DigiPen
INSTITUTE OF TECHNOLOGY
SINGAPORE

COURSE CATALOG

2021–2022
Published: March 2021

Notices

Degree Exemption

In accordance with the Degree-Granting Institutions Act Regulations (WAC 250-61-060 (3)), DigiPen Institute of Technology is considered to be an eligible institution exempted from degree authorization requirements by the Washington Student Achievement Council effective November 1, 2012.

Accreditation

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

DigiPen Institute of Technology Singapore is also accredited by ACCSC as a branch campus of DigiPen Institute of Technology located in Redmond, Washington.

Registration with Committee for Private Education (CPE)

DigiPen Institute of Technology Singapore is registered with the Committee for Private Education (CPE).

CPE Registration No.: 200711322H

Registration Period: 21 June 2018 to 20 June 2024

From AY 2021/2022 onwards, DigiPen Institute of Technology Singapore offers the following degree programs:
- Bachelor of Science in Computer Science in Real-Time Interactive Simulation
- Bachelor of Science in Computer Science in Interactive Media and Game Development
- Bachelor of Engineering in Mechatronics Systems
- Bachelor of Arts in User Experience and Game Design
- Bachelor of Fine Arts in Digital Art and Animation
- Master of Science in Computer Vision

For a list of institutions registered with the Committee for Private Education (CPE) in Singapore, you may refer to the CPE website at *cpe.gov.sg.*

Collaboration with Singapore Institute of Technology

On March 9, 2010, the Ministry of Education announced that the Singapore Institute of Technology (SIT), a national institute set up to offer additional pathways for diploma holders from the five local polytechnics to obtain degrees from overseas higher education institutions, will partner with five international, highly reputable overseas higher education institutions to offer degree programs. DigiPen Institute of

Technology Singapore was one of the universities invited to participate in this collaboration.

Under the collaboration, polytechnic graduates can apply through SIT to enroll in the following degree programs at DigiPen Institute of Technology Singapore:
- Bachelor of Science in Computer Science in Real-Time Interactive Simulation
- Bachelor of Science in Computer Science in Interactive Media and Game Development
- Bachelor of Engineering in Mechatronics Systems
- Bachelor of Arts in User Experience and Game Design
- Bachelor of Fine Arts in Digital Art and Animation

DigiPen Institute of Technology Singapore was granted approval by ACCSC for its first joint degree program with Singapore Institute of Technology, Bachelor of Engineering in Systems Engineering (ElectroMechanical Systems). The first cohort of the SEEMS program started in Fall 2015. This program has since been renamed to Bachelor of Engineering in Mechatronics Systems for the AY 2021/2022 cohort onward.

Effective AY 2020/2021 cohort onward, the Bachelor of Science in Computer Science in Real-Time Interactive Simulation program and the Bachelor of Science in Computer Science in Interactive Media and Game Development program are jointly offered by DigiPen Institute of Technology Singapore and Singapore Institute of Technology.

Through this admission pathway, qualified candidates may enjoy certain credit transfers, and their tuition fees may be subsidized by Singapore's Ministry of Education.

Copyright Notice

Copyright © 2021 DigiPen (USA), LLC. and its owners. All Rights Reserved.

No parts of this publication may be copied or distributed, transmitted, transcribed, stored in a retrieval system, or translated into any human or computer language without the express written permission of DigiPen (USA), LLC., 9931 Willows Road NE, Redmond, WA 98052, USA.

Trademarks

DigiPen® is a registered trademark of DigiPen (USA), LLC.

ProjectFUN® is a registered trademark of DigiPen (USA), LLC.

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

Important Notices

All items including, but not limited to, application forms, transcripts, reference letters, resumes, software, and any accompanying documentation or works of art (collectively "the Items"), forwarded to the Institute* by any person (the "Sender") whether at the request of the Institute or

otherwise, become the exclusive property of the Institute unless otherwise agreed to in writing by the Institute, and the Institute shall be under no obligation whatsoever to return the Items to the Sender. At the Institute's discretion, the Items may be destroyed after being reviewed.

Students' information and records including, but not limited to, academic, disciplinary, and financial information will be shared with Singapore Institute of Technology on a regular basis.

DigiPen Institute of Technology Singapore Pte Ltd reserves the right to make changes to the curricula, calendar, and Course Catalog without any prior notice.

The course offerings and requirements of DigiPen Institute of Technology Singapore are under continual examination and revision. The most recent edition of the Course Catalog supersedes any previous edition of the Course Catalog published for the same academic year. 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. The individual student assumes full responsibility for compliance with all current academic requirements. Current course offerings may be obtained from the Registrar's Office. Current major and degree requirements may also be obtained from the Registrar's Office. For the most current information, visit DigiPen Institute of Technology Singapore's official Course Catalog online at *digipen.edu.sg/student-portal/academics/course-catalogs.*

*Please note that "Institute" and DigiPen (Singapore) refer to "DigiPen Institute of Technology Singapore," "DigiPen" refers to "DigiPen Institute of Technology," and "SIT" refers to "Singapore Institute of Technology" when used in the Course Catalog.

Academic Calendar and Deadlines

AY 2021/2022 TRIMESTER 1 (FALL 2021)

WEEK		DATE	REMARKS/DEADLINES
Week 0			• **Wednesday-Thursday, September 1-2, 2021** New Student Orientation for First Year Students
Study Weeks	Week 1	September 6-12, 2021	• **Monday, September 6, 2021** Classes begin
	Week 2	September 13-19, 2021	• **Sunday, September 19, 2021** Last day to add or drop a module for AY2021/2022 Trimester 1 (Fall 2021). Withdrawal from a module or the Institute on and before this date will not receive any academic penalty.
	Week 3	September 20-26, 2021	
	Week 4	September 27-October 3, 2021	
	Week 5	October 4-10, 2021	
	Week 6	October 11-17, 2021	
Recess Week *(No classes)*	Week 7	October 18-24, 2021	• **Sunday, October 24, 2021** Final day to drop a module for AY2021/2022 Trimester 1 (Fall 2021). Withdrawal from a module on or before this date will receive a "W" grade on transcript.
Study Weeks	Week 8	October 25-31, 2021	
	Week 9	November 1-7, 2021	• **Thursday, November 4, 2021** Deepavali Observed* *No Classes*
	Week 10	November 8-14, 2021	
	Week 11	November 15-21, 2021	
	Week 12	November 22-28, 2021	
	Week 13	November 29-December 5, 2021	
Final Assessment Period	Week 14	December 6-12, 2021	
	Week 15	December 13-19, 2021	• **Friday, December 17, 2021** Last day of Trimester
Intersession *(No classes)*	Week 16	December 20-26, 2021	• **Saturday, December 25, 2021** Christmas Day Observed* *No Classes*
	Week 17	December 27, 2021-January 2, 2022	• **Saturday, January 1, 2022** New Year's Day Observed* *No Classes*
	Week 18	January 4-9, 2022	

AY 2021/2022 TRIMESTER 2 (SPRING 2022)

WEEK		DATE	REMARKS/DEADLINES
Study Weeks	Week 1	January 10-16, 2022	• **Monday, January 10, 2022** Classes begin
	Week 2	January 17-23, 2022	• **Sunday, January 23, 2022** Last day to add or drop a module for AY2021/2022 Trimester 2 (Spring 2022). Withdrawal from a module or the Institute on and before this date will not receive any academic penalty.
	Week 3	January 24-30, 2022	
	Week 4	January 31-February 6, 2022	• **Tuesday-Wednesday, February 1-2, 2022** Chinese New Year Observed* *No Classes* • **Thursday, 3 February 2022** Founder's Day Observed* *No Classes*
	Week 5	February 7-13, 2022	
	Week 6	February 14-20, 2022	
Recess Week *(No classes)*	Week 7	February 21-27, 2022	• **Sunday, February 27, 2022** Final day to drop a module for AY2021/2022 Trimester 2 (Spring 2022). Withdrawal from a module on or before this date will receive a "W" grade on transcript.
Study Weeks	Week 8	February 28-March 6, 2022	
	Week 9	March 7-13, 2022	
	Week 10	March 14-20, 2022	
	Week 11	March 21-27, 2022	
	Week 12	March 28-April 3, 2022	
	Week 13	April 4-10, 2022	
Final Assessment Period	Week 14	April 11-17, 2022	• **Friday, April 15, 2022** Good Friday Observed* *No Assessment*
	Week 15	April 18-24, 2022	• **Friday, April 22, 2022** Last day of Trimester
Intersession *(No classes)*	Week 16	April 25-May 1, 2022	• **Sunday, May 1, 2022** Labour Day Observed* *No Classes*
	Week 17	May 2-7, 2022	• **Monday, May 2, 2022** Hari Raya Puasa Observed* *No Classes* • **Tuesday, May 3, 2022** Labour Day Observed* *No Classes*

AY 2021/2022 TRIMESTER 3 (SUMMER 2022)

WEEK		DATE	REMARKS/DEADLINES
Study Weeks	Week 1	May 9-15, 2022	• **Monday, May 10, 2022** Classes begin
	Week 2	May 16-22, 2022	• **Sunday-Monday, May 15-16, 2022** Vesak Day Observed* *No Classes* • **Sunday, May 22, 2022** Last day to add or drop a module for AY2021/2022 Trimester 3 (Summer 2022). Withdrawal from a module or the Institute on and before this date will not receive any academic penalty.
	Week 3	May 23-29, 2022	
	Week 4	May 30-June 5, 2022	
	Week 5	June 6-12, 2022	
	Week 6	June 13-19, 2022	
Recess Week *(No classes)*	Week 7	June 20-26, 2022	• **Sunday June 26, 2022** Final day to drop a module for AY2021/2022 Trimester 3 (Summer 2022). Withdrawal from a module on or before this date will receive a "W" grade on transcript.
Study Week	Week 8	June 27-July 3, 2022	
	Week 9	July 4-10, 2022	• **Saturday, July 9, 2022** Hari Raya Haji Observed* *No Classes*
	Week 10	July 11-17, 2022	
	Week 11	July 18-24, 2022	
	Week 12	July 25-31, 2022	
	Week 13	August 1-7, 2022	
Final Assessment Period	Week 14	August 8-14, 2022	• **Tuesday, 9 August 2022** National Day Observed* *No Assessment*
	Week 15	August 15-21, 2022	• **Friday, August 19, 2022** Last day of Trimester
Intersession *(No classes)*	Week 16	August 22-28, 2022	
	Week 17	August 29-September 4, 2022	

*Singapore Public Holiday

The Institute is closed on all public holidays. If a public holiday falls on a Sunday, the following Monday will be a public holiday. Singapore public holidays that fall during normal intersessions (i.e. Christmas Day) have not been listed. Exam periods and breaks may be subject to change. The laboratory facilities may be closed for a period of two consecutive days per month for maintenance, usually at the last two working days of the month unless otherwise posted.

Table of Contents

DEPARTMENT OF MATHEMATICS AND PHYSICS . . . 44

DEPARTMENT OF MUSIC AND SOUND DESIGN 44

BACHELOR OF FINE ARTS IN DIGITAL ART AND ANIMATION (BFA) 45

MODULE LISTINGS FOR BFA 48

DEPARTMENT OF DIGITAL ARTS 48

DEPARTMENT OF FINE ARTS AND ANIMATION 50

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES 53

DEPARTMENT OF MATHEMATICS AND PHYSICS 58

DEPARTMENT OF MUSIC AND SOUND DESIGN 58

STANDARDS OF PROGRESS 59

GENERAL INFORMATION 65

APPLYING TO DIGIPEN (SINGAPORE) 68

CREDIT EXEMPTION, TRANSFER CREDIT AND ARTICULATION. 71

Contact Information

Name of the School (Branch Campus)
DigiPen Institute of Technology Singapore

CONTACT INFORMATION
DigiPen Institute of Technology Singapore
510 Dover Road, #03-01
SIT@SP Building
Singapore 139660
Telephone: (65) 6577 1900
Facsimile: (65) 6577 1908
Email: *singapore@digipen.edu*
Web: *digipen.edu.sg*

Campus List

MAIN CAMPUS
DigiPen Institute of Technology
9931 Willows Road NE
Redmond, WA 98052
USA
Telephone: (866) 478-5236 or (425) 558-0299
Facsimile: (425) 558-0378
Email: *info@digipen.edu*
Web: *digipen.edu*

BRANCH CAMPUS
DigiPen Institute of Technology Singapore
510 Dover Road, #03-01
SIT@SP Building
Singapore 139660

OTHER CAMPUS
DigiPen Institute of Technology Europe-Bilbao*
Beta1 – Ribera de Zorrozaurre, 2
48017 Bilbao (Bizkaia), Spain

*DigiPen's Europe-Bilbao campus does not fall within the scope of ACCSC accreditation.

