D simulation problems. The course will supply the necessary background in Fourier analysis, Haar transform, multiresolution analysis, subdivision curves and surfaces, and B-spline wavelets.

MAT 553 Differential Geometry (3 Cr.)
Prerequisite: Entrance into the Master of Science in Computer Science program.
Description: This course covers the topics of parametric curves in R^3: Arc Lenth, curvature, and torsion. Later in the course regular surfaces in R^3 (Fundamental forms, Gaussian curvature, the Gauss map, and intrinsic geometry) will be addressed. Finally, students will be introduced to differentiable manifolds, Riemannian metrics and the curvature tensor.

MAT 554 Discrete and Computational Geometry (3 Cr.)
Prerequisite: Entrance into the Master of Science in Computer Science program.
Description: This course covers the topics of triangulation, Art Gallery Theorems, Voronoi diagrams, Delaunay graph, convex hulls, Minkowski sums and path finding, randomized algorithms. The course develops various data structures and algorithms along the way. A major focus will be on the mathematical analysis of these algorithms and, in particular, the mathematics that arises in this analysis. Background in $\cal O$-analysis, probability theory and geometry will be covered in the course. Students are encouraged to take CS 330 concurrently with this course for background.

MAT 555 Graph Theory (3 Cr.)
Prerequisite: Entrance into the Master of Science in Computer Science program.
Description: This course covers the basics of graphs and trees and the algorithms on them, connectedness, Euler tours, Hamiltonian cycles, spanning trees, coloring algorithms, planarity algorithms, and search algorithms.

MAT 556 Advanced Differential Equations (3 Cr.)
Prerequisite: Entrance into the Master of Science in Computer Science program.
Description: This course addresses the topics of stability, dynamical systems, applications to classical mechanics, periodic phenomena, attractors, chaos theory, predator-prey problems, and calculus of variations.

MAT 557 Numerical Analysis (3 Cr.)
Prerequisite: Entrance into the Master of Science in Computer Science program.
Description: Topics covered in this course include root finding, interpolation, approximation of functions, cubic splines, integration, differential equations, stability, iterative methods, eigenvalue approximation, and FFT.

MAT 559 Computational Algebraic Geometry (3 Cr.)
Prerequisite: Entrance into the Master of Science in Computer Science program.
Description: This course covers the following topics: affine varieties, polynomial ideals, and the algebra-geometry dictionary, monomial orderings, Grobner bases, Buchberger algorithm, resultants, Zariski closure of algebraic sets, applications to intersections of curves and surfaces, and multivariate polynomial splines.

MAT 561 An Introduction to Number Theory and Cryptography (3 Cr.)
Prerequisite: Entrance into the Master of Science in Computer Science program.
Description: This course will include some topics from classical number theory such as Divisibility, Euclidean Algorithm, Congruences, and Quadratic Reciprocity. Topics from modern number theory will include: Factoring Algorithms, Finite Fields, Number Fields, and the Arithmetic of Elliptic Curves. In the second half of the course there will be applications of the number theory to Basic Cryptography. Topics will include: Public Key Cryptosystems, Discrete Log Problem, Zero Knowledge Protocols, RSA algorithm, and applications of primality testing.

MAT 590 Special Topics (3 Cr.)
Prerequisite: Consent of instructor
Description: Topics and content vary according to instructor.

MAT 599 Independent Study (3 Cr.)
Prerequisite: Permission of instructor
Description: Topics and content vary according to student-instructor collaboration.

Physics

PHY 115 Introduction to Applied Math and Physics (3 Cr.)
Prerequisites: None
Description: We live in a world governed by physical laws. As a result, we have grown accustomed to object's motions being in accordance with these laws. This course examines the basic physics and mathematics governing natural phenomena such as light, weight, inertia, friction, momentum, and thrust as a practical introduction to applied math and physics. Students will explore geometry, trigonometry for cyclical motions, and physical equations of motion for bodies moving under the influence of forces. With these tools, students will develop a broader understanding of the impact of knowledge in math and physics on their daily lives.

PHY 200 Motion Dynamics (3 Cr.)
Concurrent Courses: MAT 200
Description: This course provides a fundamental understanding of the dynamics of various moving bodies by allowing students to implement the laws of physics into their simulation programs in order to achieve realism.

PHY 250 Waves, Optics, and Aerodynamics (3 Cr.)
Prerequisite: PHY 200
Description: This course provides a fundamental understanding of the properties of light, periodic motions, and fluid dynamics. By understanding the physical laws governing these phenomena, students will be able to implement ray casting and ray tracing algorithms, create realistic flight simulators, and create various lens effects in two and three-dimensional environments.

