

DIGIPEN INSTITUTE OF TECHNOLOGY

Redmond, Washington

**Catalogue for the Academic Year
2002 / 2003**

Print Date: November 13, 2002

Notice

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, 2004, and authorizes DigiPen Institute of Technology to offer the following degrees:

Associate of Science in Real Time Interactive Simulation

Bachelor of Science in Real Time Interactive Simulation.

Associate of Applied Arts in 3D Computer Animation

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.

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***DigiPen Institute of Technology reserves the right to make changes to the curriculums 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 maybe obtained from the Registrar. Current major and degree requirements may be obtained from the Registrar.

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Important Dates

May 13, 2002	Summer Session Classes Begin	
May 27, 2002	Memorial Day	No Class
July 4, 2002	Independence Day	No Class
July 29-31, 2002	Summer Session Final Exams	
July 31, 2002	Summer Session Ends	
August 30, 2002	Orientation Day-First Year Students	
September 2, 2002	Labor Day	No Class
September 3, 2002	Classes Begin-Fall Semester	
November 11, 2002	Veterans Day	No Class
November 28-30, 2002	Thanksgiving	No Class
December 9-13, 2002	Final Exams	
December 13, 2002	Fall Semester Ends	
Dec 14,'02-Jan 1, 2002	Winter Holidays	No Class
January 2-3, 2003	Intersession	No Class
January 6, 2003	Winter Semester Classes Begin	
January 20, 2003	M.L. King Day	No Class
February 3, 2003	Founder's Day	No Class
February 17, 2003	Presidents Day	No Class
Mar. 17-21, 2003	Spring Break	No Class
April 21-25, 2003	Final Exams	
April 25, 2003	Winter Semester Ends	
April 26, 2003	Commencement	
April 27-May 11, 2003	Intersession	No Class
May 12, 2003	Summer Session Classes Begin	

Deadlines

September 9, 2002	Last day to add classes for Fall Semester
September 16, 2002	Automatic Withdrawal Date from classes missing Pre-requisites
October 1, 2002	Final Day to Drop Class without academic penalty
October 25, 2002	Tuition deposit for Winter semester due
October 25, 2002	Last day to drop classes for Fall Semester. A 'W' will appear on transcript.
December 1, 2002	Balance of tuition for Winter Semester due
January 10, 2003	Last day to add classes for Winter Semester
January 17, 2003	Automatic Withdrawal Date from classes missing Pre-requisites
January 17, 2003	Final Day to Drop Class without academic penalty
February 15, 2003	Tuition Deposit for Summer Session Due
March 1, 2003	Last day to drop classes for Spring Semester. A 'W' will appear on transcript
April 1, 2003	Balance of tuition for Summer Session Due

Institutional Calendar

The Institute is closed on all statutory holidays.

The laboratory facilities may be closed for a period of two consecutive days per month for maintenance. It is usually the last two (2) working days of the month unless otherwise posted.

Enrollment occurs once a year in September.

General Information

Name of the School

DigiPen Institute of Technology

Contact Information

DigiPen Institute of Technology
5001-150th Ave. NE
Redmond, WA
USA 98052
Telephone: (425) 558-0299
Facsimile: (425) 558-0378
Email: digipen@digipen.edu
Web: www.digipen.edu

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, nineteen graduates gathered about thirty job offers from various game development companies, such as Nintendo, Iguana, Sierra Online, Konami, Electronic Arts, Bandai Entertainment, and Sony of America.

To fulfill the growing number of positions available in the digital entertainment industry, DigiPen decided to offer a unique degree program—a Baccalaureate of Science in Real-Time Interactive Simulation. As many of DigiPen's students came from the US, 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. DigiPen Institute of Technology was opened in Redmond, WA in January 1998, offering both Baccalaureate and Associate degree programs in Real-Time Interactive Simulation. In September 1999, DigiPen added an Associate degree program in 3D Computer Animation to the programs available.

Today we continue to fulfill the needs of the interactive simulation and 3D computer animation industries, and to encourage 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 bases of race, color, creed, religion, national/ethnic origin, sex, sexual orientation, age, or with regard to the bases outlined in the Veterans Readjustment Act and the Americans with Disabilities Act.

Program of Studies Offered

Currently, the Institute offers the following degree programs:

1. *Baccalaureate Degree of Science in Real Time Interactive Simulation.*
2. *Associate Degree of Science in Real Time Interactive Simulation.*
3. *Associate Degree of Applied Arts in 3D Computer Animation.*

Advisory Committee

The decision criteria of an applicant's enrollment in the above Degree Programs are established by the advisory committee of the program. The

committee recommends certain criteria be met, mainly:

- The Pre-requisites of grade 12, as stipulated in the respective programs
- Reference letters from instructors and supervisors
- Grade transcripts of the last three years of education
- Applicable work experience and/or portfolios

About our Facilities

DigiPen encompasses over 42,000 square feet with a library, lunchroom, and auditorium, dedicated computer labs for each cohort of students, as well as additional classrooms for lectures and instruction. The current student to computer ratio for the 2001-2002 academic year is 1:1. Our maximum class size for 2002-2003 is 150 students in either lecture or computer lab settings.

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 BetaCam SP recording equipment. Computers currently range in power from 233 MHz Pentium II to 1 GHz Pentium 4. DigiPen upgrades the computer equipment on a regular basis.

Description of the Library Facilities and Internet Access

Library Facilities

The 1600 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 300 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. It is provided to the student free of charge. Students may lose this privilege if they do not abide by the Internet Access rules and regulations.

Tuition and Fees

Enrollment APPLICATION Fee

A US\$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 the Degree Program, a US\$100.00 non-refundable registration fee must be paid to confirm enrollment.

Tuition:

	Undergraduate U.S. Resident	Undergraduate Non-U.S. Resident
Cost/Credit	US\$ 321.00*	US\$ 374.50*
Total Cost Baccalaureate of Science (154 Credits)	US\$ 49,434.00*	US\$ 57,673.00*
Total Cost Associate of Science (82 Credits)	US\$ 26,322.00*	US\$ 30,709.00*
Total Cost Associate of Arts (80 Credits)	US\$ 25,680.00*	US\$ 29,960.00*

*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. Students must be fully paid no later than one (1) week prior to the start of the semester. Tuition increases will be announced 6 months before taking effect.

Books:

Text and reference books are estimated to be approximately US\$600.00 per year. This cost is not included as a part of the tuition.

Parking:

On-campus parking is available for \$280.00 per academic year. Please see the Administration office for details regarding parking applications.

Administrative Fee:

Effective January 1, 2002 this fee covers a limited number of transcript requests, add/drop requests, late registrations, re-registrations. \$20 per semester for all students enrolled in 12 or more credits, \$10/semester for students enrolled in fewer than 12 credits.

Technology Fee:

Effective January 2002, this fee will cover paper and toner for the student-use printers and maintenance costs associated with the upkeep of the computer labs. \$20 per semester for all students enrolled in 12 or more credits, \$10 per semester for students enrolled in fewer than 12 credits.

Graduation Fee:

This \$50.00 fee covers the cost of the graduation gown, graduation application, degree audit and graduation ceremony. Required at time of submission of graduation application.

Cancellation and Refund Policies 2002-2003

Tuition Refund Schedule:

Registration fees are non-refundable.

Students who submit 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 15% of the semester's tuition. Any portion of tuition paid above this percentage will be refunded.
- before close of the thirtieth 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 thirtieth calendar day of the semester must pay 100% of the semester's tuition.

Fees are refunded on the same schedule as tuition.

Refunds will be issued within 60 days of the date of final payment, or the final date of attendance, whichever is later. 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 one percent per month or twelve percent per annum.

Termination Date:

The termination date for refund purposes is the last date of actual attendance by the student. 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 one percent per month or twelve percent 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.

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 one percent per month or twelve percent per annum.

Financial Assistance

Federal financial aid is not available yet; however, student loan programs offered by the SLM Financial Corporation (Sallie Mae) and by Key Bank are available to interested eligible

applicants. For more information, SLM Financial Corporation can be reached at (800) 559-3220 or on the web at www.salliemae.com. Information on Key Bank loans may be obtained at 1-800-539-5363 or online at www.key.com/educate.

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.

Minimum Admission Requirements – Real Time Interactive Simulation

- Proficiency in the English language. Non-native English speakers must provide a minimum TOEFL score of 550 (paper exam), or 213 (computer exam).
- Completed Grade 12 or the equivalent with a minimum 2.5 cumulative GPA
- "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 do 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, and evaluates the mathematics background of the applicant to ensure he/she possesses the minimum background required to successfully pursue DigiPen's programs.

Applicants who complete 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.

Minimum Admission Requirements -3D Computer Animation

- Proficiency in the English language. Non-native English speakers must provide a minimum TOEFL score of 550 (paper exam), or 213 (computer exam).
- Completed Grade 12 or the equivalent with a minimum of a 2.5 cumulative GPA.
- Submission of a minimum of ten (10) samples from their art portfolio that demonstrate artistic range, in particular figure/animal drawing, character designs, architectural renderings, etc. Submissions will not be returned.