Programs of Study Offered

Currently, the Institute offers the following degree programs:
- Bachelor of Arts in User Experience and Game Design
- Bachelor of Fine Arts in Digital Art and Animation
- Master of Science in Computer Vision

Joint Programs of Study Offered in Collaboration with SIT

Currently, the Institute offers the following joint degree programs:
- Bachelor of Science in Computer Science in Real-Time Interactive Simulation
- Bachelor of Science in Computer Science in Interactive Media and Game Development
- Bachelor of Engineering in Mechatronics Systems

Selected courses, as indicated in each program's Recommended Course Sequence, are conducted at Singapore Institute of Technology, 10 Dover Drive, Singapore 138683

Academic Information

Degree Programs
Course Descriptions
Standards of Progress

Bachelor of Science in Computer Science in Real-Time Interactive Simulation (BSCS RTIS)

Program Overview

The BS in Computer Science in Real-Time Interactive Simulation degree program is jointly offered by DigiPen Institute of Technology Singapore and Singapore Institute of Technology. The program aims to produce graduates who are exceptionally competent in the fields of digital media, software development, real-time simulations, and game development. Graduates will possess an in-depth understanding of mathematics, physics, and computer science theory and applications to solving real-world problems in software engineering, including design, implementation, testing, deployment, and maintenance of software solutions, as well as soft skills in team-building and communications. The graduates will not only excel as engineers in a team-based environment, but will also be aware of larger, societal impacts of their work, and will strive to be ethical practitioners.

Program Educational Objectives

1. Graduates will utilize their in-depth understanding of computing, computer graphics, mathematics, and software engineering to be successful professionals in the fields of real-time simulation, software development, interactive media, and game software development making valuable technical and scientific contributions.

2. Graduates will utilize their practical experience in team-based, multi-disciplinary software engineering productions to exhibit strong communication and interpersonal skills, as well as professional and ethical principles when functioning as members and leaders of multidisciplinary software development teams.

3. Graduates are prepared for life-long independent learning by quickly and effectively learning, embracing, and adapting to emergent technologies including hardware and software architectures, and programming languages.

4. Graduates will attain leadership positions in organizations that design and develop software for a variety of applications and/or will have continued their education.

Program Learning Outcomes

Graduates of the program will have an ability to:

1. Apply knowledge of computer science, computer graphics, mathematics, and software engineering to produce computing-based solutions.

2. Analyze a complex computing problem and to apply principles of computing, mathematics, and software engineering to identify solutions.

3. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of solving real-world problems.

4. Communicate effectively in a variety of professional contexts.

5. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

6. Function effectively as a member or leader of a team engaged in activities appropriate to the design, development, and implementation of computing-based systems, processes, components, and programs.

Job Prospects

Graduates of this degree program will possess entry-level skills to work in the video game industry, or as computer scientists, or in software developer positions in various industries such as digital entertainment, consumer electronics, large-scale software development, and defence. Specific areas of focus include artificial intelligence, computer graphics, database design and development, information systems, multimedia, networking, numerical simulations, physically-based rendering, and real-time interactivity, to name a few.

Potential entry-level position titles for new graduates include: Computer Scientist, Computer Software Engineer, Artificial Intelligence Developer, Computer Graphics Developer, Gameplay Programmer, Game Engine Developer, Networking Programmer, Physics Programmer, Software Analyst, Software Developer, Software Engineer, Software Development Engineer in Test, Tools/Utility Programmer, VR/AR Software Developer, Machine Learning Engineer, Interactive Mobile Application Programmer, Web Developer/Engineer.

Degree Requirements

NUMBER OF CREDITS AND GPA
The BS in Computer Science in Real-Time Interactive Simulation degree program requires completion of at least 240 credits with a cumulative GPA of 2.0 or better. The program usually spans nine trimesters of 15 weeks each within a total of four academic years.

MODULE GRADE
Students must receive a grade of "E" (or 1.0 quality points) or higher in all modules for the BS in Computer Science in Real-Time Interactive Simulation degree program. A "Pass" mark must be received for all modules with a "Pass" or "Fail" grade.

COMPUTER SCIENCE
The followings are required for Computer Science modules: CSD1100, CSD1120, CSD1130, CSD1170, CSD2100, CSD2125, CSD2180, CSD2150, CSD2160, CS2170, CSD2181, CSD3115,

CSD3120, CSD3130, CSD3150, CSD3156, CSD3182, and CSD3185 (Total: 18 modules, 97 credits)

MATHEMATICS AND PHYSICS
The followings are required for Mathematics and Physics modules: CSD1240, CSD1250, CSD2200, CSD2250, CSD2258, CSD3240, CSD2300 (Total: 7 modules, 44 credits)

HUMANITIES AND SOCIAL SCIENCES
The followings are required for Humanities and Social Sciences modules: CSD1610, CSD1650, CSD3099, CSD4620, and CSD4650 (Total: 5 modules, 25 credits)

PROJECTS AND IWSP
The followings are required for Software Engineering Project, Capstone Project, and IWSP modules: CSD1400, CSD1450, CSD2400, CSD2450, CSD3400, CSD3450, CSD4400, and CSD4901. (Total: 8 modules, 74 credits)

NOTE ON GENERAL EDUCATION MODULES
The following modules satisfy the General Education requirement for the Bachelor of Science in Computer Science in Real-Time Interactive Simulation: CSD1610 (5), CSD1240 (7), CSD1250 (7), CSD1650 (5), CSD2200 (7), CSD2250 (5), CSD2300 (8), CSD3099 (5), CSD4620 (5), and CSD4650 (5). (Total: 10 modules, 59 credits.)

BSCS RTIS Recommended Course Sequence

S/NO	MODULE CODE	MODULE TITLE	MODULE CREDITS
	YEAR 1 | TRIMESTER 1		
1	CSD1100	Computer Environment	7
2	CSD1610	Composition	5
3	CSD1240	Linear Algebra and Geometry	7
4	CSD1120	High-level Programming 1	7
5	CSD1400	Software Engineering Project 1	5
	Sub-Total for YEAR 1 | TRIMESTER 1		**31**
	YEAR 1 | TRIMESTER 2		
6	CSD1250	Calculus and Analytic Geometry 1	7
7	CSD1170	High-level Programming 2	7
8	CSD1130	Game Implementation Techniques	5
9	CSD1650	Interpersonal and Work Communication	5
10	CSD1450	Software Engineering Project 2	5
	Sub-Total for YEAR 1 | TRIMESTER 2		**29**
	YEAR 1 | TRIMESTER 3 (BREAK)		
	YEAR 2 | TRIMESTER 1		
11	CSD2200	Calculus and Analytic Geometry 2	7
12	CSD2180	Operating Systems	5
13	CSD2100	Introduction to Computer Graphics	5
14	CSD2125	Modern C++ Design Patterns	5
15	CSD2400	Software Engineering Project 3	7
	Sub-Total for YEAR 2 | TRIMESTER 1		**29**
	YEAR 2 | TRIMESTER 2		
16	CSD2258	Discrete Mathematics	5
17	CSD2300*	Motion Dynamics and Lab	8
18	CSD2150	Introduction to Real-Time Rendering	5
19	CSD2181	Data Structures	5
20	CSD2450	Software Engineering Project 4	7
	Sub-Total for YEAR 2 | TRIMESTER 2		
	YEAR 2 | TRIMESTER 3 (OIP)		
21	CSD3182	Artificial Intelligence for Games	5
22	CSD2250	Linear Algebra	5
23	CSD2160	Computer Network	5
24	CSD2170	Programming Massively Parallel Processors	5
	Sub-Total for YEAR 2 | TRIMESTER 3		**20**

S/NO	MODULE CODE	MODULE TITLE	MODULE CREDITS
	YEAR 3 | TRIMESTER 1		
25	CSD3130	Algorithm Analysis	5
26	CSD3240	Probability and Statistics	5
27	CSD3150	Spatial Data Structures	5
28	CSD3099	Career and Professional Development	5
29	CSD3400	Software Engineering Project 5	7
	Sub-Total for YEAR 3 | TRIMESTER 1		**27**
	YEAR 3 | TRIMESTER 2		
30	CSD3115	Low-Level Programming	5
31	CSD3185	Machine Learning	5
32	CSD3156	Mobile and Cloud Computing	6
33	CSD3120	Introduction to Virtual Reality	5
34	CSD3450	Software Engineering Project 6	7
	Sub-Total for YEAR 3 | TRIMESTER 2		**28**
	YEAR 3 | TRIMESTER 3 (BREAK)		
	YEAR 4 | TRIMESTER 1		
35	CSD4620	Research, Reasoning, and Writing	5
36	CSD4400	Capstone Project	
37	CSD4901	Integrated Work-Study Programme (IWSP)	
	Sub-Total for YEAR 4 | TRIMESTER 1		**5**
	YEAR 4 | TRIMESTER 2		
38	CSD4650	Professional Communication	5
39	CSD4400	Capstone Project (cont.)	16
40	CSD4901	Integrated Work-Study Programme (IWSP) (cont.)	20
	Sub-Total for YEAR 4 | TRIMESTER 2		**41**
	TOTAL FOR 4-YEAR PROGRAM		**240**

Indicates classes are conducted at SIT@Dover (subject to changes)

Bachelor of Science in Computer Science in Interactive Media and Game Development (BSCS IMGD)

Program Overview

BS in Computer Science in Interactive Media and Game Development is jointly offered by DigiPen Institute of Technology Singapore and Singapore Institute of Technology. The field of interactive media and video games has grown from using small teams of just a handful of developers for an entire production to using large teams of one hundred or more on a single title, along with the ever-growing complexity of technology. This large increase in the size of teams, scope, investment, and technical components in digital media and video game titles has naturally resulted in more and more specialization into the roles of engineer, artist, and designer. Despite this increased specialization overall, the interactive media industry has also seen a growing demand for a hybrid engineer/designer: someone who has strong programming and mathematics skills, combined with formal training in game design. This type of developer is the bridge between the scientific and creative sides of interactive digital media and game development, able to work as an engineer or designer as needed.

Students of this program will work across platforms such as PC, tablets, smart phones, game consoles, VR and AR to understand strengths and limitations of each platform from a technical and design point of view. Graduates of the program will be trained to write computer programs in core languages such as C and C++, giving them the technical foundation to become proficient in programming with scripting languages, game logic, user interfaces, artificial intelligence, and design tools. Graduates will also be able to design and implement user interface and game levels, game systems, and game behaviours. Graduates will have extensive experience testing, iterating, and polishing, through the completion of many individual projects and multiple team projects.

Program Educational Objectives

1. With strong theoretical skills in computing, mathematics, and game design, graduates will be successful professionals in the fields of interactive media and game software development making valuable technical and scientific contributions in the cutting-edge technological, creative, and expressive potentials of interactive digital media.

2. Graduates will utilize their practical experience in team-based, multi-disciplinary software engineering productions to exhibit strong communication and interpersonal skills, as well as professional and ethical principles when functioning as members and leaders of multidisciplinary software development teams.

3. Graduates are prepared for life-long independent learning by quickly and effectively learning, embracing, and adapting to emergent technologies in software programming interfaces, programming languages, and innovative human-computer interfaces.

4. Graduates will attain advanced leadership positions in organizations developing software for interactive digital media and/or will have continued their education.

Program Learning Outcomes

Graduates of the program will have an ability to:

1. Apply computer science theory, software development fundamentals, and design principles to produce computing-based solutions.

2. Analyze a complex computing problem and to apply principles of computing, mathematics, and design to identify solutions.

3. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of interactive media and game development.

4. Communicate effectively in a variety of professional contexts.

5. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

6. Function effectively as a member or leader of a team engaged in activities appropriate to the design, development, and implementation of interactive media and game software.

Job Prospects

Graduates of this degree program will be prepared to enter the digital media and video game industry as entry-level Software Engineers and Game Designers. Possible entry-level position titles include Software Engineer, Software Developer, Software Development Engineer in Test, Software Analyst, Gameplay Designer/Programmer, Artificial Intelligence Programmer, User Interface Programmer, VR/AR Software Developer, Machine Learning Engineer, Interactive Mobile Application Programmer, Tools Programmer, Game Scripter, Technical Designer, System Designer, Level Designer, Content Designer, Encounter Designer, and Game Designer.

This degree program also includes secondary training that can contribute directly to a graduate obtaining positions with titles such as Producer, Program Manager, Technical Program Manager, and Technical Writer. After many years in the industry, graduates may obtain titles such as Lead Engineer, Lead Designer, Technical Director, Creative Director, and Director.

Degree Requirements

NUMBER OF CREDITS AND GPA
The BS in Computer Science in Interactive Media and Game Development degree program requires completion of at least 240 credits with a cumulative GPA of 2.0 or better. The program usually spans nine trimesters of 15 weeks each within a total of four academic years.