PHY 270 Electricity and Magnetism (3 Cr.)
Prerequisite: PHY 200
Concurrent Course: MAT 225
Description: The class studies the basic concepts underlying electrical and magnetic phenomena. It considers the following topics: atoms and free electrons; Coulomb's law; the electric field, Gauss's Law, and potential; capacitance, properties of dielectrics, current, resistance, and EMF; DC circuits and instruments, and Kirchhoff's rules; the magnetic field and magnetic forces on current-carrying conductors; magnetic field of a current; electromagnetic induction and magnetic properties of matter; alternating current; Maxwell's equations; electromagnetic waves; semiconductors and the PN junction; and photoelectric effect.

PHY 300 Advanced Mechanics (3 Cr.)
Prerequisites: PHY 200, PHY 250, MAT 150, MAT 200, MAT 250, CS 200, CS 250, CS 300
Description: This course covers the physics behind more complex mechanical interactions as well as the numerical techniques required to approximate the systems for simulations. A thorough analysis of mechanical systems through energy analysis will provide the basis for the understanding of linear and rotational systems. The combination of theoretical physics and numerical methods will provide the student with the background for simulating physical systems with limited computational power. Topics covered include Lagrangian Dynamics, Hamilton's Equations, dynamics of rigid bodies, the use of the inertia tensor, collision resolution, and numerical techniques including methods of approximation.

PHY 350 Physics Simulation (3 Cr.)
Prerequisites: PHY 300, MAT 300
Description: Students will gather into teams of two to three and create a physics engine with minimal interface and graphics. Weekly lectures will go over the implementation of concepts covered in PHY300 as well as collision resolution, objects on surfaces, holonomic and nonholonomic constraints, numerical approximations, and special topics that address project-specific physics.

PHY 500 Advanced Physically-based Modeling (3 Cr.)
Prerequisite: Entrance into the Master's program in C.S.
Description: This class covers the topics in dynamics modeling techniques, including methods in the calculus of variations, Hamilton's principle, Lagrangian dynamics, Hamiltonian dynamics, motion in a non-inertial reference frame, dynamics of rigid bodies (moments of inertia, inertia tensor, and stability), collision resolution (impact parameters, scattering, and restitution), and physics of continuous bodies (elasticity, deformation, stress, and strain).

PHY 550 Physics Simulation (3 Cr.)
Prerequisites: Entrance into the Master's program in C.S.
Description: Students will gather into teams of two to three and create a physics engine with minimal interface and graphics. Weekly lectures will go over the implementation of concepts covered in PHY300 as well as collision resolution, objects on surfaces, holonomic and nonholonomic constraints, numerical approximations, and special topics that address project-specific physics.

Computer Science		
Xin Li*	B.S. Computer Science	Northwest University (China)
	M.S. Computer Science	Academic Sinica (China)
	Ph.D. Computer Science	University of Central Florida
Jason Hanson	B.S. Mathematics/B.S. Physics	University of Massachusetts
	M.S. Physics	University of Virginia
	M.A. Mathematics	Columbia University
	Ph.D. Mathematics	University of Hawaii
Tyler Folsom	B.S. Mathematics	Villanova University
	M.A. Mathematics	University of Maryland
	M.S.E.E. Electrical Engineering	University of Washington
	Ph.D. Electrical Engineering	University of Washington
Matthew Mead	B.S. Computer Science	Portland State University
	M.S. Computer Science	Portland State University
Prasanna Ghali	B.S. Electrical Engineering	Osmania University (India)
	M.S. Electrical Engineering	University of Oklahoma
Scott Dee	B.S. Electrical Engineering	University of British Columbia
Nathan Ukrainetz	B.S. Electrical Engineering	University of Saskatchewan (Canada)
	B.S. Computer Science	University of Saskatchewan (Canada)
Hao Wu	B.S. Electrical Engineering	Tsinghua University (China)
	M.S. Electrical Engineering	University of Washington
Claude Comair	Le diplôme d'Ingenieur Archit.	L'Université du Saint Esprit (Lebanon)
	M.Eng. Environmental Eng.	Osaka University (Japan)
Gary Herron	B.A. Mathematics	Northern Michigan University
	Ph.D. Mathematics	University of Utah
Bruce Dawson	Professional Experience	
Yuqun Cao	B.S. Physics	University of Science & Technology (China)
	M.A. Computer Science	Brooklyn College, CUNY
	Ph.D. Physics	City University of New York
Mathematics/Physics		
Michael Jahn*	B.S. Mathematics	Southern Methodist University
	B.S. Electrical Engineering	Southern Methodist University
	Ph.D. Mathematics	University of Wisconsin-Madison
Erik Mohrmann	B.S. Physics	Rensselaer Polytechnic Institute
	M.S. Physics	University of Washington
	Ph. D. Physics (in progress)	University of Washington
James Francis	M.A. Mathematics	Iowa State University
	M.S. and Ph.C. Physics	University of Washington
Matt Klassen	B.S. Mathematics	University of Arizona
	Ph.D. Mathematics	University of Arizona
Martin Weinless	B.S. Physics	City College of New York
	Ph.D. Mathematics	Polytechnic University
Charles Duba	B.S. Physics	University of California-San Diego
	M.S. Physics	University of Washington
	Ph.D. Physics (in progress)	University of Washington
Game Software Design and Production		
Jen Sward*	B.S. Electr. Engineering & Computer Eng.	University of California - Davis
Ben Ellinger	B.S. Kinesiology	University of Texas
Michael Moore	B.A. Communications Arts	St. Mary's College (MN)
	B.A. English	St. Mary's College (MN)
	M.A. Communication Arts	Southern Illinois University
Christopher Erhardt	B.S. Human Resources & Org. Behavior	University of San Francisco