Application Process

All applicants for both programs must submit the following:

- DigiPen Institute of Technology Application for Admission
- \$75.00 application fee (US funds only)
- Official high school transcripts or official GED/equivalency scores
- Official transcripts from ALL post-secondary institutes attended (if applicable). This includes transcripts for high school concurrent enrollment programs.
- Two (2) letters of recommendation from professors, employers, or other supervisory individuals. Letters from family members will not be considered.
- Personal statement. Guidelines for the personal statement will be included on the application checklist.

- Other official documentation. This includes, but is not limited to: TOEFL scores, copy of Permanent Resident card, etc.
- Portfolio (3D Computer Animation applicants only)

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 becomes a new student.

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

Books and Material Costs (Not included in tuition fees)

Books and course material costs are estimated to be US \$600.00 per year.

Passing Classes and Graduation

In addition to the Pre-requisites set forth in the Calendar, students must successfully complete all 100 level PRJ courses in order to proceed to any 200 level courses. Students must have a cumulative GPA of at least 2.0 to graduate.

Waiver, Credit, & Advanced Placement 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, or College-Level Examination Program (CLEP) subject exam scores and transfer credit from other post-secondary institutions. A maximum of

9 credits per semester may be earned by these means.

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. Thus, it does not reduce the total number of semester hours required for a degree, but 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 Fall term

Waiving a core course enables the student to substitute an elective for a required course. Waivers do not earn course credits.

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.

- A student must have an approved waiver request on file before credit by examination can be recorded on the permanent record.
- A student must be currently enrolled before a waiver examination can be recorded on the permanent record.
- 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.
- Examinations may not be repeated.
- Repeat course work and F grades are not open to waiver requests.
- Students may not take waiver examinations on courses they have audited.

Advanced Placement Examination

Waiver may be earned by successful completion of an Advanced Placement examination. These tests are graded on a scale of 1 to 5.

Course waivers 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 3 to 6 hours of course waiver. No grades will be assigned to the courses, nor will they be figured into a student's grade point average. 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 course waivers are granted.

A maximum of six course hours waived through AP examinations may be applied to satisfy DIT degree requirements. The examinations and the courses for which waiver is granted are listed below. Waiver granted for a specific course counts toward the satisfaction of any requirement toward which the listed course counts.

AP Exam	Score
Art-Drawing Portfolio	4

Art-History of Art	4
English-Comp.	4
English-Creative Writing	4
English-Literature	4
Mathematics-Calculus AB	4
Mathematics-Calculus BC	4
Physics-Physics	4

International Baccalaureate

In general, three (3) semester credits hours are waived for each Higher Level subject in which a score of 5 or higher is earned.

The IB courses and scores listed below are eligible for waiver at DigiPen Institute of Technology.

Course and 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 Institute of Technology 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 DIT. 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 number of course credits to be given for passing a Subject Examination will be determined by the appropriate department.

Transfer Credit

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

College credits earned elsewhere will be evaluated by the Registrar with respect to curricular requirements at DigiPen Institute of Technology. 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 DIT 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 DIT. Class standing of transfer students will be based on the number of credits accepted for transfer. Hours earned and courses waived are entered on students' transcripts, but no grades or quality points are awarded. Students who wish to have transfer credit applied to their major at DIT may be required to take a challenge exam for that course.

Transfer credit may be accepted subject to the following conditions and restrictions.

- The course(s) offered for transfer must be taken at an accredited institution.

- The course(s) must be comparable in academic quality to DIT 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.
- Transfer credit will be considered for courses in which the grade of "B" or better is recorded.
- Courses transferred to the students major may also require a validation examination in order to be accepted.
- Credit or Pass grades will not be accepted in transfer.

If a course is accepted for credit, it will be counted as "transfer credit". No grade points from such transfer courses will be calculated in the DigiPen Institute of Technology grade point average. However, grades transferred for courses taken in residence at institutions for which DigiPen Institute of Technology 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 Institute of Technology.

Validation Examinations and Course Challenges

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

Departments may designate as challenge courses certain courses involving primarily substantive materials or technical proficiencies. 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, full credit for the course will be given.

A challenge examination is a college-prepared or a standardized examination that, if successfully completed, will yield regular college credit. The student must take the examination before

enrolling for further study in their 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

The Institute 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

The Institute does not at this point 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 Catalogue, 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 to term work. The weight of a final examination grade is a matter individually determined by each instructor. See Grade Point

Average section following 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 pass grade, failing grade for major
F	- Failure = 0 quality points

For degree programs offered at DigiPen Institute of Technology, all courses are considered part of the student's major except courses offered by the General Education department.

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. Your 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.

AU - Audit. Indicates course was attended without expectation of credit or grade.

I - Incomplete = 0 quality points –

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 8th 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 (8th) week of the semester.

Registrar's Note: Definition of "emergency:" "A situation or event which could not be foreseen and which is beyond the student's control and which prevents 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 course is completed, 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. (0 quality points). **An instructor may not withdraw a student from a course.**

S - Satisfactory. Given only in non-credit courses. (0 quality points).

U - Unsatisfactory. Given only in non-credit courses. (0 quality points).

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.

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.

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 earned each semester. The Grade Point Average (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 F) to obtain the grade point average.

The cumulative Grade Point Average is obtained by calculating the Grade Point Average for all courses attempted at the DigiPen Institute of Technology. Course grades of, W, and (I) 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 (3 x 4)
MAT100	4	A	16 (4 x 4)
CIS 115	3	B	9 (3 x 3)
ENG110	3	D	3 (3 x 1)
CS 120	3	B	9 (3 x 3)
TOTALS	16		49

Total grade points divided by total credits equals the cumulative grade point average. Therefore, the grade point average for the above example is 49 divided by 16 for a 3.06 GPA.

Satisfactory Progress

Satisfactory progress toward a degree by a full time student is defined as **successful completion** of 28 credits during an academic year. This should include registration for at least 14 credits per semester and successful completion of at least 14 credits per semester. "Completion" is defined as the receipt of a final letter grade (A to F) but not the receipt of a Withdrawal (W) or an Incomplete (I). "Successful completion" is defined as the receipt of a passing letter grade (A to C) in the major and (A to D) in non-major courses. The Registrar makes decisions on student status.

Students must attain a minimum cumulative grade point average of 1.0 at the end of the first 25% of the program, a 1.5 grade point average at the midpoint of the program, and a 2.0 grade point average upon graduation

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

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 change. Grade appeals go to the department chair responsible for the course, then to the Dean of Faculty.

Supplementary Exams

The purpose of a supplemental exam is to allow failed students an opportunity to show that they have acquired the knowledge presented in the failed class. This is to give the students an opportunity to continue with their program of study without undue interruption as a result of the time lag involved in scheduling classes from one semester to the next.

Supplemental exams may be written by students who have a final grade of D in any given core course (course in his/her major), up to two courses per semester. If a student has a D in 3 or more core courses in any given semester, he/she may only take supplementary exams in up to two of the failed courses, and must retake the remainder of the failed courses. Supplemental exams are scheduled only during the first week of the Fall and Spring Semesters. No other exam dates will be given for supplemental exams. A supplemental exam will test the student's knowledge of the total body of the course. In order to pass the supplementary exam for any given course, a passing grade of C- must be

achieved on the exam. The final grade listed on the students transcript for the course will be no higher than C-.

If a student does not pass the supplemental exam for any course, he/she will be automatically withdrawn without financial or academic penalty from any currently enrolled course for which the failed course is a Pre-requisite. The student will then be given the opportunity to re-enroll for the failed course when it is next offered.

Repeating Courses

A student may repeat any course in which he/she has **not** received a passing grade (Passing grade is A to C- in a core course, 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/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

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 the quantity of work done are considered.

You must meet the following qualifications to be a recipient of this honor (no Dean's Honor List

certificates are awarded for courses taken during the Summer Session):

- You must be matriculated.
- You must be registered full time in credit-bearing courses.
- Full-time students must complete 14 or more credits in one semester.
- Only passing earned grades (A, B, C and D) in credit-bearing courses are counted for eligibility.

Minimum GPA Required:

14 credits	---	3.65 or higher
15 or 16 credits	---	3.55 or higher
17 or more credits	---	3.45 or higher

- No failing grades, a grade of F in any course makes the student ineligible, regardless of other grades.
- Any courses that do not count towards the degree are excluded
- AP, Internship and Independent Study credits are excluded
- Pass/Fail credits are NOT to be counted when calculating qualifying credits
- Incomplete grades will be evaluated after the Incomplete grade is 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.

Students will be appointed to an official Deans Honor List at the end of a semester in which they complete a minimum of 14 graded credits with the appropriate grade point average.

The Dean's Honor List will be displayed in the lobby of DigiPen Institute of Technology after each fall and spring semester. If you meet these requirements, you will also receive a congratulatory letter from the Dean.