MODULE GRADE
Students must receive a grade of "E" (or 1.0 quality points) or higher in all modules for the BS in Computer Science in Interactive Media and Game Development degree program. A "Pass" mark must be received for all modules with a "Pass" or "Fail" grade.

COMPUTER SCIENCE
The followings are required for Computer Science modules: CSD1100, CSD1120, CSD1130, CSD1170, CSD2125, CSD2180, CSD2181, CSD3120, CSD3125, CSD3130, CSD3156, CSD3182, and CSD3185 (Total: 13 modules, 72 credits)

DESIGN AND PSYCHOLOGY
The followings are required for Design and Psychology modules: CSD2510, CSD2512, CSD2540, CSD3515, and CSD2701 (Total: 5 modules, 25 credits)

MATHEMATICS AND PHYSICS
The followings are required for Mathematics and Physics modules: CSD1240, CSD1250, CSD2200, CSD2250, CSD2258, CSD3240, CSD2300 (Total: 7 modules, 44 credits)

HUMANITIES AND SOCIAL SCIENCES
The followings are required for Humanities and Social Sciences modules: CSD1610, CSD1650, CSD3099, CSD4620, and CSD4650 (Total: 5 modules, 25 credits)

PROJECT AND IWSP
The followings are required for Software Engineering Project, Capstone Project, and IWSP modules: CSD1400, CSD1450, CSD2400, CSD2450, CSD3400, CSD3450, CSD4400, and CSD4901. (Total: 8 modules, 74 credits)

NOTE ON GENERAL EDUCATION MODULES
The following modules satisfy the General Education requirement for the Bachelor of Science in Computer Science in Interactive Media and Game Development: CSD1610 (5), CSD1240 (7), CSD1250 (7), CSD1650 (5), CSD2200 (7), CSD2250 (5), CSD2300 (8), CSD3099 (5), CSD4620 (5), and CSD4650 (5). (Total: 10 modules, 59 credits.

BSCS IMGD Recommended Course Sequence

S/NO	MODULE CODE	MODULE TITLE	MODULE CREDITS
	YEAR 1 | TRIMESTER 1		
1	CSD1100	Computer Environment	7
2	CSD1610	Composition	5
3	CSD1240	Linear Algebra and Geometry	7
4	CSD1120	High-level Programming 1	7
5	CSD1400	Software Engineering Project 1	5
	Sub-Total for YEAR 1 | TRIMESTER 1		**31**
	YEAR 1 | TRIMESTER 2		
6	CSD1250	Calculus and Analytic Geometry 1	7
7	CSD1170	High-level Programming 2	7
8	CSD1130	Game Implementation Techniques	5
9	CSD1650	Interpersonal and Work Communication	5
10	CSD1450	Software Engineering Project 2	5
	Sub-Total for YEAR 1 | TRIMESTER 2		**29**
	YEAR 1 | TRIMESTER 3 (BREAK)		
	YEAR 2 | TRIMESTER 1		
11	CSD2200	Calculus and Analytic Geometry 2	7
12	CSD2180	Operating Systems	5
13	CSD2510	Introduction to Game Design	5
14	CSD2125	Modern C++ Design Patterns	5
15	CSD2400	Software Engineering Project 3	7
	Sub-Total for YEAR 2 | TRIMESTER 1		**29**

S/NO	MODULE CODE	MODULE TITLE	MODULE CREDITS
	**YEAR 2	TRIMESTER 2**		
16	CSD2258	Discrete Mathematics	5
17	CSD2300*	Motion Dynamics and Lab	8
18	CSD2512	System Design Methods	5
19	CSD2181	Data Structures	5
20	CSD2450	Software Engineering Project 4	7
	**Sub-Total for YEAR 2	TRIMESTER 2**		**30**
	**YEAR 2	TRIMESTER 3 (OIP)**		
21	CSD3182	Artificial Intelligence for Games	5
22	CSD2250	Linear Algebra	5
23	CSD2701	Introduction to Psychology	5
24	CSD2540	Level Design	5
	**Sub-Total for YEAR 2	TRIMESTER 3**		**20**
	**YEAR 3	TRIMESTER 1**		
25	CSD3130	Algorithm Analysis	5
26	CSD3240	Probability and Statistics	5
27	CSD3515	Technical Design Methods	5
28	CSD3099	Career and Professional Development	5
29	CSD3400	Software Engineering Project 5	7
	**Sub-Total for YEAR 3	TRIMESTER 1**		**27**
	**YEAR 3	TRIMESTER 2**		
30	CSD3125	User Interface and User Experience Design	5
31	CSD3185	Machine Learning	5
32	CSD3156	Mobile and Cloud Computing	6
33	CSD3120	Introduction to Virtual Reality	5
34	CSD3450	Software Engineering Project 6	7
	**Sub-Total for YEAR 3	TRIMESTER 2**		**28**
	**YEAR 3	TRIMESTER 3 (BREAK)**		
	**YEAR 4	TRIMESTER 1**		
35	CSD4620	Research, Reasoning, and Writing	5
36	CSD4400	Capstone Project	
37	CSD4901	Integrated Work-Study Programme (IWSP)	
	**Sub-Total for YEAR 4	TRIMESTER 1**		**5**
	**YEAR 4	TRIMESTER 2**		
38	CSD4650	Professional Communication	5
39	CSD4400	Capstone Project (cont.)	16
40	CSD4901	Integrated Work-Study Programme (IWSP) (cont.)	20
	**Sub-Total for YEAR 4	TRIMESTER 2**		**41**
	TOTAL FOR 4-YEAR PROGRAM		**240**

*Indicates classes are conducted at SIT@Dover (subject to changes)

Module Listings for BSCS RTIS and BSCS IMGD

Department of Computer Science

Computer Science Modules

CSD1100 **Computer Environment** (7 credits)
Prerequisite(s): None

This module provides students with a solid understanding of the fundamental elements on which computers are based. Topics covered include number systems, representation of numbers in computation, basic electricity, electric circuits, digital systems, logic circuits, data representation, digital memory, computer architecture, and operating systems. This knowledge eliminates some of the "mysteries" about hardware and provides students with a well-rounded understanding of computers. The latter stages of the module focus on assembly programming, which enhances the student's understanding of how the computer works at a fairly low-level.

CSD1120 **High-level Programming 1** (7 credits)
Prerequisite(s): None

In presenting the C programming language, this module serves as a foundation for all high-level programming modules and projects. It provides the fundamentals in programming, including control-flows (such as statement grouping, decision making, case selection, procedure iteration, and termination test) and basic data types (such as arrays, structures, and pointers). Additionally, there is an intensive discussion of the lexical, syntax notation, and semantics of the C programming language.

CSD1130 **Game Implementation Techniques** (5 credits)
Prerequisite(s): CSD1120
Co-requisite(s): CSD1170

Game Implementation Techniques presents foundational data structures, algorithms, mathematical concepts and techniques used in the design and development of two-dimensional real-time interactive simulation and game software. Topics covered include event-driven programming, game engine design and architecture, real-time rendering, user interaction, state-machines, basic animation techniques and collision detection.

CSD1170 **High-level Programming 2** (7 credits)
Prerequisite(s): CSD1120

This course introduces the C++ language with particular emphasis on its object-oriented features. Topics include stylistic and usage differences between C and C++, namespaces, function and operator overloading, classes, inheritance, templates, and fundamental STL components.

CSD2100 **Introduction to Computer Graphics** (5 credits)
Prerequisite(s): CSD1170, CSD1240

This course presents fundamental mathematical elements, data structures, and algorithms required to implement interactive 2D and 3D graphics applications on programmable graphics hardware using modern graphics frameworks. Topics covered including the graphics pipe, programmable graphics hardware, affine transforms, projections, rasterization techniques, texturing pipeline, visibility techniques, frustum culling techniques, clipping algorithms, and applications of the perspective transform including 3D picking, planar shadows, and hyperbolic interpolation.

CSD2125 **Modern C++ Design Patterns** (5 credits)
Prerequisite(s): CSD1170

This module builds on the foundation created in the first two high level programming modules (CSD1120/CSD1170). It presents advanced topics in the C/C++ programming language in greater detail. Such topics include advanced pointer manipulation, utilizing multi-dimensional arrays, complex declarations, and standard library functions. Advanced C++ topics include function and class templates, operator overloading, multiple inheritance, runtime type information, the Standard Library, and performance issues.

CSD2150 **Introduction to Real-Time Rendering** (5 credits)
Prerequisite(s): CSD2100

This course introduces algorithms for creating photo-realistic images in interactive simulations. Rendering techniques covered include texturing, illumination models, transparency, shading algorithms, mapping techniques (bump mapping, environment or reflection mapping, etc.), and shadows. Students will learn how to implement all algorithms by using vertex and pixel shaders.

CSD2160 **Computer Networks** (5 credits)
Prerequisite(s): CSD2125, CSD2180

This module introduces the hierarchical network communication in a distributed computing environment. Topics cover network technologies, architecture, protocols, and security. The curriculum gives specific emphasis to the TCP/IP stack and in making students familiar with writing portable socket-based software. It also discusses some of the unique challenges of networked games and strategies for addressing them.

CSD2170 **Programming Massively Parallel Processors** (5 credits)
Prerequisite(s): CSD2150

This course provides a foundation on programming individual stages of a GPU's programmable pipeline using a shader language. The goal of the course is to motivate the concept that processing times of various CPU-based applications can be accelerated by offloading this work from the CPU to the large number of massively parallel processors on the GPU. The emphasis of the course is to program the compute, geometry, and tessellation stages of the programmable pipeline using a modern software API with a compatible shader language for a variety of real-time interactive applications.

CSD2180 **Operating Systems** (5 credits)
Prerequisite(s): CSD1100, CSD1170

Linux/Unix as implemented on modern PCs. After an overview of what an operating system is and does, we cover the following: organization and design (the kernel and various subsystems), process management (creation and management of processes and threads, including an introduction to multi-threaded programming), inter-process communication, process synchronization (locks, semaphores, and methods to avoid deadlocks), memory management (hardware and process views of memory layout and demand-paged virtual memory), file systems, and security and protection (viruses, worms, and Trojan horses).

CSD2181 **Data Structures** (5 credits)
Prerequisite(s): CSD2125

The objective of this module is mainly to introduce the classical Abstract Data Types (ADTs) in Computer Science. The ADTs provide the hierarchical views of data organization used in programming. Fundamental data structures and their associated algorithms as well as complexity notation are introduced. Simply Reading about data structures and algorithms and listening to a lecture is insufficient to master and implement these fundamental concepts. Every non-trivial program you write at DigiPen and in the real world will make heavy use of data structures and algorithms and this module enables you to reason about and apply them.

CSD3182 **Artificial Intelligence for Games** (5 credits)
Prerequisite(s): CSD2125

The objective of this module is to introduce data structures and algorithms related to the artificial intelligence applicable in real time interactive applications. It introduces students to a wide range of concepts and practical algorithms that are commonly used to solve game AI problems. Topics covered includes the game AI programmer mindset, AI architecture (state machines, rule-based systems, goal-based systems, trigger systems, smart terrain, scripting, message passing, and debugging AI), movement, pathfinding, emergent behaviour, agent awareness, agent cooperation, terrain analysis, planning, and learning/adaptation.

CSD3115 **Low-level Programming** (5 credits)
Prerequisite(s): CSD1100, CSD2125

This module introduces students to modern microprocessor architectures, using the Intel x86 series as case studies, with the intent to showing the practical implications of such knowledge upon programming decisions. Topics include pipelining, superscalar/VLIW machines, register-renaming, out-of-order execution, multi-core architecture, caches, multicore-cache coherency, x86 instruction set architecture, application binary interfaces, Flynn's taxonomy, Streaming SIMD extensions etc.

CSD3120 **Introduction to Virtual Reality** (5 credits)
Prerequisite(s): CSD1130, CSD2180

Virtual reality is a real-time, interactive computer simulation that senses a user's state and augments sensory feedback information to one or more of the user's senses so as to provide the user a sense of being immersed in the environment. This module provides a practical and project-based introduction to the concepts, techniques and algorithms to design, develop and implement virtual reality applications. Topics covered include physical principles and technologies for multi-modal input/output interfaces; representation, rendering and display of virtual worlds; interactive techniques for multi-modal interactions; augment reality; and development tools and frameworks.

CSD3125 **User Interface and User Experience Design** (5 credits)
Prerequisite(s): CSD2181

This module presents fundamental topics in the field of human-computer interface design. Topics covered in the module will help students understand human capabilities, design principles, prototyping techniques and evaluation methods for human-computer interfaces, with special emphasis on natural user interfaces. The module guides the students towards an implementation of a novel user interaction.