General Education		
Cedric Page*	B.A. Geography	Syracuse University
	M.A. Geography	Rutgers University
	Ph.D. Geography	Rutgers University
Stephen Schafer	B.A. Psychology	University of Denver
	M.A. English	University of Denver
Janice Lovelace	B.A. Psychology and Biology	Mills College
	M.A. Clinical Psychology	California School of Prof. Psychology
	Ph.D. Clinical Psychology	California School of Prof. Psychology
Adam Rovner	B.A. English Literature	Washington University
	M.A. Comparative University	Hebrew Univeristy of Jerusalem
	Ph.D. English	Indiana University
Ryan Adams	B.A. Interdisciplinary Literature Studies	University of Washington
	M.A. English	Western Washington University
Peter Bacho	B.A. Theology	Seattle University
	JD (Juris Doctor)	University of Washington
	LL.M. (Master of Laws)	University of Washington
Art		
Abbott Smith*	A.A.A. Computer Animation & Multimedia	The Art Institute of Seattle
	B.F.A. Studio Art	Augusta College
	B.A. Biology	Wabash College
	M.A. Illustration (in Progress)	Syracuse University
Royal Winchester	A.A.A. 3D Computer Animation	DigiPen Institute of Technology
	B.S. Physics	Purdue University
Billy Jarcho	B.F.A Visual Design in Media Arts	Emerson College
Monte Michaelis	A.A.A. Computer Animation	The Art Institute of Seattle
Lawrence Schwedler	B.A. Music	University of California at Los Angeles
	M.F.A. Music Performance	University of California at Los Angeles
Jay Gale	B.A. Broadcast Communication	University of Colorado
Alecia Rossano	B.A. Studio Art	Scripps College
	M.F.A. Sculpture	New York Academy of Art
Donald "BJ" Becker	B.A. 3-D Design	West Surrey College of Arts and Design
Kevin Burgess	B.S. Interactive Computer Graphics	Arizona State University
Richard Wells	B.A. Theater and Speech	Central Washington University
	M.S. Cinematography	University of Wisconsin-Madison
Jim Johnson	B.A. Theater Arts	Humboldt State University
	M.A. Cinematography	Humboldt State University
Jazno Francoeur	B.F.A. Illustration	Kansas City Art Institute

*Department Chairperson

Staff	
Claude Comair	President
Jason Chu	Chief Operating Officer
Raymond Yan	Senior Vice President of Operations
Cedric Page	Dean of Faculty
Meighan Shoesmith	Registrar/Director of Admission
Michele Comair	Human Resources Director
Melvin Gonsalvez	Senior Vice President of Production
Yuki Taber	Director of Administration/Bursar
Gordon Dutrisac	Librarian/Student Services Director
Asuka Miyahara	Office Manager
Kim King	Financial Aid Director
Masayo Arakawa	Marketing and Outreach Support

Jessie Keating	Enrollment Coordinator
Katie McCully	Receptionist
Nadine Haining	Admission Data Analyst
Angela Kugler	Assistant Project Coordinator
Kamal Siegel	Production Artist
Garee Brackett	Senior Systems Administrator
Ryan Fulcher	IT Support
Brian Rosell	Facilities and Security