Reason(s) why your name might not have been listed:

- a) Fewer than fourteen graded credits
- b) Grade change(s) or late grade(s) submitted
- c) Change of major (check listings under your previous major)
- d) "Privacy Request"
- e) No local address on file

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 the student is not satisfied with the decision of the Registrar, a second appeal may be filed with the Chief Operating Officer. If the student is still unsatisfied with the decision, the student may appeal to the executive director of the Higher Education Coordinating Board of the State of Washington.

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/her GPA during the period of Academic Probation will result in the de-registration 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 applications must meet the Institute's entrance requirements applicable at the time of re-registration. Students may appeal

this suspension by making 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 applications must meet the Institute's entrance requirements applicable at the time of re-registration.

Attendance

In order to remain in the program of study, students must meet the minimum acceptable cumulative GPA, as described in this publication, and a minimum of 70% attendance record in each course at the end of each semester. Failure to maintain the minimum attendance and GPA requirements may be considered grounds for de-registration. Students must also abide by the rules and regulations set forth by the Institute. 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.

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 and Administration within 24 hours of the missed exam.

Should a student miss a final exam, the individual circumstances shall be reviewed by Administration. 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 Administration and Department Chair.

Retake exams shall be different than the one taken by the students at the original exam, and the timing of the retake exam shall be at the sole discretion of the individual instructors. In all cases, the retakes shall be administered no later than 1 week after the original missed exam.

Leaves (absences longer than one week)

Leaves longer than one week must be approved by the Registrar. They must be requested in writing four weeks prior to the start date of the leave. In 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 the repetition of an entire semester, for which the student will be charged full tuition.

Student Internship Guidelines

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, in a job situation, which places a high degree of responsibility on the student.

These learning goals may include:

- Academic learning - the individual can apply knowledge learned in the classroom to the workplace;
- Career development - the individual gains a knowledge of the qualifications and duties of a position and can explore their interest in a field;
- Skill development - the individual gains an understanding of the skills and knowledge required in the workplace;
- Personal development - the individual gains decision-making skills, critical thinking skills, 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.

Students must have a minimum of 45 internship hours for each credit granted. The three components of the final letter grade are listed

below. Only Pass/Fail grades are used to measure outcomes:

- The evaluation form which is sent to the supervisor two weeks prior to the end of the semester.
- The student must evaluate his or her own learning objectives against the experience attained.
- Instructor feedback gained from observation or communication with the supervisor(s).

Guidelines

All students intending to engage in an internship must obtain prior approval from the appropriate faculty advisor.

The internship may occur at any time during the year. However, students preparing to enter an internship should contact the faculty advisor of their appropriate emphasis at least six weeks before the employment is to begin, as an application is required which includes a plan for the internship.

Prior to the formal approval of the internship, a planning meeting is conducted. This meeting includes the faculty advisor, the student and the person(s) who will directly supervise the student (field supervisor). The purpose of this meeting is to agree upon a job description, a work schedule, performance expectations and remuneration (if any). Specific learning objectives set forth in the application will be sent to the Dean of Faculty before the start of the internship.

The faculty advisor will assist in assuring that the work experience meets both student and organizational needs, with *priority given to the student's interests and to the assurance that the experience will result in learning outcomes acceptable to the students degree program.*

Although an internship may involve some payment or stipend for the student, this cannot be expected in all cases. Anyone receiving financial aid should check with that office regarding the implications of additional income from a paid internship.

The faculty advisor will send the agreement to all parties outlining the terms and conditions of the student's placement **prior** to any internship work.

The student must register for an internship course during the semester that the internship experience will be completed. Ordinarily this means registering for the internship course just prior to beginning the actual internship employment.

Permission from the appropriate internship instructor is required before registering for the course as follows.

Semester applying for internship:	Instructor must be contacted by:
Fall	June 30
Spring	November 30
Summer	March 1

The primary means of evaluation for grading purposes will be determined through communication between the student, the field supervisor and the faculty member. This may include conferences, letters, reports, and the field supervisor's evaluation. Written reports, plans, products designed, and other products may be used as evaluative materials. Achievement of specified learning objectives should be addressed in the student's evaluation letter. Students who work for multiple supervisors (more than two) are encouraged to maintain a diary of activities. Whenever possible, the evaluative data should emphasize the application of theories, concepts and techniques relevant to the student's degree program.

The time spent in conferences (and travel to such) may be considered part of the student's internship assignment and work hours.

Students must present a final written evaluation of their internship prior to the final week of the semester in which the internship course is taken. If this written evaluation is not completed, a failing grade is given for the course.

Remember:

- The student must read and understand the *Internship Guidelines*.
- The student must fill out an *Internship Application* the semester before the start of the internship according to the schedule above.
- The student and the faculty member should participate in setting up the internship. Students are urged not to place too much emphasis on the fact that an internship carries a stipend but on the future career value of the internship.

- A meeting before the start of the internship must take place with the faculty member, the student and the internship supervisor.
- An internship agreement must be sent to the internship supervisor prior to the start of the internship.
- During the internship, the student must have contact with the faculty member on a timely basis. This can take place by meeting, memo, e-mail, or any other means. Every two weeks is a good guide.

request the change by end of semester 6.

- Students changing from the associate degree to the bachelor's degree must request the change by the end of semester 3.
- 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 Institute of Technology. Transfer credits from other institutions will be reviewed on a course-by-course basis.
- 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.

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; that is, 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 3 academic years, and a student enrolled in a Baccalaureate Degree program must complete the program in 6 academic years. Full Time students who do not complete their studies during this time frame will be withdrawn from the institute by the Administration.

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:

- The student must be in good standing at the time of the official request.
- Students changing from the bachelor's degree to the associate degree must

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 Institute of Technology. Students who interrupt their attendance may be held to the requirements of the current catalog when they return.

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

Approximately 4 to 6 weeks after students apply for graduation, a degree audit report will be issued. This report identifies courses students have taken to complete the bachelor degree requirements. This report is used to assist students in planning future course work to insure 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 Institute of Technology.

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 (I) 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. Student completes **Parts I & II of the Graduation Application**, and submits the \$50.00 graduation fee.

2. The **academic advisor should review most recent transcript or degree plan to verify progress and sign Part III** if student has completed all courses satisfactorily to date and, if upon satisfactory completion of courses for which student is currently registered, he/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 4-6 weeks after completion. The student needs to keep the Registrar informed of address changes so that degrees are mailed to correct address.

Student Services

Open House

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

Admissions

Staff is available to assist applicants in determining a relevant course of study required in order to be accepted 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.).

Career Planning

Advice on career options is available for enrolled students.

Placement Services

The Institute continues to establish relationships with various companies, and prospective employers who wish to recruit DigiPen students are cordially invited to conduct on-campus interviews. However, employment upon graduation is not guaranteed. 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.

Family Educational Rights and Privacy Act (FERPA)

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

The right to inspect and review the student's education records within 45 days of the day the University 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 University 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 University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.

The right to request the amendment of the student's education records that the student believes is inaccurate or misleading. Students may ask the University to amend a record that they believe is inaccurate or misleading. They should write the University official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading. If the University decides not to amend the record as requested by the student, the University 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.

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 University in an administrative, supervisory, academic, or support staff position (including law enforcement unit and health staff); a person or company with whom the University has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; 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.

The right to file a complaint with the U.S. Department of Education concerning alleged failures by the University to comply 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:

- name
- telephone number
- e-mail address
- major field of studies
- name of academic advisor
- dates of attendance
- degrees and awards received
- full or part-time enrollment status
- 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, 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 is 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. Plagiarism

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.

Substantial plagiarism exists when no recognition is given to the author for phrases, sentences, and ideas of the author incorporated in an essay or other academic presentation submitted for evaluation.

Complete plagiarism exists when an entire essay or other academic presentation is copied from an

author, or composed by another person, and presented as original work.

(Students who are unsure as to what constitutes a case of plagiarism should consult their instructor.)

2. 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.
3. Cheating on an examination or falsifying material subject to academic evaluation. Cheating includes having during an examination any materials other than those authorized by the examiners.
4. Impersonating a candidate at an examination or availing oneself of the results of such impersonation.
5. Submitting false records or information, in writing or orally, or failing to provide relevant information when requested.
6. Falsifying or submitting false documents, transcripts or any other academic credentials.
7. Disrupting instructional activities, including making it difficult to proceed with scheduled lectures, seminars, examinations, tests, etc.
8. Evidencing symptoms of alcohol or drug use while on school property, or the procurement or possession of illegal substances on school property.
9. 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.
10. 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.
11. Attempting to engage in, or aiding and abetting others to engage in, or attempt to engage in, conduct which would be considered an offense.

12. Downloading or installing software on school equipment without express permission from school authorities.
13. Failing to comply with any penalty imposed for misconduct.

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.

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.
3. Students are fully responsible for ensuring that proper back-ups of their work are maintained. DigiPen is not responsible for any lost work due to improper back-ups.