CSD3130 **Algorithm Analysis** (5 credits)
Prerequisite(s): CSD2125, CSD2181, CSD2200

This module provides students with an introduction to the analysis of algorithms specifically proving their correctness and making a statement about their efficiency. Topics for discussion may include loop invariants, strong mathematical induction and recursion, asymptotic notation, recurrence relations and generating functions. Students examine examples of algorithm analysis from searching and sorting algorithms. Second part of the module concentrates on classification of algorithms and building a strong knowledge base of existing algorithms.

CSD3150 **Spatial Data Structures** (5 credits)
Prerequisite(s): CSD2170

This module deals with the efficient representation and processing of complex 3D scenes in order to avoid bottlenecks in the use of the CPU and the GPU. Specific topics include a variety of spatial data structures (binary space-partitioning trees, octrees, kd-trees, and grid data structures), several object-culling methods (occlusion, viewport, and portal), and finally the construction and uses of bounding volumes and their hierarchies for collision detection and related geometric operations.

CSD3156 **Mobile and Cloud Computing** (6 credits)
Prerequisite(s): CSD2180, CSD2181

By facilitating a large variety of transportable human-computer interactions, mobile devices have become an essential and integral part of human life. Cloud computing is a model for enabling on-demand access to a shared pool of configurable computing resources such as servers, storage, networks, and applications as services over the Internet. Many popular mobile applications such as Gmail, Netflix, Facebook and WhatsApp are implemented as cloud applications but accessed from mobile devices. This module provides a practical and application oriented introduction to implementing cloud computing services that bring the vast data processing and storage abilities of the cloud to mobile devices.

CSD3185 **Machine Learning** (5 credits)
Prerequisite(s): CSD3182

The objective of this module is to introduce basics concepts on Machine Learning that are useful for many industrial applications. It introduces students to a wide range of concepts and practical algorithms that are commonly used to pre-process data and extract useful patterns from large amount of data. The topics include early machine learning algorithms such as genetic algorithms, classifier systems, neural network, and various clustering algorithms. It also explores probabilistic algorithms, including Bayesian networks, hidden Markov models, and Monte Carlo methods.

Department of Game Software Design and Production

Game Software Design and Production Modules

CSD1400 **Software Engineering Project 1** (5 credits)
Prerequisite(s): None

This class presents an overview of the way the game development industry works and a history of game development. It will expose students to the positions and job responsibilities that each member of a game development team has, along with the industry requirements for concept pitches, design documents and schedules. It will also introduce sprite animation, object motion, and input processing, which students will use in the creation of a game of their own design.

CSD1450 **Software Engineering Project 2** (5 credits)
Prerequisite(s): CSD1400, CSD1120

This project focuses on the creation of a simple game or simulation. Students will work together on teams of three or four members. All projects must be written entirely in C (C++ is also allowed) and cannot use external libraries or middleware of any kind (except those provided by the instructor). Topics include effective team communication, planning, documentation, debugging, source control, testing, and iterative software development techniques.

CSD2400 **Software Engineering Project 3** (7 credits)
Prerequisite(s): CSD1450, CSD1170, CSD1130

This project is divided into two trimesters and focuses on the creation of a simple real-time game or simulation with 2D graphics (3D games are not allowed, unless on special permissions). Students will work together on teams with average of five/six members to implement technical features such as audio effects, music playback, pattern movement, simple artificial intelligence, same-machine multiplayer (networking is not allowed, unless on special permission), particle systems, scrolling, and simple physics. All projects must be written with a core of C++ code and cannot use middleware such as pre-existing physics engines, networking engines, AI, etc. Additional topics may include basic software architecture, essential development practices, fundamentals of team dynamics, and task prioritization methods.

CSD2450 **Software Engineering Project 4** (7 credits)
Prerequisite(s): CSD2400

In this class, students work to complete and polish the projects they began in CSD2400. Additional topics may include intermediate software architecture, advanced debugging techniques, bug tracking, formal playtesting, game pacing and game balance.

CSD2510 **Introduction to Game Design** (5 credits)
Prerequisite(s): None

This is an introduction module to game design theory and the process of designing games. Topics may include design principles, writing rules, playtesting, game state, randomness, hidden information, and game balance.

CSD2512 **System Design Methods** (5 credits)
Prerequisite(s): CSD1120, CSD2510

This module focuses on how to analyze and simulate game systems. Topics may include system analysis, system simulation, system balancing, combat systems, and economic systems.

CSD2540 **Level Design** (5 credits)
Prerequisite(s): CSD1120, CSD2512

This module introduces the basic principles of level and encounter design. It focuses on the design of spatial environments, player guidance techniques, and controlling pacing through encounter frequency and variety.

CSD3400 **Software Engineering Project 5** (7 credits)
Prerequisite(s): CSD2450, CSD2150 or CSD2540

This module is the first trimester of a two-trimester project that will be continued in CSD3450. It focuses on the creation of a polished, professional-quality, real-time game or simulation, and provides the opportunity to work together on cross-discipline teams of three or more members, implementing the technical features needed for the project. This first trimester focuses on pre-production to ensure the technology, tools, design, art, audio, and team are ready for full production in the following trimester.

CSD3450 **Software Engineering Project 6** (7 credits)
Prerequisite(s): CSD3400

In this module, students work to complete the projects they began in CSD3400. This second trimester focuses on production to bring the project to the point where the target audience finds it engaging. Furthermore, techniques are explored for creating effective resumes, interviewing, and pursuing internships.

CSD3515 **Technical Design Methods** (5 credits)
Prerequisite(s): CSD2512, CSD2540

This module focuses on designing and implementing digital game prototypes, with an emphasis on integrating mechanics, controls, and camera. Additional topics include building tension to create engagement and implementing player feedback techniques

CSD4400 **Capstone Project** (16 credits)
Prerequisite (s): CSD3450

This is a two-trimester module. In the first trimester, the aim of the capstone project is to allow students to undertake a substantial piece of individual work, involving planning, specification, design, execution, evaluation of a complex systems that is related to the theme of Smart Nation and IoT.

In the continuation of the first part of the Capstone Project. The students are required to develop the scope and requirements of the project together with their academic and industry supervisors during IWSP and complete the implementation of the project in their final trimester of study. They will be required to present their project in a short seminar and submit a thesis report describing the results of the project.

CSD4901 **Integrated Work Study Programme** (IWSP) **(20 credits)**
Prerequisite (s): CSD3450

The Integrated Work Study Programme (IWSP) is uninterrupted 8-month duration (2 trimesters) work placement programme that provides students with unique learning opportunities to achieve the following objectives: (1) applied learning – integration of theory and practice, acquisition of specialist knowledge and development of professional skills, (2) exposure to real-world conditions - appreciation of real-world constraints in respective industry contexts to develop skills of adaptability, creativity and innovation, and (3) smooth transition to jobs - practical experience which shortens work induction period.

The extended period of IWSP, coupled with real work being performed, allow placement organizations to evaluate the suitability of a student as potential employee, in effect making the IWSP equivalent to a job probation period. Students will also have many opportunities to immerse themselves in their placement organization's business and culture, and decide if this is a good organization to work in.

Department of Humanities and Social Sciences

English Modules

CSD1610 **Composition** (5 credits)
Prerequisite (s): None

This module focuses on generating and discussing ideas for composition and engages in all stages of the writing process, with emphasis on the development and application of critical thinking skills. The primary focus of the course is developing the ability to construct, write, and revise argumentative/persuasive essays. Assignments may also include other types of writing, such as narrative, descriptive, and comparative essays.

CSD4620 **Research, Reasoning and Writing** (5 credits)
Prerequisite (s): CSD1610

In this composition module, students practice advanced argumentative essay writing with a focus on research, critical analysis of the research, thesis presentation, and defense. During the semester, students write several research essays on various topics using both traditional and new information techniques

College Life Modules

CSD3099 **Career and Professional Development** (5 credits)
Prerequisite (s): None

This is a capstone module for students to prepare their application materials and learn how to effectively search for an entry-level job in their field. The goal of the course is for each student to have a polished resume, cover letter, business card, and online/web presence by the end of the semester, as well as a search strategy for seeking employment.

Communication Modules

CSD1650 **Interpersonal and Work Communication** (5 credits)
Prerequisite (s): CSD1610

This module provides an introduction to interpersonal and professional communication. Particular attention is paid to verbal and nonverbal communication skills, small-group communication, and conflict resolution.

CSD4650 **Professional Communication** (5 credits)
Prerequisite (s): None

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

Psychology Module

CSD2701 **Introduction to Psychology** (5 credits)
Prerequisite (s): None

This module introduces major topics in psychology, specifically as they relate to cognition and learning. These topics include perception, cognition, personality and social psychology, and biological aspects of behaviour. Students are also introduced to human information processing, memory, problem solving, attention, perception, and imagery. Other topics covered may include mental representation and transformation, language processing, and concept formation.

Department of Mathematics and Physics

Mathematics and Physics Modules

CSD1240 **Linear Algebra and Geometry** (7 credits)
Prerequisite(s): None

The two main themes throughout the module are vector geometry and linear transformations. Topics from vector geometry include vector arithmetic, dot product, cross product, and representations of lines and planes in three-space. Linear transformations covered include rotations, reflections, shears and projections. Students study the matrix representations of linear transformations along with their derivations. The curriculum also presents affine geometry and affine transformations along with connections to computer graphics. This module also includes a review of relevant algebra and trigonometry concepts.

CSD1250 **Calculus and Analytic Geometry 1** (7 credits)
Prerequisite(s): None

This module introduces the calculus of functions of a single real variable. The main topics include limits, differentiation, and integration. Limits include the graphical and intuitive computation of limits, algebraic properties of limits, and continuity of functions. Differentiation topics include techniques of differentiation, optimization, and applications to graphing. Integration includes Riemann sums, the definite integral, anti-derivatives, and the Fundamental Theorem of Calculus.

CSD2200 **Calculus and Analytic Geometry 2** (7 credits)
Prerequisite(s): CSD1250

This module builds on the introduction to calculus in CSD1250. Topics in integration include applications of the integral in physics and geometry and techniques of integration. The module also covers sequences and series of real numbers, power series and Taylor series, and calculus of transcendental functions. Further topics may include a basic introduction to concepts in multivariable and vector calculus.

CSD2250 **Linear Algebra** (5 credits)
Prerequisite(s): CSD2200

This module presents the mathematical foundations of linear algebra, including a review of basic matrix algebra and linear systems of equations as well as basics of linear transformations in Euclidean spaces, determinants, and the Gauss-Jordan Algorithm. The more substantial part of the module begins with abstract vector spaces and the study of linear independence and bases. Further topics may

include orthogonality, change of basis, general theory of linear transformations, eigenvalues, eigenvectors, as well as applications to least-squares approximations and Fourier transforms, differential equations, and computer graphics.

CSD2258 **Discrete Mathematics** (5 credits)
Prerequisite(s): CSD2200

This module gives an introduction to several mathematical topics of foundational importance in the mathematical and computer sciences. Typically starting with propositional and first order logic, the module considers applications to methods of mathematical proof and reasoning. Further topics include basic set theory, number theory and applications to cryptography, relations, mathematical induction, and basic probability. Other topics may include graph theory, asymptotic analysis, and finite automata.

CSD2300 **Motion Dynamics and Lab** (8 credits)
Prerequisite (s): CSD1250

This module introduces the various physical laws that describe motions of objects around us. Students learn to internalize concepts involved with kinematics, Newtonian dynamics, work and energy, momentum, rotational motion and condition for the static equilibrium of rigid bodies and develop keen problem solving skills in motion dynamics.

CSD3240 **Probability and Statistics** (5 credits)
Prerequisite(s): CSD2200

This module is an introduction to basic probability and statistics with an eye toward computer science and artificial intelligence. Basic topics from probability theory include sample spaces, random variables, continuous and discrete probability density functions, mean and variance, expectation, and conditional probability. Basic topics from statistics include binomial, Poisson, chi-square, and normal distributions; confidence intervals; and the Central Limit Theorem. Further topics may include fuzzy sets and fuzzy logic.

Bachelor of Engineering in Mechatronics Systems

Program Overview

The Bachelor of Engineering in Mechatronics Systems, is created and offered by DigiPen Institute of Technology Singapore and Singapore Institute of Technology. It is a multidisciplinary degree that brings together the fields of mechanical, electrical, and computer engineering with a holistic approach to product development. Systems engineering focuses on the design, development, implementation and life-cycle management of complex interactive systems, while incorporating the constraints and limitations of given requirements, reliability, and risk management. This program focuses on the engineering of complex mechanical systems that are controlled by microprocessors and microcontrollers. The curriculum has a substantial theoretical foundation of math, physics, computer science, electrical engineering, mechanical engineering and systems engineering. This is solidified by eight semester-long project modules which require students to work in teams to design, develop, integrate, test, and present unique systems under the guidance of both academic and industrial experts. The blend of creativity and technical knowledge gained while completing projects gives students the versatility to adapt to a changing technical environment.