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 the department head, student services officer, 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 the department head, student services officer, or other appropriate person, before the alleged offense is reported to the Dean of Faculty.

Termination by the Institute

The School may, at any time by notice in writing, to the Student, terminate the Student at the sole discretion of the School, if the Student is in default of any of the terms, covenants or conditions of the Institute. Furthermore, the School reserves the right to withdraw a Student if the Student is unable to maintain the minimum required GPA in his/her courses at the end of each semester

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 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.

Real Time Interactive Simulation

The Baccalaureate and Associate Degrees of Science in Real Time Interactive Simulation

Program Objectives

Both programs focus on the subject of computer simulation with an emphasis on real time interactive simulation technologies. They offer 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 practical 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-player 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.

Successful graduates of these programs 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. Students should note that those completing a Baccalaureate 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.

These degree programs are intense educational experiences in a specialized, highly technical area. They do not attempt to provide a broad, general education, but rather, directly prepare 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 Baccalaureate Degree program consists of one hundred fifty four (154) credits offered over eight (8) semesters of fifteen (15) weeks each. This program usually takes 4 academic years to complete.

The Associate Degree program consists of eighty-two (82) credits offered over four (4) semesters of fifteen (15) weeks each. This program usually takes 2 academic years to complete.

COURSES OFFERED

Mathematics Department

- MAT 100** *Algebra and Trigonometry* (4 Cr.)
- MAT 140** *Linear Algebra and Geometry* (4 Cr.)
- MAT 150** *Calculus and Planar Analytic Geometry* (4 Cr.)
- MAT 200** *Calculus and Solid Analytic Geometry* (4 Cr.)
- MAT 250** *Linear Algebra* (3 Cr.)
- MAT 300** *Curves and Surfaces* (3 Cr.)
- MAT 350** *Curves and Surfaces II* (3 Cr.)
- MAT 351** *Quaternions, Interpolation and Animation* (3 Cr.)
- MAT 352** *Wavelets* (3 Cr.)
- MAT 353** *Geometry: Affine, Projective, Differential* (3 Cr.)
- MAT 354** *Computational Geometry* (3 Cr.)
- MAT 355** *Graph Theory* (3 Cr.)
- MAT 356** *Differential Equations* (3 Cr.)
- MAT 357** *Numerical Analysis* (3 Cr.)
- MAT 358** *Combinatorics* (3 Cr.)
- MAT 359** *Implicit Curves and Surfaces* (3 Cr.)
- MAT 360** *Finite Elements* (3 Cr.)
- PHY 200** *Motion Dynamics* (3 Cr.)
- PHY 250** *Waves, Optics, and Aero-Dynamics* (3 Cr.)

Computer Science Department

- CS 100** *Computer Environment* (3 Cr.)
- CS 110** *Operating System I Man-Machine Interface* (3 Cr.)
- CS 120** *High Level Programming I* (3 Cr.)
- CS 170** *High Level Programming II* (3 Cr.)
- CS 180** *Game Implementation Techniques I* (3 Cr.)
- CS 190** *Special Topics in Computer Science I* (3 Cr.)
- CS 200** *Computer Graphics I* (3 Cr.)
- CS 220** *Advanced C* (3 Cr.)
- CS 230** *Game Implementation Techniques* (3 Cr.)
- CS 240** *Special Topics in Computer Science II* (3 Cr.)
- CS 250** *Computer Graphics II* (3 Cr.)
- CS 260** *Computer Networks* (3 Cr.)
- CS 270** *Advanced C++, Designing Classes* (3 Cr.)

- CS 280** *Data Structures* (3 Cr.)
- CS 300** *Advanced Computer Graphics I* (3 Cr.)
- CS 310** *Low Level Programming I* (3 Cr.)
- CS 330** *Algorithm Analysis* (3 Cr.)
- CS 350** *Advanced Computer Graphics II* (3 Cr.)
- CS 360** *Low Level Programming II* (3 Cr.)
- CS 370** *Image Processing* (3 Cr.)
- CS 380** *Artificial Intelligence* (3 Cr.)
- CS 400** *Ray Tracing I* (3 Cr.)
- CS 420** *Graphics File Format* (3 Cr.)
- CS 450** *Ray Tracing II* (3 Cr.)

Game Software Design and Production Department

- GAM 100** *Introduction to Game Design & Production* (3 Cr.)
- GAM 150** *Project I* (3 Cr.)
- GAM 200** *Project II* (8 Cr.)
- GAM 300** *Project III* (10 Cr.)
- GAM 400** *Project IV* (10 Cr.)
- GAM 390** *Internship I* (1-5 Cr.)
- GAM 490** *Internship II* (1-5 Cr.)

General Education Department

- ART 210** *Art Appreciation* (2 Cr.)
- ART 400** *Drawing Fundamentals* (2 Cr.)
- GEN 300** *3D Computer Animation Production I* (3 Cr.)
- GEN 350** *3D Computer Animation Production II* (3 Cr.)
- GEN 400** *Multimedia Aspects of Game Making I* (3 Cr.)
- GEN 450** *Multimedia Aspects of Game Making II* (3 Cr.)
- ENG 110** *Composition* (3 Cr.)
- ENG 150** *Mythology for Game Designers* (3 Cr.)
- ENG 400** *Creative Writing for Game Design* (3 Cr.)
- ENG 450** *Elements of Media for Game Designers* (2 Cr.)
- SOS 150** *Social and Cultural Perspectives on Technology* (3 Cr.)

**Baccalaureate of Science
Recommended Sequence of
Required Classes (154 credits)**

Semester	Required Courses	Credits
Semester 1	MAT 100/140	4
	CS 100	3
	CS 110	3
	CS 120	3
	GAM 100	3
	ENG 110	3
	ART 210	2
	Semester Total	21
Semester 2	MAT 150	4
	CS 170	3
	CS 180	3
	GAM 150	3
	ENG 150	3
	SOS 150	3
	Semester Total	19
Semester 3	MAT 200	4
	CS 200	3
	CS 220	3
	CS 230	3
	GAM 200	4
	PHY 200	3
	Semester Total	20
Semester 4	CS 250	3
	CS 260	3
	CS 270	3
	CS 280	3
	GAM 200	4
	MAT 250	3
	PHY 250	3
	Semester Total	22
Semester 5	CS 300	3
	CS 310	3
	CS 330	3
	MAT 300	3
	GEN 300	3
	GAM 300	5
	Semester Total	20
Semester 6	One of: MAT 350-360	3
	CS 350	3
	CS 360	3
	One of: CS 370, 380, 381, 400, 450	3
	GAM300	5
	GEN 350	3
	Semester Total	20
Semester 7	ART 400	2
	ENG 400	3
	One of: CS 370, 380, 381, 400, 450	3
	GAM 400	5
	GEN 400	3
	Semester Total	16
Semester 8	ENG 450	2
	One of: CS 370, 380, 381, 400, 450	3
	CS 420	3
	GAM 450	5
	GEN 450	3
	Semester Total	16
Total	154	

**Associate of Science
Recommended Sequence of
Required Classes (82 Credits)**

Semester	Required Courses	Credits
Semester 1	MAT 100 or MAT 140	4
	CS 100	3
	CS 110	3
	CS 120	3
	GAM 100	3
	ENG 110	3
	ART 210	2
	Semester Total	21
Semester 2	MAT 150	4
	CS 170	3
	CS 180	3
	GAM 150	3
	ENG 150	3
	SOS 150	3
	Semester Total	19
Semester 3	MAT 200	4
	CS 200	3
	CS 220	3
	CS 230	3
	GAM 200	4
	PHY 200 (form. PHY 400)	3
	Semester Total	20
Semester 4	CS 250	3
	CS 260	3
	CS 270	3
	CS 280	3
	GAM 200	4
	MAT 250	3
	PHY 250 (form. PHY 450)	3
	Semester Total	22
Total	82	

Course Descriptions

Department of Mathematics (MAT)

MAT 100 Algebra and Trigonometry, 4 cr.

Pre-requisite: None

Objectives: This course provides a solid foundation in basic algebra and in trigonometry, which is essential for further studies in mathematics, physics and computer graphics

MAT 140 Linear Algebra and Geometry, 4 cr.

Pre-requisite: MAT 100 or advanced placement exam

Objectives: Linear algebra is one of the most important mathematical tools in computer graphics. This course will cover the basic concepts, constructions and computations in linear algebra as they relate to computer graphics.

MAT 150 Calculus and Planar Analytic Geometry, 4 cr.

Pre-requisite: MAT 100 or MAT 140

Objectives: This is a course that presents an algebraic treatment of basic geometrical planar primitives. In addition, the practical applications of this course include the implementation of many graphics algorithms related to the creation of two-dimensional shapes on the computer screen. This course also introduces the students to the techniques of differentiation.

MAT 200 Calculus and Solid Analytic Geometry, 4 cr.