Program objectives of BEng in Mechatronics Systems program education are to produce graduates who are notable for their technical excellence and innovation through product launches, research and development, patent applications, industry recognition, etc.; distinguished for their in-depth understanding of engineering practices and sound judgement demonstrated by leading team projects that include concept development, design, implementation, and testing; engaged in independent, reflective learning and critical thinking via professional societies, publications, continuing education, etc.; fully aware of the societal impacts of their work through their participation in volunteer work or educational outreach.

Student Learning Outcomes

Bachelor of Engineering in Mechatronics Systems students are expected to achieve the following outcomes while completing their degree:

- The ability to apply knowledge of math, science, and engineering;
- The ability to design and conduct experiments.
- The ability to analyse and interpret data.
- The ability to design a system and processes to meet requirements including economic, ethical, environmental, health, manufacturability, political, social, and sustainability over its entire life-cycle.
- The ability to contribute to and collaborate on multidisciplinary teams.
- The ability to identify, formulate and solve engineering problems.
- The ability to communicate effectively.

- An understanding of professional and ethical responsibility.
- An understanding of the impact of engineering solutions in a global, economic, environmental, and societal context.
- The ability and desire to engage in life-long learning.
- A knowledge of contemporary issues.
- The ability to use the techniques, skills, and modern engineering tools necessary to practice engineering.

Graduates of this program will have the skills and preparation to work at entry-level positions in software, hardware, and systems design positions within various industries such as aerospace, avionics, automotive, consumer electronics, defence, entertainment, transportation, and shipping

Job Prospects

Potential entry-level position titles for new graduates include: Systems Engineer, Software Engineer, Hardware Engineer, Design Engineer, Development Engineer, Quality Control Engineer, Systems Test Engineer, Software Developer, Software Analyst, Systems Analyst, Computer Programmer, and Mechanical Systems Analyst.

Degree Requirements

NUMBER OF CREDITS AND GPA
The BEng in Mechatronics Systems program requires completion of at least 240 credits with a cumulative GPA of 2.0 or better. The program usually spans nine trimesters of 15 weeks each within four academic years.

MODULE GRADE
Students must receive a grade of "E" (or 1.0 quality points) or higher in all modules for the BEng in Mechatronics Systems program. A "Pass" mark must be received for all modules with a "Pass" or "Fail" grade.

COMPUTER SCIENCE
The following modules are required for Computer Science modules: SEM1002, SEM1503, SEM1504, SEM3503, and SEM4505. (Total: 5 modules, 28 credits)

ELECTRICAL AND ENGINEERING
The following modules are required for Electrical and Computer Engineering modules: SEM2305, SEM1302, SEM4405, SEM3302, SEM2306, and SEM4307. (Total: 6 modules, 32 credits)

HUMANITIES AND SOCIAL SCIENCES
The following modules are required for Humanities and Social Sciences modules: SEM1901, SEM1902, SEM2700, and SEM3802. (Total: 4 modules, 17 credits)

MATHEMATICS
The following modules are required for Mathematics modules: SEM1103, SEM1104, SEM2106, SEM3104, SEM3105, and SEM4108. (Total: 6 modules, 32 credits)

MECHANICAL ENGINEERING

The following modules are required for Mechanical Engineering modules: SEM1401, SEM1402, and SEM2403. (Total: 3 modules, 15 credits)

PHYSICS

The following modules are required for Physics modules: SEM2204, SEM2205 and SEM3203. (Total: 6 modules, 18 credits)

SYSTEMS ENGINEERING

The following modules are required for Systems Engineering modules: SEM1601, SEM2602, SEM2603, SEM4610, SEM4605, SEM4606, SEM4607, and SEM4608. (Total: 8 modules, 44 credits)

SYSTEMS ENGINEERING PROJECTS

The following modules are required for Systems Engineering Project modules SEM1033, SEM2004, SEM2005, SEM4007, SEM4008, and SEM3700. (Total: 6 modules, 54 credits)

NOTE ON GENERAL EDUCATION MODULES

The following modules satisfy the general education requirement for the BEng in Mechatronics Systems program: SEM1902 (4), SEM1901 (4), SEM2106 (5), SEM3104 (5), SEM3802 (4), SEM1103 (6), SEM1104 (6), SEM2204 (6), SEM2205 (6) and SEM3203 (6) for a total of 52 credits.

BEng in Mechatronics Systems Recommended Course Sequence

S/NO	MODULE CODE	MODULE TITLE	MODULE CREDITS
	**YEAR 1	TRIMESTER 1**		
1	SEM1002	Computer Environment	6
2	SEM1503	High-level Programming 1	6
3	SEM1901	Composition	4
4	SEM1103	Calculus and Analytic Geometry 1	6
5	SEM1401*	Computer Aided Design	5
6	SEM1402*	Engineering Fabrication	5
	**Sub-Total for YEAR 1	TRIMESTER 1**		**32**
	**YEAR 1	TRIMESTER 2**		
7	SEM1504	High-level Programming 2	6
8	SEM1902	Interpersonal and Work Communication	4
9	SEM1302	Digital Electronics 1	6
10	SEM1104	Calculus and Analytic Geometry 2	6
11	SEM1601*	Systems and Software Engineering	7
12	SEM1003*	System Engineering Project 1	6
	**Sub-Total for YEAR 1	TRIMESTER 2**		**35**
	**YEAR 1	TRIMESTER 3 (BREAK)**		
	**YEAR 2	TRIMESTER 1**		
13	SEM2306	Embedded Microcontroller Systems	5
14	SEM2106	Calculus and Analytic Geometry 3	5
15	SEM2204*	Motion Dynamics	6
16	SEM2602*	Systems and Project Management	7
17	SEM2004*	System Engineering Project 2	7
18	SEM3802*	The Engineer and Society	4
	**Sub-Total for YEAR 2	TRIMESTER 1**		**34**
	**YEAR 2	TRIMESTER 2**		
19	SEM2305	Electric Circuits	5
20	SEM2205*	Waves, Optics, and Thermodynamics and Lab	6
21	SEM2403*	ElectroMechanical Design	5
22	SEM2603*	Requirement Engineering and Systems Architecture	5
23	SEM2700*	Career Planning and Development	5
24	SEM2005*	System Engineering Project 3	7
	**Sub-Total for YEAR 2	TRIMESTER 2**		**33**

S/NO	MODULE CODE	MODULE TITLE	MODULE CREDITS
	**YEAR 2	TRIMESTER 3 (OIP)**		
25	SEM3503	Modern C++ Design Patterns	5
26	SEM3302	Digital Electronics 2	6
27	SEM3104	Linear Algebra	5
28	SEM3105	Differential Equations	5
29	SEM3203*	Electricity and Magnetism	6
	**Sub-Total for YEAR 2	TRIMESTER 3**		**27**
	**YEAR 3	TRIMESTER 1 (BREAK)**		
	**YEAR 3	TRIMESTER 2**		
30	SEM3700	Integrated Work Study Programme (IWSP)	
	**Sub-Total for YEAR 3	TRIMESTER 2**		**0**
	**YEAR 3	TRIMESTER 3**		
31	SEM3700	Integrated Work Study Programme (IWSP) (cont.)	20
	**Sub-Total for YEAR 3	TRIMESTER 3**		**20**
	**YEAR 4	TRIMESTER 1**		
32	SEM4505	Data Structures	5
33	SEM4307	Control Systems	5
34	SEM4108	Probability and Statistics	5
35	SEM4610*	Model-Based Systems Engineering	5
36	SEM4007*	Capstone Project 1	7
37	SEM4605*	Systems Modeling and Simulation	5
	**Sub-Total for YEAR 4	TRIMESTER 1**		**32**
	**YEAR 4	TRIMESTER 2**		
38	SEM4405	Robotics	5
39	SEM4606*	Risk and Decision Analysis	5
40	SEM4607*	Systems Integration, Verification and Validation	5
41	SEM4608*	Large Scale Systems	5
42	SEM4008*	Capstone Project 2	7
	**Sub-Total for YEAR 4	TRIMESTER 2**		**27**
	TOTAL FOR 4-YEAR PROGRAM		**240**

*Indicates classes are conducted at SIT@Dover (subject to changes)

Module Listings for BEng in Mechatronics Systems

Department of Computer Science

Computer Science Modules

SEM1002 **Computer Environment** (6 credits)
Prerequisite(s): None

This module provides students with a solid understanding of the fundamental elements on which computers are based. Topics covered include number systems, representation of numbers in computation, basic electricity, electric circuits, digital systems, logic circuits, data representation, digital memory, computer architecture, and operating systems. This knowledge eliminates some of the "mysteries" about hardware and provides students with a well-rounded understanding of computers. The latter stages of the module focus on assembly programming, which enhances the student's understanding of how the computer works at a fairly low-level.

SEM1503 **High-level Programming 1** (6 credits)
Prerequisite(s): None

In presenting the C programming language, this module serves as a foundation for all high-level programming modules and projects. It provides the fundamentals in programming, including control-flows (such as statement grouping, decision making, case selection, procedure iteration, and termination test) and basic data types (such as arrays, structures, and pointers). Additionally, there is an intensive discussion of the lexical, syntax notation, and semantics of the C programming language.

SEM1504 **High-level Programming 2** (6 credits)
Prerequisite(s): SEM1503

This module presents differences between imperative programming as practiced in High-Level Programming I module and object oriented programming. It also enables students to learn the concepts of data abstraction, inheritance, polymorphism and interface versus implementation. It introduces the challenges of building large-scale programs and how object-oriented programming facilitates it. Students learn the Standard C++ and Standard Template libraries and how to use them effectively in solving problems. Students also learn how to apply module concepts to implement data structures and programs to solve various problems.

SEM3503 **Modern C++ Design Patterns** (5 credits)
Prerequisite(s): SEM1504

This module builds on the foundation created in the first two high level programming modules (SEM1503/SEM1504). It presents advanced topics in the C/C++ programming language in greater detail. Such topics include advanced pointer manipulation, utilizing multi-dimensional arrays, complex declarations, and standard library functions. Advanced C++ topics include function and class templates, operator overloading, multiple inheritance, runtime type information, the Standard Library, and performance issues.

SEM4505 **Data Structures** (5 credits)
Prerequisite(s): SEM3503

The objective of this module is mainly to introduce the classical Abstract Data Types (ADTs) in Computer Science. The ADTs provide the hierarchical views of data organization used in programming. Fundamental data structures and their associated algorithms as well as complexity notation are introduced. Simply Reading about data structures and algorithms and listening to a lecture is insufficient to master and implement these fundamental concepts. Every non-trivial program you write at DigiPen and in the real world will make heavy use of data structures and algorithms and this module enables you to reason about and apply them.

Department of Electrical and Computer Engineering

Electrical and Computer Engineering Modules

SEM1302 **Digital Electronics 1** (6 Credits)
Prerequisite(s): SEM1002

This module focuses on digital circuit design. Topics include combinational and sequential logic, logic families, state machines, timers, digital/analog conversion, memory devices, and microprocessor architecture. Integral to this course are hands-on laboratories where students design, build, and test many of the circuits presented in lecture.

SEM2305 **Electric Circuits** (5 Credits)
Prerequisite(s): SEM1002, SEM1104, SEM2204

This module covers analog circuits. Topics in the course usually include the following: passive components, series and parallel circuits, two-terminal networks, circuit reduction, impedance analysis, waveform measurement, operational amplifiers, passive and active filters, circuit step response, and circuit analysis using Laplace transforms. Integration of analog subsystems into digital circuits is emphasized. Additionally, students are expected to learn how their analog and digital circuit designs are affected by capacitive and inductive effects.

SEM2306 **Embedded Microcontroller Systems** (5 Credits)
Prerequisite(s): SEM1002, SEM1504

This module covers topics needed to build the hardware and software for embedded devices. Core topics include microcontroller and microprocessor systems architecture, embedded system standards, and interprocess communication protocols. Additional topics may include: performance measurement, peripherals and their interfaces, board buses, memory interfaces, other modern communication protocols, and system integration.

SEM3302 **Digital Electronics 2** (6 Credits)
Prerequisite(s): SEM1302

As a continuation of Digital Electronics I, this module has an emphasis on programmable logic. Topics include advanced state machine design techniques and an introduction to hardware description languages (such as Verilog and VHDL). Lectures are reinforced with hands-on laboratory work involving complex programmable logic devices and field programmable gate arrays. Students are expected to complete a final project that utilizes programmable logic design.

SEM4307 **Control Systems** (5 Credits)
Prerequisite(s): SEM2106, SEM3105

This module presents mathematical methods of describing systems, with a focus on linear negative feedback control systems. Topics covered typically include signals and systems, Laplace and Fourier transforms, block diagrams, transfer functions, time-domain modeling, and error and stability analysis. Work is done analytically and numerically with examples from computer, electrical, and aerospace engineering, communications, and mechatronics. Additionally, students are introduced to the implementation of feedback control in embedded systems.

SEM4405 **Robotics** (5 Credits)
Prerequisite(s): SEM2204, SEM3302

This module examines the theoretical and practical foundations of mobile robotics. Fundamental topics from structural design, sensors, actuators, motors, and artificial intelligence are covered individually. Systems-level concepts of human interface, distributed robotics, requirements engineering, and ethics are covered in an integrated manner.

Department of Systems Engineering

Systems Engineering Modules

SEM1003 **System Engineering Project 1** (6 Credits)
Prerequisite(s): SEM1002, SEM1401, SEM1402, SEM1503

This module presents major topics in systems engineering and systems thinking, as well as overviews of the related fields of computer engineering, mechanical engineering, robotics, and mechatronics. The course also introduces development cycles, life cycles, professional ethics, multidisciplinary team environments, and common development tools used in industry. Students are expected to apply knowledge from this course and its prerequisites to a project involving an embedded microprocessor.

SEM2004 **System Engineering Project 2** (7 Credits)
Prerequisite(s): SEM1003, SEM1302, SEM1504, SEM1901

This is the first semester of a year-long module in which students work in teams to design, research, implement and test a functional system that interacts with other systems and meets specified requirements. Students must document their processes and give presentations on their progress.

SEM2005 **System Engineering Project 3** (7 Credits)
Prerequisite(s): SEM2004

This is the second semester of a year-long module in which student work in teams to design and produce a functional system that interacts with other systems. The system must be well documented and meet specified requirements. Students are expected to continue development of their system, focusing on testing, requirement verification, and external system interoperability. Students must document their processes and give a final demonstration and presentation of their systems.

SEM4007 **Capstone Project 1** (7 Credits)
Prerequisite(s): SEM2005, SEM2305, SEM2306

This is the first semester of a year-long systems engineering project. In SEM4007, students work in teams to design, build, program, document, and test an interactive embedded platform. Students are expected to create an electromagnetically controlled mechanical system with a microcontroller and integrate it with other systems. Projects may also integrate storage, input, sensors, and displays into their devices. Students are expected to develop team management skills, presentation skills, and critical design processes.

SEM4008 **Capstone Project 2** (7 Credits)
Prerequisite(s): SEM4007

This is the second semester of a year-long systems engineering project. Students work in teams to design, build, program, document, and test an interactive embedded platform. Students are expected to create an electromagnetically controlled mechanical system with a microcontroller and integrate it with other systems. Projects may also integrate storage, input, sensors, and displays into their devices. Students are also expected to develop team management skills, presentation skills, and critical design processes.

Department of Systems and Electro Mechanical Engineering

Systems and Electro Mechanical Engineering Modules

SEM1401 **Computer Aided Design** (5 Credits)
Prerequisite(s): None

This module looks at graphics and modelling fundamentals for engineering design, analysis and fabrication. Students are introduced to an engineering design process and are required to develop and document an engineering design for fabrication. Knowledge and skills critical to translating conceptual ideas into technical designs ready for fabrication are covered.

Student Learning Outcomes:
- » apply general ideas behind a design process to drive a design activity;
- » visualize and sketch conceptual designs;
- » model a complete engineering artefact within a Computer-Aided environment in 2D and 3D;
- » generate engineering drawings for conventional fabrication;
- » generate 3D models for 3D printing.

SEM1402 **Engineering Fabrication** (5 Credits)
Prerequisite(s): None

This module provides an introduction to conventional mechanical fabrications. Students are required to fabricate mechanical parts with different machine tools and equipment. Knowledge and skills gained through this module allow creation of physical parts from functional designs.

Student Learning Outcomes:
- » explain the capabilities, limitations, and basic principles of alternative mechanical fabrication technologies;

- » evaluate and select appropriate mechanical fabrication technologies for specific system development applications;
- » fabricate physical parts from engineering design drawings;
- » assemble parts to form working assemblies;
- » print 3D parts.

SEM1601 **Systems and Software Engineering** (7 Credits)
Prerequisite(s): None

This module looks into the disciplined approach of developing complex engineering systems over its life cycle. Physical and software systems are covered.

Student Learning Outcomes:
- » use systems thinking to model engineered artefacts in terms of a system of interest operating within an environment;
- » define the life cycle of a system;
- » model a system in terms of its life-cycle processes;
- » related systems engineering to software engineering;
- » apply agile software engineering methodologies;
- » apply plan-driven software engineering methodologies.

SEM2403 **ElectroMechanical Design** (5 Credits)
Prerequisite(s): SEM1401

This module looks into the theoretical foundations and application of machinery designs

Student Learning Outcomes:
- » select appropriate engineering material for different applications;
- » design electrical and electronic sub-systems for a specific purpose;
- » design machine elements for a specific purpose;
- » integrate electrical, electronic and machine elements through software;
- » design the interface between man and machine to facilitate ease of operations.

SEM2602 **Systems and Project Management** (7 Credits)
Prerequisite(s): SEM1601

This module provides in-depth examination of theories, techniques, and issues in Project Management within a Systems Engineering context. The management aspect of systems development is also covered.

Student Learning Outcomes:
- » manage the development process of an engineered artefact in terms of its life cycle;
- » interpret and apply systems development standards;
- » plan, execute and monitor a project based on PMP's methodologies.

SEM2603 **Requirement Engineering and Systems Architecture** (5 Credits)
Prerequisite(s): SEM1601

This module starts off with an in depth study of requirement engineering. This is followed by a look at various architectural frameworks, representations, tools, and methodologies that provide scalable and flexible approaches for enterprises operating in dynamic and complex environments.

Student Learning Outcomes:
  » specify the requirements of a system formally;
  » design an effective system architecture based on a set of requirements specified by users;
  » utilizes different architecture frameworks in different situations;
  » describe a system using model-based modelling techniques;
  » evaluate the strength and weakness of different architecture frameworks.

SEM2700 **Career Planning and Development** (5 Credits)
Prerequisite(s): None

This module develops the soft skills that will allow students to transit to the workplace. Students are equipped with the necessary skills to gain employment. Industry talks from companies from various sectors will be conducted to give students a better understanding of different sectors and their professional advancements

Student Learning Outcomes:
  » understand how to get a successful start in a job by demonstrating awareness of behavioural norms in business communication and etiquette;
  » understand general work ethics and culture.

SEM3700 **Integrated Work Study Programme** (20 Credits)
Prerequisite(s): SEM2005, SEM2700

Singapore Institute of Technology's Integrated Work Study Programme (IWSP) provides students with the opportunity to undertake real work, allowing them to integrate theory and practice and develop deep specialist skills.

SEM3802 **The Engineer and Society** (4 Credits)
Prerequisite(s): None

This module looks at the role an engineer plays within the larger context of his/her surroundings.

Student Learning Outcomes:
  » describe the role of an engineer in the society in terms of their profession;
  » analyse the impact of an engineer's work on society;
  » explain what is expected of an engineer ethically;

  » plan out the professional development within the larger context of the workforce a graduate intend to join.

SEM4605 **Systems Modeling and Simulation** (5 Credits)
Prerequisite(s): SEM1601

This module looks at the representation and manipulation of system models for analysis.

Student Learning Outcomes:
  » model systems using the IDEF0 notation; » structure a system of interest in terms of model-based artefacts;
  » model a system using the SysML notation;
  » model a system of interest for subsequent simulations and "what-if" analysis.

SEM4606 **Risk and Decision Analysis** (5 Credits)
Prerequisite(s): SEM1601

This module looks into the analysis of risks and decision making during system development.

Student Learning Outcomes:
  » analysis the risks involved in adopting a particular system design;
  » estimate and analysis the cost involved in operating a designed systems;
  » apply systems decision process;
  » define and analyse problem space and associated solution systems for effective solutions.

SEM4607 **Systems Integration, Verification and Validation** (5 Credits)
Prerequisite(s): SEM1601

This module looks at the integration of systems components, sub-systems and systems into a system of interest.

Student Learning Outcomes:
  » integrate different systems to operate effective as a whole;
  » define effective interfaces between different systems for subsequent interactions;
  » verify and validate requirements after system integration;
  » describe and apply different systems verification, validation and testing techniques.

SEM4608 **Large Scale Systems** (5 Credits)
Prerequisite(s): SEM1601

This module looks the planning, design, operation, and maintenance of large scale systems. Case studies are used to illustrate the practical aspects of systems engineering methodologies within large-scale systems

Student Learning Outcomes:
  » describe large scale engineering systems;

- » explain the rationale behind the design and implementation of existing large scale systems;
- » describe the complexity behind the structure of large-scale systems;
- » recommend improvements to existing large-system design and implementation.

SEM4610 **Model-Based Systems Engineering** (MBSE) **(5 Credits)**
Prerequisite(s): SEM1601

This module looks at the formal application of modeling to support Systems Engineering life cycle processes and activities. Modules are used to capture, analyse, share, and manage the information associated with system development. Leveraging an MBSE approach to SE is intended to result in significant improvements in system requirements, architecture, and design quality; lower the risk and cost of system development by surfacing issues early in the system definition; enhance productivity through reuse of system artefact's; and improve communications among the system development team.

Department of Humanities and Social Sciences Modules

English Modules

SEM1901 **Composition** (4 credits)
Prerequisite(s): None

This module focuses on generating and discussing ideas for composition and engages in all stages of the writing process, with emphasis on the development and application of critical thinking skills. The primary focus of the course is developing the ability to construct, write, and revise argumentative/persuasive essays. Assignments may also include other types of writing, such as narrative, descriptive, and comparative essays.

College Life Modules

SEM2700 **Career Planning and Development** (5 credits)
Prerequisite(s): None

This module develops the soft skills that will allow students to transit to the workplace. Students are equipped with the necessary skills to gain employment. Industry talks from companies from various sectors will be conducted to give students a better understanding of different sectors and their professional advancements.

Communication Modules

SEM1902 **Interpersonal and Work Communication** (4 credits)
Prerequisite(s): SEM1901

This module provides an introduction to interpersonal and professional communication. Particular attention is paid to verbal and nonverbal communication skills, small-group communication, and conflict resolution.

Department of Mathematics and Physics

Mathematics and Physics Modules

SEM1103 **Calculus and Analytic Geometry 1** (6 credits)
Prerequisite(s): None

This module introduces the calculus of functions of a single real variable. The main topics include limits, differentiation, and integration. Limits include the graphical and intuitive computation of limits, algebraic properties of limits, and continuity of functions. Differentiation topics include techniques of differentiation, optimization, and applications to graphing. Integration includes Riemann sums, the definite integral, anti-derivatives, and the Fundamental Theorem of Calculus.

SEM1104 **Calculus and Analytic Geometry 2** (6 credits)
Prerequisite(s): SEM1103

This module builds on the introduction to calculus in SEM1103. Topics in integration include applications of the integral in physics and geometry and techniques of integration. The module also covers sequences and series of real numbers, power series and Taylor series, and calculus of transcendental functions. Further topics may include a basic introduction to concepts in multivariable and vector calculus.

SEM2106 **Calculus and Analytic Geometry 3** (5 credits)
Prerequisite(s): SEM1104

This module extends the basic ideas of calculus to the context of functions of several variables and vector-valued functions. Topics include partial derivatives, tangent planes, and Lagrange multipliers. The study of curves in two- and three space focuses on curvature, torsion, and the TNB-frame. Topics in vector analysis include multiple integrals, vector fields, Green's Theorem, the Divergence Theorem and Stokes' Theorem. Additionally, the module may cover the basics of differential equations.

SEM2204 **Motion Dynamics** (6 credits)
Prerequisite(s): SEM1103

This module introduces the various physical laws that describe motions of objects around us. Students learn to internalize concepts involved with kinematics, Newtonian dynamics, work and energy, momentum, rotational motion and condition for the static equilibrium of rigid bodies and develop keen problem solving skills in motion dynamics.

SEM2205 **Waves, Optics, and Thermodynamics** (6 credits)
Prerequisite(s): SEM1104, SEM2204

This calculus-based module presents the fundamentals of fluid dynamics, oscillations, waves, geometric optics, and thermodynamics.

SEM3104 **Linear Algebra** (5 credits)
Prerequisite(s): SEM1104

This module presents the mathematical foundations of linear algebra, including a review of basic matrix algebra and linear systems of equations as well as basics of linear transformations in Euclidean spaces, determinants, and the Gauss-Jordan Algorithm. The more substantial part of the module begins with abstract vector spaces and the study of linear independence and bases. Further topics may include orthogonality, change of basis, general theory of linear transformations, eigenvalues, eigenvectors, as well as applications to least-squares approximations and Fourier transforms, differential equations, and computer graphics.