Pre-requisite: MAT 150

Objectives: This course extends the topics presented in MAT 150 into the third dimension. As in the case of MAT 150, this course is fundamental in the implementation of many graphics algorithms related to the creation of three-dimensional objects. Additionally, the student is introduced to the techniques of integration.

MAT 250 Linear Algebra, 3 cr.

Pre-requisite: MAT 200 or MAT 140 and MAT 150

Objectives: This course will cover the mathematical foundations for vectors and linear transformations that are so important in computer graphics, in fact, all of modern science.

MAT 300 Curves and Surfaces, 3 cr.

Pre-requisite: MAT 250

Objectives: This course introduces the students to the techniques involved in the creation of complex curves, which are required for building three-dimensional objects. These topics are also used in simulating physical phenomena.

Students in the BSc program must choose one of the following MAT courses to fulfill their graduation requirements:

MAT 350 Curves and Surfaces II, 3 cr.

Pre-requisite: MAT 300

Objectives: This course presents the mathematical foundations for non-uniform rational B-spline (NURBS) curves and surfaces. The de Casteljau and de Boor algorithms are presented and applied to knot insertion and subdivision. The course also introduces subdivision surfaces and the basic Fourier analysis used in analyzing the convergence of subdivision schemes.

MAT 351 Quaternions, Interpolation and Animation, 3 cr.

Pre-requisite: MAT 300

Objectives: Part I: Algebra and analysis of quaternions, and Part II: Interpolation of quaternion curves. Some background mathematical material will be needed in both parts, and will be covered in the course. In Part I: groups, real manifolds and Lie groups, differential geometry of curves and hypersurfaces, calculus of several variables and complex variables; in Part II: calculus of variations, curvature, constrained optimization.

MAT 352 Wavelets, 3 cr.

Pre-requisite: MAT 300

Objectives: Wavelets provide a method of representing and approximating functions. Applications to computer graphics include image editing, compression, surface reconstruction from contours and fast methods of solving 3D simulation problems.

MAT 353 Geometry: Affine, Projective, Differential, 3 cr.

Pre-requisite: MAT 300

Objectives:{This course is not being offered this academic year.}

MAT 354 Computational Geometry, 3 cr.

Pre-requisite: MAT 300

Objectives: Geometric algorithms arise in graphics, robotics and artificial intelligence. This course focuses on fundamental geometric algorithms and their computational complexity. Topics include triangulations, Gallery theorems and path finding algorithms.

MAT 355 Graph Theory, 3 cr.

Pre-requisite: MAT 300

Objectives: In this course we examine the basics of graphs and trees and the algorithms on them. Major applications considered of graphs and binary tree algorithms include Artificial Intelligence and computer graphics.

MAT 356 Differential Equations, 3 cr.

Pre-requisite: MAT 300

Objectives: This course will cover the basic theory of first and second order linear differential equations, harmonic oscillators, stability, and dynamical systems. Amongst the many applications are: classical mechanics, periodic phenomena, attractors, chaos theory, predator-prey problems, calculus of variations.

MAT 357 Numerical Analysis, 3 cr.

Pre-requisite: MAT 300

Objectives: In this course we study the numerical techniques which bridge the gap between courses like calculus and linear algebra and the implementation of these topics in a computer system. Topics include root finding, interpolation, approximation of functions, cubic splines, integration, differential equations, stability, iterative methods, eigenvalue approximation, FFT.

MAT 358 Discrete Math and Combinatorics, 3 cr.

Pre-requisite: MAT 300

Objectives: Counting and integer functions, enumeration, recurrence relations, generating functions, basic probability and graph theory, network algorithms, asymptotic analysis.

MAT 359 Implicit Curves and Surfaces, 3 cr.

Pre-requisite:MAT 300

Objectives:{This course is not being offered this academic year.}

MAT 360 Finite Elements, 3 cr.

Pre-requisite: MAT 300

Objectives: {This course is not being offered this academic year.}

PHY 200 Motion Dynamics, 3 cr.

Co-requisites: MAT 200

Objectives: This course provides a fundamental understanding of the dynamics of various moving bodies. This course allows the students to understand and implement the laws of physics into their simulation programs in order to achieve realism. *(Formerly numbered as PHY 400)*

PHY 250 Waves, Optics and Aero-Dynamics, 3 cr.

Pre-requisites :PHY 200

Objectives: This course provides a fundamental understanding of the properties of light, periodic motions, and fluid dynamics. By understanding the physical laws that govern 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. *(Formerly numbered as PHY 450)*

Department of Computer Science (CS)

Some of the upper division Computer Science classes are now electives. Students will be required to take the same number of classes as previously, but now there are choices. Effective immediately, the BSc. program requires any three of the following classes: CS 370, CS 380, CS 381, CS 400, CS 450.

CS 100 Computer Environment, 3 cr.

Pre-requisites: None

Objectives: This course provides a comprehensive and detailed description of the architecture and organization of a computer system. In addition, the concepts of Software Engineering are introduced.

CS 110 Game Implementation Techniques I, 3 cr.

Co-requisites: CS 100, CS 120

Objectives: In this course, the students learn about the major components that make up a video game. This course also puts into practice all the information and knowledge acquired in CS 100 and CS 120.

CS 120: High Level Programming I – The C Programming Language, 3 cr.

Pre-requisites: None

Co-requisites: CS 100

Objectives: The objective of this course is to present the C/C++ programming language. It serves as a foundation of 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 structures, unions, pointers, etc.) The lexical convention, syntax notation and preprocessor presentation are discussed intensively. The course briefly introduce the C++ programming language and the concept of Object-Oriented Programming.

CS 170: High Level Programming II – The C++ Programming Language, 3 cr.

Pre-requisites: CS 120

Objectives: 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 throughout the course. Students will be introduced to more advanced

concepts of higher level programming using the C++ programming language.

CS 180 Operating System I, Man-Machine Interface, 3 cr.

Pre-requisites: CS 100, CS 120

Co-requisites: None

Objectives: This course presents the various components of the memory map of a computer and the techniques involved in writing software based on operating system calls.

CS 190 Special Topics in Computer Science I, 3 cr.

Pre-requisites: None

Objectives: The objective of these courses is to provide theory and rigorous application experience in a variety of current Computer Science Topics.

Such topics may include, but are not limited to:

- HTML language.
- Java and Network Oriented Interpreters.
- Artificial Intelligence.
- Alternate Graphics Engines and APIs.
- Variations on Optimized 3D Representations.
- Loaders, linkers, object format and executable format.

CS 200 Computer Graphics I, 3 cr.

Pre-requisites: MAT 150

Co-requisites: CS 220

Objectives: 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-requisites: CS 170

Objectives: 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 230 Game Implementation Techniques II, 3 cr.

Pre-requisites: CS 110

Objectives: This course discusses the construction of a ray casting engine and its application in game programming. In addition, the course topics cover bitmap manipulation techniques that are used in texture mapping two-dimensional objects.

CS 240 Special Topics in Computer Science II, 3 cr.

Pre-requisites: None

Objectives: The objective of these courses is to provide theory and rigorous application experience in a variety of current Computer Science Topics.

Such topics may include, but are not limited to:

- HTML language.
- Java and Network Oriented Interpreters.
- Artificial Intelligence.
- Alternate Graphics Engines and APIs.
- Variations on Optimized 3D Representations.
- Loaders, linkers, object format and executable format.

CS 250 Computer Graphics II, 3 cr.

Pre-requisites: CS 200

Objectives: 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.

Pre-requisites: CS 170

Objectives: This course introduces the hierarchical network communication in a distributed computing environment. The course topics cover the network technologies, architecture and protocols. Hence, it prepares the students for programming multi-player games in later semesters.

CS 270: Advanced C++, Designing Classes 3 cr.

Pre-requisites: CS 220

Objectives: 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], students will be able to better manage their Game Software

Design & Production and produce reusable code and libraries.

CS 280 Data Structures, 3 cr.

Pre-requisites: CS 220

Objectives: The objective of this course is to introduce the classical Abstract Data Types (ADT) in Computer Science discipline. The ADTs provide the hierarchical views of data organization used in programming. The course topics cover the algorithms and primitives of the data structure for list, stack, queue, binary tree, and B-tree.

CS 300 Advanced Computer Graphics I, 3 cr.

Pre-requisites: CS 250

Objectives: 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 310 Low Level Programming I, 3 cr.

Pre-requisites: CS 120

Objectives: 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 Algorithm Analysis, 3 cr.

Pre-requisites: CS 270, CS 280

Objectives: The objective of this course is to describe 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 350 Advanced Computer Graphics II, 3 cr

Pre-requisites: CS 300

Objectives: 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 360 Low Level Programming II, 3 cr.

Pre-requisites: CS 310

Objectives: The aim of this course is to present the architecture of the hardware used in the

implementation of the main, low-level game projects [GAM 300, GAM 350].

CS 370 Image Processing, 3 cr.

Pre-requisites: CS 250, CS 280

Objectives: This course introduces some of the popular image processing techniques. The course material covers methods that can be applied in:

- 1- Creating special effects with digital images
- 2- Preparing graphics information for either human or computer interpretation

CS 380 Robotic Intelligence, 3 cr.