SEM3105 **Differential Equations** (5 credits)
Prerequisite(s): SEM1104

This module introduces the basic theory and applications of first and second-order linear differential equations. The module emphasizes specific techniques such as the solutions to exact and separable equations, power series solutions, special functions and the Laplace transform. Applications include RLC circuits and elementary dynamical systems, and the physics of the second order harmonic oscillator equation.

SEM3203 **Electricity and Magnetism and Lab** (6 credits)
Prerequisite(s): SEM2205

This calculus-based course presents the basic concepts of electromagnetism, including electric fields, magnetic fields, electromagnetic forces, DC and AC circuits, and Maxwell's equations. The experiments allow students to experience the physical laws involving electric fields, electric potential, electric current, electric charge, capacitance, current, resistance, inductance, circuits, and magnetism. Error analysis and statistics are taught and required in experimental reports.

SEM4108 **Probability and Statistics** (5 credits)
Prerequisite(s): SEM1104

This module is an introduction to basic probability and statistics with an eye toward computer science and artificial intelligence. Basic topics from probability theory include sample spaces, random variables, continuous and discrete probability density functions, mean and variance, expectation, and conditional probability. Basic topics from statistics include binomial, Poisson, chi-square, and normal distributions; confidence intervals; and the Central Limit Theorem. Further topics may include fuzzy sets and fuzzy logic.

Bachelor of Arts in User Experience and Game Design (BA UXGD)

Program Overview

The field of interactive design has moved from an era where designers were self-taught and learned on the job, to one where even entry-level designers are expected to have proven design skills, as well as knowledge of technology, information processing, and psychology. Interactive designers must continually place themselves in the minds of their users and players, shaping every action and response, carefully teaching them what they need to know, and skilfully blending the interactive, spatial, narrative, visual, and aural aspects of an experience. Whether working on digital tools and simulations, on traditional or digital games, or even on physical installations, this degree program prepares graduates to be interactive designers, capable of working in large teams, communicating and collaborating with other designers, artists, and engineers, able to create any kind of interactive experience.

Student Learning Outcomes

Graduates will be well-versed in both interactive design and game design theory, including user interface design, usability, spatial design, system design, and behaviour design. Graduates will have extensive experience testing, iterating, and polishing both digital and non-digital designs through the completion of both individual and team projects. Graduates will be familiar with the basics of psychology, programming, art, and writing, and will also have been introduced to concepts of sound design, statistics, and probability.

Job Prospects

Graduates of this degree program will be prepared to enter the software industry as entry-level User Experience Designers and the game industry as entry-level Game Designers. Possible entry-level position titles include User Interface Designer, User Experience Designer, Usability Researcher, Installation Designer, Game Scripter, Technical Designer, System Designer, Level Designer, Content Designer, Encounter Designer, Quest Designer, and Game Designer. This degree program also includes secondary training that can contribute directly to a graduate obtaining positions with titles such as Producer, Program Manager, Writer, Technical Writer, Editor, Artist, and Technical Artist. After many years in the industry, graduates may obtain titles such as Lead Designer, User Experience Architect, Creative Director, and Director.

Degree Requirements

NUMBER OF CREDITS AND GPA
The Bachelor of Arts in User Experience and Game Design program requires completion of at least 240 credits with a cumulative GPA of 2.0 or better. The program usually spans nine trimesters of 15 weeks each within a total of four academic years.

MODULE GRADE
Students must receive a grade of "E" (or 1.0 quality points) or higher in all modules for the Bachelor of Arts in User Experience and Game Design degree program. A "Pass" mark must be received for all modules with a "Pass" or "Fail" grade.

DESIGN
The following Design modules are required: UXG1500, UXG 1501, UXG1505, UXG1560, UXG2520, UXG2540, UXG2570, UXG2501, UXG2502, UXG3500, UXG3503, UXG2565, and UXG3570. 10 additional credits must be selected from other design modules at the Year 3 or Year 4 levels. Five of these additional credits can be replaced by a module with any Psychology module (except UXG1701). (Total: 15 modules, 82 credits)

PROJECTS
The following Project modules required: UXG1420, UXG2400, UXG2450, UXG3400, UXG3450, UXG3475/UXG4400 and UXG4400/UXG4450. Please note that internship modules UXG4950 and UXG4990 may be taken in place of UXG3475/UXG4400 and UXG4400/UXG4450.   (Total: 7 modules, 51 credits

PSYCHOLOGY
The following Psychology modules are required: UXG1701 and UXG1702. Five additional credits must be selected from other Psychology modules. (Total: 3 modules, 15 credits)

COMPUTER SCIENCE
The following Computer Science modules are required: UXG1116, UXG2165, UXG1175 and UXG2176. (Total: 4 modules, 24 credits)

MATHEMATICS
The following Mathematics module is required: UXG1205 and UXG2200. (Total: 2 modules, 12 credits)

PHYSICS
The following Physics module is required: UXG2315. (Total: 1 module, 5 credits)

ENGLISH
The following English modules are required: UXG1616 and a 5-credit English module. (Total: 2 modules, 10 credits)

HUMANITIES AND SOCIAL SCIENCES
The following modules are required: UXG2735, UXG3099 and UXG3650. Five additional credits must be selected from Management module, and 5 credits must be selected from modules offered by the Department of Humanities and Social Sciences, except for those on career modules. (Total: 5 module, 21 credits)

COMPUTER GRAPHICS

The following Computer Graphics modules are required: UXG2802, UXG3825. (Total: 2 modules, 10 credits)

ART

The following Art module is required: UXG2805. (Total: 1 module, 5 credits)

MUSIC

The following Music module is required: UXG3815. (Total: 1 module, 5 credits)

NOTE ON GENERAL EDUCATION MODULES

The following modules satisfy the general education requirement for the BA in User Experience and Game Design: two English electives (10), UXG1205 (5), one Mathematics elective (5), UXG3815 (5), UXG1701 (5), UXG1702 (5), one Psychology elective (5), one Physics elective (5), and one Humanities and Social Sciences elective (5) (Total: 10 modules, 50 credits).

BA UXGD Recommended Course Sequence

S/NO	MODULE CODE	MODULE TITLE	MODULE CREDITS
	**YEAR 1	TRIMESTER 1**		
1	UXG1500	Introduction to Design Process	7
2	UXG1501	Principles of Interactive Design	7
3	UXG1701	Introduction to Psychology	5
4	UXG1116	Introduction to Computer Technology and Programming	7
5	UXG1205	Introductory Probability and Statistics	5
	**Sub-Total for YEAR 1	TRIMESTER 1**		**31**
	**YEAR 1	TRIMESTER 2**		
6	UXG1420	Introduction to Digital Production	7
7	UXG1505	Game Design Process	5
8	UXG1560	User Experience Design 1	6
9	UXG1702	Cognitive Psychology	5
10	UXG1616	Storytelling	5
11	UXG1175	Scripting Languages	5
	**Sub-Total for YEAR 1	TRIMESTER 2**		**33**
	**YEAR 1	TRIMESTER 3 (BREAK)**		
	**YEAR 2	TRIMESTER 1**		
12	UXG2400	Project 2	7
13	UXG2520	System Design 1	5
14	UXG2570	User Research 1	5
15	UXG2165	Programming Foundations	7
16	UXG2200	Precalculus with Linear Algebra and Geometry	7
	**Sub-Total for YEAR 2	TRIMESTER 1**		**31**
	**YEAR 2	TRIMESTER 2**		
17	UXG2450	Project 2 (continued)	7
18	UXG2540	Level Design	7
19	UXG2501	Game Design 1	5
20	UXG2176	Advanced Scripting	5
21	UXG2315	Introduction to Applied Math and Physics	5
22	UXG2735	College Success for Designers	1
	**Sub-Total for YEAR 2	TRIMESTER 2**		**30**
	**YEAR 2	TRIMESTER 3 (OIP)**		
23	UXG2502	Game Design 2	5
24	UXG2565	Game Feel	5
25	UXG2805	Art Processes	5
26	UXG2802	2D Raster Graphics for Designers	5
	**Sub-Total for YEAR 2	TRIMESTER 3**		**20**

S/NO	MODULE CODE	MODULE TITLE	MODULE CREDITS
	YEAR 3 | TRIMESTER 1		
27	UXG3400	Project 3 (part 1)	7
28	UXG3503	Game Design 3	5
29	UXG3570	User Research 2	5
30	UXG3825	Introduction to 3D Production for Designers	5
31	UXG3815	Fundamentals of Music and Sound Design	5
	Sub-Total for YEAR 3 | TRIMESTER 1		**27**
	YEAR 3 | TRIMESTER 2		
32	UXG3450	Project 3 (part 2)	7
33	UXG3500	Integrated Digital Design	5
34	Design Elective	A Year 3 or Year 4 design module	5
35	PSY Elective	Any Psychology module	5
36	UXG3650	Professional Communication	5
37	UXG3099	Career and Professional Development	5
	Sub-Total for YEAR 3 | TRIMESTER 2		**32**
	YEAR 3 | TRIMESTER 3 (BREAK)		
	YEAR 4 | TRIMESTER 1		
38	UXG3475/UXG4400/ UXG4950	Project 3 (part 3), or Project 4, or Internship 1	8
39	Design Elective	A Year 3 or Year 4 design module	5
40	UXG4653	Project Management	5
	Sub-Total for YEAR 4 | TRIMESTER 1		**18**
	YEAR 4 | TRIMESTER 2		
41	UXG4400/UXG4450/ UXG4950/UXG4990	Project 4 or Project 4 (Continued), or Internship 1 or Internship 2	8
42	HSS Elective	Any Humanities and Social Sciences module	5
43	English Elective	Any English module	5
	Sub-Total for YEAR 4 | TRIMESTER 2		**18**
	TOTAL FOR 4-YEAR PROGRAM		**240**

Module Listings for BA UXGD

Department of Computer Science

Computer Science Modules

UXG1116 Introduction to Computer Technology and Programming (7 credits)
Prerequisite(s): None

This class introduces programming environments to non-computer science major students. The module provides students with an introductory overview of the fundamental elements on which computers are based, including basic computer hardware systems, operations, and structures. An introduction to basic programming includes simple logic, programming flow, loops, variables, and arrays. Conditionals, evaluations, and other control structures are also included. The instructor may cover special topics in programming or scripting and may focus on currently popular scripting languages in the video game industry.

UXG1175 Scripting Languages (5 credits)
Prerequisite(s): UXG1116

Topics may include classes, inheritance, interfaces, polymorphism, and data structures. This module covers the concepts and implementation strategies for using high-level scripting languages in game development. Students will focus on object-oriented programming, high-level English-like structure, speed of development, and ease of use. The module includes a survey of commercial languages, as well as proprietary scripting languages from industry applications. Students will examine the process of conceptualizing a syntax for a game-based scripting language and examine how such a language is compiled and interpreted by a game engine. Using the syntax they have created, they will create a number of scripts that could be used in a game. Additionally, the class will cover such relevant topics as data-driven technology, modular coding, function calls, and procedures.

UXG2165 Programming Foundations (7 credits)
Prerequisite(s): UXG1116

This module expands on basic programming skills through an exploration of object-oriented programming techniques. Topics may include classes, inheritance, interfaces, polymorphism, and data structures.

UXG2176 Advanced Scripting (5 credits)
Prerequisite(s): UXG1175

This module presents game implementation techniques and game architecture in a scripting language environment. Students investigate concepts of game architecture, such as game-system component separation and game flow while learning about essential elements such as the game state manager, input/output handler, and frame rate controller. Students learn how to create several different types of classic games in a variety of scripting languages most commonly used for professional games, learning the specific syntax and approaches of each language in the process. As part of their implementation, students learn how to use the specific graphics, audio interface, physics and math APIs found in the scripting environments used. Students also survey concepts in space partitioning, particle systems, map editors and other elements so that they are capable of creating working prototypes of 2D games.

Computer Graphics Modules

UXG2802 2D Raster Graphics for Designers (5 credits)
Prerequisite(s): None

This module introduces the software and basic interface customization options and strategies in 2D raster graphics. Interface organization strategies, system components, bit depth, resolution, memory management, and output strategies are covered. The module also explores techniques and critical thinking skills for digital painting.

UXG3825 Introduction to 3D Production for Designers (5 credits)
Prerequisite(s): None

This module introduces game designers to the 3D production process. The module begins with the basics of interface organization strategies, equipment options, and production elements. The class also introduces techniques for texture mapping, modeling, rigging, lighting, cameras, and animation.