Pre-requisite: CS 280

Objectives: 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 will treat game characters as virtual robots. Robotic AI methods will be used without building any physical robots. The class will cover 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.

Pre-requisite: CS 280

Objectives: 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 I, 3 cr.

Pre-requisites: CS 350

Objectives: This course introduces the ray tracing technique in computer graphics. Particular emphasis is placed on studying the mathematical elements of light illumination models, light intersection calculations, and also data structure organization.

CS 420 Graphics File Format and Data Compression Techniques, 3 cr.

Pre-requisites: CS 250, CS 280

Objectives: This course introduces the concept of storing and retrieving digital images in a coded format. The course topics cover various popular graphic file formats such as PCX, TIFF, GIF, JPEG, DXF, etc.

CS 450 Ray Tracing II, 3 cr.

Pre-requisites: CS 400

Objectives: This course deals with the advanced topics in ray tracing that are involved in rendering highly detailed digital images. The algorithms discussed in this course include techniques for handling anti-aliased, environmental texture maps, animation, morphing, shadows and light sources.

Department of Game Software Design and Production (GAM)

GAM 100 Project Introduction, 3 cr.

Pre-requisites: None

Co-requisites: CS 100, CS 110, CS 120

Objectives: This class is intended to be the basis of the Game Production curriculum for the remainder of the student's time at DigiPen Institute of Technology.

This class will present an overview of the way that 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 and a Technical Design Document. After this introduction students will be broken into teams and will be responsible for creating several text based games over the remainder of the semester complete with functional Game Design and Technical Design documentation.

Additionally each student will be required to create several individual games using the 'ProjectFUN' game development environment created by DigiPen. The games created via ProjectFUN will be graphical in nature and will serve 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.

Pre-requisites: GAM 100

Objectives: Continuing with the teams they were assigned to in GAM100, each team will be responsible for preparing a Game Design Document and a Technical Design Document for one team-based project and getting approval of this documentation within the first 4 weeks. For the remainder of the semester the students are tasked with completing 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 is responsible for doing a ProjectFUN game on his or her own. The student will have the first 10 weeks of the semester in which to complete their individual game and all individual games will be reviewed in class by each student's peers.

GAM 200, GAM 250 Project 2, 4 cr+4 cr.

Pre-requisites: **GAM 200:** GAM 150, CS 170, 180, MAT 150. **GAM 250:** GAM 200, MAT 200, CS 200, 230

Co-requisites: **GAM 200:** MAT 200, CS 200, 230. **GAM 250:** CS 250, 260, 270, 280

Objectives: This project is divided into 2 semesters where the students are tasked with designing and implementing a scrolling game engine. Along with creating a scrolling engine the 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 at this stage is intended to be a multiplayer game, the player creates during Semester III a multiplayer game on one system and migrate their game to being networked onto multiple machines during Semester IV. The proposal and implementation of this game follows the same guidelines as for project 2.

GAM 300, GAM 350 Project 3, 5 cr. + 5 cr.

Pre-requisites: **GAM 300:**GAM 250, CS 250, 260, 270, 280. **GAM 350:** GAM 300, CS 300, 310, 320, 330, GEN 300

Co-requisites: **GAM 300:** CS 300, 320, 330, GEN 300. **GAM 350:** MAT 250, CS 370

Objectives: This project is divided into 2 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 assembly language coding as well as the requirements for A.I. in games from a simulation perspective. Also, real life physics will be required to be modeled in the projects so an understanding of what this entails will be covered in class.

The proposal and implementation of this game follows the same guidelines as for project 3.

Similar to Project 2, the students are given a three-week period to present their ideas in the form of a written game design and Technical Design. The written components must include all the sections described earlier in Project 2 as well as demonstration of understanding of low-level programming and the ability to define a memory map for their applications.

GAM 400, GAM 450 Project 4, 5 cr. + 5 cr.

Pre-requisites: **GAM 400:** GAM 350, CS 350, 360, 370, GEN 350, MAT 250. **GAM 450:** GAM 400, MAT 300, PHY 200, CS 400, GEN 400

Co-requisites: **GAM 400:** MAT 300, CS 400. **GAM 450:** MAT 350

Objectives: This is a 2-semester project, with a focus on Personal Computer Based 3-D games. The requirements of modeling in a 3-D (as opposed to sprite based) game will be covered as well.

3-D games offer all of the challenges of Projects 1-3, plus the added nuance of management of polygonal (vector based) characters as opposed to sprite based graphics. Furthermore, controllers (analog and digital), and other forms of tertiary input are covered. 3-D games also push the student to manage their memory effectively in order to sustain a high frame rate for polygonal animation.

The game design and technical specifications of this game will follow the same guidelines as for Project 3.

Similar to Project 3, the students are given a three-week period to present their ideas in the form of a written game design and Technical Design. The written components must include all the sections described earlier in Project 3 as well as marketing materials, user manuals, packaging, sell sheets, Focus Group responses and extensive examples of Beta testing and

creation of a final deliverable for commercial release.

GAM 390/490 Internship, 1-5 cr.

Pre-requisites: GAM 200, GAM 250, GAM 300

Objectives:

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, in a job situation, which places a

high degree of responsibility on the student. The learning goals of an internship may include:

- Academic learning - the individual can apply knowledge learned in the classroom to the workplace;
- Career development - the individual gains a knowledge of the qualifications and duties of a position and can explore their interest in a field;
- Skill development - the individual gains an understanding of the skills and knowledge required in the workplace;
- Personal development - the individual gains decision-making skills, critical thinking skills, increased confidence and self-esteem.

Department of General Education (GEN)

ART 210 Art Appreciation, 3 *or* 2 credits

Pre-requisites: None

Objectives: This course is an introduction to art and will provide students with a better understanding of the artistic influences of our modern culture. 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 help them further develop their own creativity. 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.

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.

ART 400 Drawing Fundamentals, 2 cr.

Pre-requisites: None

Objectives: 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 students' 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.

ENG 150 Mythology for Game Designers, 3 cr.

Pre-requisites: ENG 110

Objectives: 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, our psyches are being touched by the power of mythology.

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 110 Composition, 3 cr.

Pre-requisites: None

Objectives: George Leonard wrote: "To learn is to change. Education is a process that changes the learner." Writing is also a process, which changes the writer. In this practical course in composition, students will spend time generating ideas for writing, sharing and critiquing their writing and ideas, changing their ideas, and learning more about themselves as a result.

ENG 400 Creative Writing for Game Design,

3 cr.

Pre-requisites: ENG 150

Objectives: Creative Writing for Game Design will focus on interactive storytelling, threads and multiple end-game scenarios, the construction of a game design document, and basic story-telling skills. Exercises designed to brainstorm ideas and hone students' talents of characterization; exposition, plot, conflict, back-story, dialogue, and appropriate use of language will be presented. Students will learn how symbols, graphic style, and sound can be utilized in telling the story of their game. Students will create a character bible, a story bible, and also be encouraged to access their own cultures and life experience and transform it into creative material. At the end of the course, students will write a game design document.

ENG 450 Elements of Media for Game Developers, 2 cr.

Pre-requisites: None

Objectives: In this course, students will be introduced to the principles of film and other non-game forms of media. Students will review technologically and artistically groundbreaking media. Emphasis will be placed on analyzing film, TV, and even graphic novels 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 an 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.

SOS 150 Social and Cultural Perspectives on Technology, 3 cr.

Pre-requisites None

Objectives: This is a survey course examining the impact of information and computer technology on society through techniques and perspectives drawn from social science and cultural studies. This course draws on techniques and perspectives in social science and cultural studies to elucidate the nature, impact and consequences of information and computer technology (ICT). The course seeks to comprehend this technical domain as a significant social and cultural reality within a larger societal context. The course also considers how ICTs interact with societal values and ethics.

The course highlights questions that computerization raises as the use of ICT expands into virtually every corner of everyday life. The course will help you understand the range of consequences that technology in general, and computer technology in particular, has and can have when it is shaped and used by organizations, individuals and society. Through selected readings, discussion, lectures, and written assignments, you will become acquainted with the contemporary social and cultural issues associated with information and computer technology.

GEN 300 3D Computer Animation Production I, 3 cr.

Pre-requisites: None

Objectives: This course deals with all the basic theories and techniques utilized in the production of computer animation. Students are introduced to a computer-based 3D animation package, which they will use throughout the course.

GEN 350 3D Computer Animation Production II, 3 cr.

Pre-requisites: GEN 300

Objectives: This course builds on the fundamentals taught during GEN 300. Students learn about key framing, special effects, final rendering, and recording.

GEN 400 Multimedia Aspects of Game Making I, 3 cr.

Pre-requisites: None

Objectives: 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.

GEN 450 Multimedia Aspects of Game Making II, 3 cr.

Pre-requisites: GEN 400

Objectives: 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.

3D Computer Animation

Associate of Applied Arts Degree in 3D Computer Animation

Program Overview

As the 3D computer animation industry matures, there is a noticeable shift by companies to hire employees that demonstrate more than a working knowledge of a specific commercial 3D software package. More than ever, employers desire 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. Story development, character design, storyboarding, lighting, camera composition, and sound design are some of the other issues that animators must have a good grasp of if they wish to be successful. 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.

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 that 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 a student's 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 Degree in 3D Computer Animation** program consists of eighty (80) credits offered over four (4) semesters of fifteen (15) weeks each. This course usually takes a total of 2 academic years to complete.

Associate of Applied Arts Recommended Sequence of Required Classes (80 Credits)

Requirements	Credits
ART 100	3
ANI 100	3
ANI 110	3
ENG 100	3
CG 100	3
PRJ 100	5
	20
ANI 150	3
ANI 160	3
ART 150	3
CG 150	3
FLM 100	3
PRJ 150	5
	20
ART 200	3
ART 210	3
CG 200	3
ENG 200	3
FLM 200	3
PRJ 200	5
	20
ANI 250	3
ANI 260	3
ART 250	3
CG 250	3
FLM 250	3
PRJ/INT 250	5
	20
	80

COURSES OFFERED

ART

- ART 100** *Drawing Fundamentals I* (3 Credits)
- ART 150** *Drawing Fundamentals II* (3 Credits)
- ART 210** *Art Appreciation*(3 Credits)
- ART 200** *Drawing Fundamentals III* (3 Credits)
- ART 250** *Drawing Fundamentals IV* (3 Credits)

ANIMATION

- ANI 100** *Animation – Theory & Techniques I*(3 Credits)
- ANI 110** *Project Management*(3 Credits)
- ANI 150** *Animation – Theory & Techniques II*(3 Credits)
- ANI 160** *Sound Design for Animation* (3 Credits)
- ANI 250** *Acting for Animation*(3 Credits)
- ANI 260** *Industry Preparation*(3 Credits)

FILM

- FLM 100** *Cinematography*(3 Credits)
- FLM 200** *Visual Language & Film Analysis*(3 Credits)
- FLM 250** *Post-production*(3 Credits)

COMPUTER GRAPHICS

- CG 100** *3D Computer Animation Production I*(3 Credits)
- CG 150** *Digital Graphics Tools* (3 Credits)
- CG 200** *3D Computer Animation Production II*(3 Credits)
- CG 250** *Graphics for Games & Internet*(3 Credits)

ENGLISH

- ENG 100** *Creative Writing*(3 Credits)
- ENG 200** *Literature*(3 Credits)

PROJECTS

- PRJ 100** *Animation Production I* (5 Credits)
- PRJ 150** *Animation Production II* (5 Credits)
- PRJ 200** *Animation Production III* (5 Credits)
- PRJ 250** *Animation Production IV* (5 Credits)
- INT 190** *Internship in 3D Animation* (5 Credits)

Course Descriptions

Art (ART)

ART 100 Drawing Fundamentals I, 3 cr.

Pre-requisites: None

Objectives: The development of strong drawing skills are 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 students' 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 150 Fundamentals II, 3 cr.

Pre-requisites: ART 100

Objectives: whereas the focus of ART 100 was on basic principles for drawing objects, this course presents concepts for drawing the figure. Attention will be given to anatomy, conceptualizing form and approaches to overcoming difficult poses. In addition to quick

sketches, students will also do longer, more complete drawings to describe form with tone.

ART 200 Drawing Fundamentals III, 3 cr.

Pre-requisites: ART 150

Objectives: The first half of this course introduces students to the techniques for drawing both real and fantasy wildlife. The second half addresses the general concepts of set design with an emphasis on aspects useful for animators.

ART 250 Drawing Fundamentals IV, 3 cr.

Pre-requisites: ART 200

Objectives: This course focuses around personal development of each artist. At the beginning of the course, each student consults with the instructor to develop a unique study outline that will address areas of artistic weakness or artistic exploration. Students will also utilize this class to refine existing work for their portfolio in preparation for graduation.

Animation (ANI)

ANI 100 Animation - Theory & Techniques I,

3 cr.

Pre-requisites: None

Objectives: This course introduces students to the principles of animation through classical animation techniques. In addition to examining the important aspects of character design and development, there will be an emphasis on the art of creating convincing movement through good timing and motion design. Students will learn that movement makes an appealing character, not just look or design.

ANI 110 Project Management, 3 cr.

Pre-requisites: None

Objectives: The success of an animation is dependant on more than just talented artists. Ultimately, the planning and management of a production has great impact on whether the animation is completed to an acceptable level by the deadline. Production agreements, licensing, scheduling, and resource allocation are just some of the things that every commercial production

must face. The students' final assignment is to prepare a production and pitch a concept to the class.

Storyboarding will be given extra emphasis as students are expected to produce industry-standard storyboards based on verbal or written descriptions. Both technical storyboarding issues (i.e. panel design, action notes, camera moves, dialogue) and creative storyboarding issues (i.e. rough staging, composition, cutting, continuity) will be presented.

ANI 150 Animation - Theory & Techniques II,

3 cr.

Pre-requisites: ANI 100

Objectives: Building on the animation concepts presented in ANI100, students will refine and combine the various skills with more confidence, creativity and accuracy. Further study in character design will cover issues such as personality types, body language and attitudes.

Longer and more rigorous exercises offer an opportunity for each student to develop the acting abilities that are central to good animation and to begin to explore their personal style. Students will also look at the techniques for animating dialog as well as animals.

ANI 160 Sound Design for Animation, 3 cr.

Pre-requisites: None

Objectives: 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. More importantly, animators must be able to communicate their ideas to today's musician, who has a multitude of sound production tools at his or her disposal. Initially, students will survey a broad range of music from different eras of Western and non-Western cultures. Emphasis will be on developing basic listening skills in hearing rhythm, melody, harmony, color, texture and form. The latter portion of the course will focus on soundtrack design and production issues.

ANI 250 Acting for Animation, 3 cr.

Pre-requisites: ANI 100, ANI 150

Objectives: 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.

ANI 260 Industry Preparation, 3 cr.

Pre-requisites: ANI 100, ANI 150

Objectives: As animation students approach graduation, they must compile their best work in a clear and concise package to effectively communicate their creative and technical abilities. This course will focus on helping each student prepare a commercially marketable portfolio and will also present employment options ranging from seeking a posted position to working freelance or even establishing a business.

Film (FLM)

FLM 100 Cinematography, 3 cr.

Pre-requisites: None

Objectives: 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 motion help to reveal the action while lighting can set the mood and highlight a desired element of a scene. Students will analyze examples of effective cinematic techniques from different animations and films to study the various approaches used. Assignments will utilize still and video cameras to reinforce concepts presented.

FLM 200 Visual Language & Film Analysis,

3 cr.

Pre-requisites: ANI 110, ENG 100, ANI 160, FLM 100

Objectives: Animation is ultimately "film making" and animators should learn from the many "classics" how to effectively bring various film production elements together. Building on the

courses presented in the first year, students will review several films to look deeper at issues such as character and script development, cinematography, and musical scores. Understanding the creative processes utilized by the influential filmmakers will provide insight into how a student can produce a better film.

FLM 250 Post-Production, 3 cr.

Pre-requisites: ANI 110, ENG 100, ANI 160, FLM 100, FLM 200

Objectives: 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. The focus of this course is to teach the fundamental skills that are used in post-production. While students will spend most of their time learning how to edit effectively, they will also cover material regarding the planning, execution, and addition of "special effects."

Computer Graphics (CG)

CG 100 3D Computer Animation Production I, 3 cr.

Pre-requisites: None

Objectives: This course covers all of the general principles of computer graphics and introduces students to the primary 3D computer animation software that will be 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 150 Digital Graphics Tools, 3 cr.

Pre-requisites: CG 100

Objectives: 3D computer animators utilize a great deal of technology that is constantly changing. Therefore, it is important that students be aware of and understand recent developments in both the hardware and software industries. The first part of the course will discuss various hardware components as well as current software applications. The second part will provide more extensive training in a 2D paint package, which is one of the most important tools a 3D animator must use. This will build on the training provided in CG 100.

CG 200 3D Computer Animation Production II, 3 cr.

Pre-requisites: CG 100

Objectives: In order to provide the students with a broader skill set, this course presents the "mechanics" of how to use another 3D animation program, with an emphasis on the unique strengths of the package.

CG 250 Graphics for Games & Internet, 3 cr.

Pre-requisites: CG 100, CG 150

Objectives: The tremendous growth of the video game industry and internet has resulted in a high demand for good 2D and 3D artists. Limited color palettes, file size, file formats, and low-resolution 2D images/3D objects are some of the issues that need to be handled properly for implementation into a game or web site. This course examines the issues in creating graphics for these areas and teaches effective production techniques.

General Studies (GEN)

ENG 100 Creative Writing, 3 cr.

Pre-requisites: None

Objectives: Fundamentally, a good animation requires a good story. This course introduces students to the fine art of writing and more importantly, provides an understanding of the elements of a good story. Towards the end of the course, students will learn the process of converting a story into a properly formatted script.

ENG 200 Literature, 3 cr.

Pre-requisites: ENG 100

Objectives: 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.

ART 210 Art Appreciation, 3 cr.

Pre-requisites: None

Objectives: This course is an introduction to art and will provide students with a better understanding of the artistic influences of our modern culture. 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 help them further develop their own creativity.

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.

Projects (PRJ)

PRJ 100 Animation Production I, 5 cr.

Pre-requisites: Full-time registration in Semester 1

Objectives: Each semester, the students are expected to create animations that will ultimately comprise a portfolio showcasing their creative and technical skills. Students treat each project as a commercial production whose deadline at semester's end must be met. Weekly production meetings with an instructor ensure that the animation stays on track while aiming for a high standard of quality. Generally, the student decides the subject of the animation, but the instructor must consider the undertaking both commercially marketable and inoffensive in nature. DigiPen reserves the right to refuse any student production proposal that it deems inappropriate.

The production cycle for each project generally follows the following path:

- Pre-production - concept, scripting, form and motion research, character design, set design, storyboarding, timing tests, lighting design, sound design and final instructor approval.
- Production – modeling, application of materials and textures, animation, rendering, compositing, and inclusion of credits.
- Post-production – final edit and soundtrack production.

As each production comes to its conclusion, planning begins for the next. Therefore, students are in a constant production mode and are expected to produce quality work while maintaining a high level of professionalism at all times. Failure to meet this standard may result in expulsion from the program.

For the first project, each student will be required to create a series of short animations that primarily demonstrate technical proficiency with the software. The exercises also demonstrate the student's understanding with regards to many of the creative concepts presented during the semester. Exercises will include elements of modeling, material creation/application, animation, lighting, camera composition, and editing.

PRJ 150 Animation Production II, 5 cr.

Pre-requisites: Full-time registration in Semester 2

Objectives: The focus of this project is for each student to produce an animation from initial concept to final rendering. This project is the first real opportunity for a student to experience the

many creative and technical issues associated with producing a full animation. In addition, students must learn how to strike a balance between creating their best work and meeting the production deadline.

General guidelines include:

- Productions are to be no longer than 1 minute in length (excluding credits) without specific instructor approval.
- The subject of the production is generally left to the discretion of each student. However, the instructor must consider the project to be both commercially marketable and inoffensive in nature. DigiPen reserves the right to refuse any student production proposal that it deems inappropriate.

PRJ 200 Animation Production III, 5 cr.

Pre-requisites: Full-time registration in Semester 3

Objectives: This project is an opportunity for a group of students to work together towards the completion of a project. Production teams are assembled by the instructor and can decide on one of the following options:

- A team may request to be assigned a non-profit organization to produce work for. There is no better simulation for understanding what "real" production is like than by working for a client. This option is reserved for students who have shown both exceptional professionalism and technical competency with the tools. DigiPen does not guarantee that clients will be available but it will try its best to fulfill student requests.
- A team can opt to create a production of their own design. These productions generally range from 2-3 minutes in length and must be found by the instructor to be both commercially marketable and inoffensive in nature. DigiPen reserves the right to refuse any student production proposal that it deems inappropriate.
- Production lengths must be instructor approved.

General guidelines include:

If the instructor feels that a student needs more personal skill development, that student will not be permitted to participate in a group project but will be guided through another animation that addresses the deficiencies.

PRJ 250 Animation Production IV, 5 cr.

Pre-requisites: Full-time registration in Semester 4

Objectives: This final project is decided upon after discussions between the student and the instructor. Generally, all work produced to date is reviewed and weaknesses are identified. At that time, students will plan an animation or series of animations to address these areas of the portfolio.

General guidelines include:

- Productions are to be no longer than 1 minute (excluding credits) in length without specific instructor approval.
- The subject of the production is generally left to the discretion of each student, however, the instructor must consider the production both commercially marketable and inoffensive in nature. DigiPen reserves the right to refuse any student production proposal that it deems inappropriate.

INT 190 Internship, 1-5 cr.

Pre-requisites: PRJ 100, PRJ 150

Objectives: 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, in a job situation, which places a high degree of responsibility on the student. The learning goals of an internship may include:

- Academic learning - the individual can apply knowledge learned in the classroom to the workplace;
- Career development - the individual gains a knowledge of the qualifications and duties of a position and can explore their interest in a field;
- Skill development - the individual gains an understanding of the skills and knowledge required in the workplace;
- Personal development - the individual gains decision-making skills, critical thinking skills, increased confidence and self-esteem.

Faculty and Administration Roster: 2001-2002

REAL TIME INTERACTIVE SIMULATION		
Computer Science		
Jason Hanson	B.S. Mathematics/B.S. Physics M.S. Physics M.A. Mathematics Ph.D. Mathematics	University of Massachusetts University of Virginia Columbia University University of Hawaii
Tyler C. Folsom	B.S. Mathematics M.A. Mathematics M.S.E.E. Electrical Engineering Ph.D. Electrical Engineering	Villanova University University of Maryland University of Washington University of Washington
Bruce Dawson	Professional Experience	Certified equivalent training to a degree for immigration
Yuqun Cao	B.Sc. Physics M.A. Physics M.A. Computer Science Ph.D. Physics	University of Science and Technology of China Brooklyn College, CUNY Brooklyn College, CUNY Graduate School, CUNY
Matthew Mead	B.S. Computer Science M.S. Computer Science	Portland State University Portland State University
Matt Grove	B.A. Mathematics	Reed College
Prasanna Ghali	B.S. Electrical Engineering M.S. Electrical Engineering	Osmania University (India) University of Oklahoma
Nathan Ukrainetz	B.S. Electrical Engineering B.S. Computer Science	University of Saskatchewan (Canada) University of Saskatchewan (Canada)
Hao Wu	B.S. Electrical Engineering M.S. Electrical Engineering	Tsinghua University (China) University of Washington
Claude Comair	Le diplôme d'Ingenieur Archit. M.Eng. Environmental Eng.	L'Université du Saint Esprit (Lebanon) Osaka University (Japan)
Xin Li*	B.S. Computer Science M.S. Computer Science Ph.D. Computer Science	Northwest University (China) Academic Sinica (China) University of Central Florida
Mathematics/Physics		
Michael Jahn*	B.S. Mathematics B.S. Electrical Engineering Ph.D. Mathematics	Southern Methodist University Southern Methodist University University of Wisconsin-Madison
Matt Klassen	B.S. Mathematics Ph.D. Mathematics	University of Arizona University of Arizona
Charles Duba	B.S. Physics M.S. Physics	University of California-San Diego University of Washington
Game Software Design and Production		
Jared Larsen	B.S. Computer Science	University of Minnesota
Jen Sward	B.S. Electr. & Computer Engineering	University of California
Christopher Erhardt*	B.Sc. Human Res. & Org. Behavior	University of San Francisco
General Education		
Cedric Page*	B.A. Geography M.A. Geography Ph.D. Geography	Syracuse University Rutgers University Rutgers University
Stephen Schafer	B.A. Psychology M.A. English	University of Denver University of Denver
Claire Joly	B.A. English M.A. American Studies M.A. Theatre Ph.D. Ethnic Studies	La Sorbonne (France) La Sorbonne (France) Smith College University of California-Irvine
Wendy Blake	B.A. English M.A. English	Towson State University University of Maine

3-D COMPUTER ANIMATION

Raymond Yan*	A.S. Broadcasting	British Columbia Institute of Technology
Abbott Smith	Certificate Radiologic Technology	US Army Academy of Health
	A.A.A. Computer Animation	The Art Institute of Seattle
	B.F.A. Studio Art	Augusta College
	B.A. Biology/Theater	Wabash College
Jack Snowden	B.F.A. Painting	Fort Wright College
	M.F.A. Painting, Graphic Design & Sculpture	Washington State University
Lawrence Schwedler	B.A.	University of California at Los Angeles
	M.F.A. Music Performance and Electronic Music Composition	University of California at Los Angeles
Jay Gale	B.A. Broadcast Communication	University of Colorado
James Carey	Film, Music, and Languages training	USAF Language School, Monterey College, Seaside Academy of Music
Melvin Gonsalvez	Diploma in Art Merchandising	Vancouver Community College
	Diploma in Building Technology.	British Columbia Institute of Technology

Administration

Claude Comair	President
Jason Chu	Chief Operating Officer
Rick Page	Dean of Faculty
Meighan Shoesmith	Sr. Vice President, Admin. / Registrar
Michele Comair	Human Resources Director
Yuki Taber	Director of Administration
Asuka Tsumura	Office Manager
Gina Corpening	Admissions and Outreach Coordinator
Michael Henninger	Financial Aid
Gordon Dutrisac	Librarian/Student Services Director
Ryan Fulcher	IT Support
Garee Brackett	IT Support