Art Modules

UXG2805 Art Processes (5 credits)
Prerequisite(s): None

This module provides a basic working knowledge of the processes used in making art. Topics include the origins and techniques involving drawing, tone, color, composition and artistic process as well as a simple overview of art history.

Department of Game Software Design and Production

Game Software Design and Production Modules

UXG1500 **Introduction to Design Process** (7 credits)
Prerequisite(s): None

This module introduces the design process as it applies to interactive experiences. Topics include exploration, research, proposals, prototypes, iteration, and polishing of an interactive experience.

UXG1501 **Principles of Interactive Design** (7 credits)
Prerequisite(s): None

This module explores the principles of interactive design and how they are used to create engaging experiences. Topics include the nature of the design profession, how tension leads to engagement, complexity versus depth, and how to test interactive experiences effectively.

UXG1505 **Game Design Process** (5 credits)
Prerequisite(s): UXG1500, UXG1501, UXG1205

This module covers the process of designing complete games through the creation of non-digital dice, card, and board games. Topics may include writing rules, playtesting, game state, randomness, hidden information, and game balance.

UXG1420 **Introduction to Digital Production** (7 credits)
Prerequisite(s): UXG1500, UXG1501

This module introduces the workflows, methodologies, and best practices for working within a modern digital game development environment. Topics may include game editors, components, basic scripting, input processing, importing art and audio, level creation, and source control.

UXG1560 **User Experience Design 1** (6 credits)
Prerequisite(s): UXG1501

This module explores fundamental principles of interactive design and psychological principles related to design. Emphasis is placed on information architecture, graphic design concepts, user interface documentation, and interface prototyping techniques.

UXG2400 **Project 2** (7 credits)
Prerequisite(s): UXG1420, UXG1505, UXG1560

This module is the first part of a two-trimester project. Students will work together on teams of three or more to create a simple real-time two-dimensional game or simulation. Techniques are explored for working effectively on a team, following a development process, using discipline-based best practices, and applying core discipline-based skills to game development. This first trimester focuses on pre-production to ensure the technology, tools, design, art, audio, and team are ready for full production in the following trimester.

UXG2450 **Project 2** (Continued) **(7 credits)**
Prerequisite(s): UXG2400

In this module, students work to complete the projects they began in UXG2400. Techniques are explored for iterating effectively, formal testing, tracking progress, and integrating design, art, and audio into a unified experience. This second trimester focuses on production to bring the project to the point where the target audience finds it engaging.

UXG2520 **System Design 1** (5 credits)
Prerequisite(s): UXG1505

This module focuses on how to create interactive systems with the proper balance of complexity versus depth. Topics may include combat systems, economic systems, social systems, and system balancing.

UXG2570 **User Research 1** (5 credits)
Prerequisite(s): UXG1560, UXG1701

This module introduces the basic principles of user research and formal testing methodologies based on the scientific method. Topics include selecting research methods, selecting test candidates, focus group testing, metrics-based analysis, and end-user research.

UXG2501 **Game Design 1** (5 credits)
Prerequisite(s): UXG1116, UXG2520, UXG2570

This module focuses on the design and implementation of engaging digital game prototypes. Topics may include building tension, effective feedback, teaching the player, and using interactive elements to create engagement through accomplishment, challenge, and connection.

UXG2502 **Game Design 2** (5 credits)
Prerequisite(s): UXG2165, UXG2540, UXG2501

This module focuses on the design and implementation of engaging digital game prototypes. Topics may include using space effectively, kinesthetic flow, motivating through autonomy, and using interactive elements to create engagement through discovery, sensation, and fantasy.

UXG2540 **Level Design** (7 credits)
Prerequisite(s): UXG1116, UXG1505

This module introduces the basic principles of level and encounter design. The module focuses on the design of spatial environments, player guidance techniques, and controlling pacing through encounter frequency and variety.

UXG2565 **Game Feel** (5 credits)
Prerequisite(s): UXG1560

This module explores how visuals, audio, programming, and design intersect to create immersive interactive experiences. Emphasis is placed on the implementation of dynamic user interfaces, intuitive real-time feedback, and immersive control systems.

UXG3400 **Project 3** (part 1) **(7 credits)**
Prerequisite(s): UXG2450, UXG2501

This module is the first trimester of a two- or three-trimester project, which will be continued in UXG3450, and then in UXG3475 for a three-trimester project. Students will work together on teams of three or more to create an advanced real-time game or simulation. Techniques are explored for creating high-performance teams, tuning development processes for specific projects, using advanced discipline-based best practices, and applying specialized discipline-based skills to game development. This first trimester focuses on preproduction to ensure the technology, tools, design, art, audio, and team are ready for full production in the following trimester.

UXG3450 **Project 3** (part 2) **(7 credits)**
Prerequisite(s): UXG3400

In this module, students work to complete the projects they began in UXG3400. This second trimester focuses on production to bring the project to the point where the target audience finds it engaging. Furthermore, techniques are explored for creating effective resumes, interviewing, and pursuing internships. The project may be continued for a third trimester in UXG3475.

UXG3475 **Project 3** (part 3) **(8 credits)**
Prerequisite(s): UXG3450

This module is the final trimester of the three-trimester project begun in UXG3400 and continued in UXG3450. Techniques are explored for polishing design, art, and audio, creating effective marketing materials, and highlighting individual contributions to the project. This trimester focuses on postproduction and shipping a highly polished final project.

UXG3500 **Integrated Digital Design** (5 credits)
Prerequisite(s): UXG3503, UXG3815, UXG3825

This module focuses on designing and implementing an original digital experience that integrates sensory, narrative, and interactive elements into an engaging overall work that is suitable as a portfolio piece.

UXG3503 **Game Design 3** (5 credits)
Prerequisite(s): UXG2502

This module focuses on the design and implementation of highly original and engaging digital game prototypes. Topics may include originality in design, narrative engagement, motivating through connection, and using interactive elements to create engagement through fellowship, expression, and catharsis.

UXG3570 **User Research 2** (5 credits)
Prerequisite(s): UXG2570

This module covers advanced user research techniques with an emphasis on information visualization. Topics include methods for collecting and building data sets, assessing the quality of those data sets, selecting the optimal method for data visualization, and creating user research reports.

UXG4400 **Project 4** (8 credits)
Prerequisite(s): UXG3450

In this module, students prepare their personal portfolio of projects in order to be ready for a professional job search. This can involve a new project to demonstrate a particular professional skill, or taking a previous project to very high level of quality.

UXG4450 **Project 4** (Continued) **(8 credits)**
Prerequisite(s): UXG4400

In this module, students prepare their personal portfolio of projects in order to be ready for a professional job search. This can involve a new project to demonstrate a particular professional skill, or working to complete a project they began in UXG4400.

Game Software Design and Production Elective Modules

UXG4515 **Technical Design Methods** (5 credits)
Prerequisite(s): UXG2520, UXG2540

This module focuses on designing and implementing digital game prototypes, with an emphasis on integrating mechanics, controls, and camera. Additional topics include building tension to create engagement and implementing player feedback techniques.

UXG4535 **Role-Playing Game Design** (5 credits)
Prerequisite(s): UXG2520,UXG1616

This is a module on the design of non-digital role-playing games. Topics may include skill systems, conflict resolution, character creation, character advancement, equipment variety, world design, and adventure development.

UXG4536 **Interactive Narrative Design** (5 credits)
Prerequisite(s): UXG2520,UXG1616

This module focuses on how to create characters and write stories that integrate with gameplay and mechanics to form an interactive narrative. Topics may include the design and structure of dialogue trees, mood parameters for dialogue choices, autonomous behaviors, emergent gameplay, and addition of emotional depth through the use of character archetypes, and weaving theme and story together.

Internship Modules

UXG4950 **Internship 1** (8 credits)
Prerequisite(s): UXG2450

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

UXG4990 **Internship 2** (8 credits)
Prerequisite(s): UXG4950

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

Department of Humanities and Social Sciences

English Modules

UXG1616 **Storytelling** (5 credits)
Prerequisite(s): None

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

College Life Modules

UXG2735 **College Success for Designers** (1 credit)
Prerequisite(s): UXG2400

This module introduces industry research and professional expectations, and helps identify student strengths, skills, and interests. This module also requires the creation of an academic plan focusing on skill development.

UXG3099 **Career and Professional Development** (5 credits)
Prerequisite(s): None

This is a capstone module for students to prepare their application materials and learn how to effectively search for an entry-level job in their field. The goal of the module is for each student to have a polished resume, cover letter, business card, and online/web presence by the end of the semester, as well as a search strategy for seeking employment.

Communication Modules

UXG3650 **Professional Communication** (5 credits)
Prerequisite(s): None

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

Management Module

UXG4653 **Project Management** (5 Credits)
Prerequisite(s): None

This module provides in-depth examination of theories, techniques, and issues in project management. It covers various aspects of project management including team leadership, marketing, budgeting, long-range project planning, contract negotiations, and intellectual property considerations. The module includes exercises that give students insight into dealing with product conceptualization, team effectiveness and performance issues.

Psychology Modules

UXG1701 **Introduction to Psychology** (5 credits)
Prerequisite(s): None

This module introduces major topics in psychology, specifically as they relate to cognition and learning. These topics include perception, cognition, personality and social

psychology, and biological aspects of behaviour. Students are also introduced to human information processing, memory, problem solving, attention, perception, and imagery. Other topics covered may include mental representation and transformation, language processing, and concept formation.

UXG1702 **Cognitive Psychology** (5 credits)
Prerequisite(s): UXG1701

This module emphasizes emergent research and theory exploring the nature of human mental processes. Topics include neuroscience, attention, perception, memory, creativity, decision making, and information processing.

English Elective Modules

UXG4630 **Speculative Fiction** (5 credits)
Prerequisite (s): UXG1616

This module is a survey of speculative fiction (in literature, television, film, and graphic novels) that moves beyond pure realism to include fantastic or imaginative elements and to present worlds that differ significantly from our own. Each semester, the module will focus on one or more sub-genres which may include science fiction, fantasy, horror, magic realism, alternate history, steampunk, or cyberpunk.

UXG4631 **Mythology** (5 credits)
Prerequisite (s): UXG1616

This module studies myths from different world cultures. It provides an in-depth discussion of the Hero's Journey (a basic pattern that appears in many narratives) and its principal archetypes. It also studies mythology across the arts and examines how essential it is to the study of literature, drama, film and video games.

UXG4632 **Multicultural Literature** (5 credits)
Prerequisite (s): UXG1616, UXG4631

This module explores what modernity and post-modernity have or have not meant to American writers whose histories and cultures are not European in origin but whose writings are steeped in European-American literary traditions. The module explores the cultural hybridism of this literature as well the unique visions of the world they have created. These funny, humorous, bitterly satirical, and downright serious (post)-modern fantasies are quintessentially American, yet also unique and peculiar to these authors' ethnic experiences. The selected works also offer an opportunity to read or re-read well established and newer American works of literature.

UXG4633 **Epic Literature** (5 credits)
Prerequisite (s): UXG1616, UXG4631

This module provides an introduction to the epic as a genre, including poetry, drama, and novels. Particular attention is paid to the theme of heroism and its many cultural manifestations.

UXG4634 **Introduction to Fiction Writing** (5 credits)
Prerequisite (s): UXG1616

This module provides an introduction to the study and practice of fiction writing including characterization, plot, setting, and point of view. It presents selected works of short and long fiction. The module is an opportunity for students to practice their own creative writing skills. They are required to write at least two short stories.

UXG4635 **American Ethnic Literature** (5 credits)
Prerequisite (s): UXG1616

This module covers prominent themes and techniques in American ethic literatures such as Native, African, Asian, and Hispanic American Literatures. Modern Texts are emphasized but pre- or early 20th century classics may also be included.

UXG4636 **The Graphic Novel** (5 credits)
Prerequisite (s): UXG1616

This module provides an introduction to the study of graphic novels, a unique field of inquiry encompassing many world cultures and drawing on many disciplines. Students will read, discuss, and analyze many different types of novels, such as stand-alone, serial, and adaptive books.

UXG4637 **Scriptwriting** (7 credits)
Prerequisite (s): UXG1616 or UXG4634

This module covers the fundamentals of concept development, dramatic structure, and writing for a visual medium. It leads to the completion of at least one original preproduction script in screenplay format.

UXG4638 **Creative Writing Across the Arts** (5 credits)
Prerequisite (s): UXG1616

This module focuses on the generation of creative writing in multiple genres and media, including poetry, fiction, creative non-fiction, and graphic novels. Students study and practice writing in a workshop atmosphere and engage in intensive reading of excellent writings, most of which employ interdisciplinary, cross-genre approaches that encompass painting, photography, and other visual art. Discussions of readings are followed by writing experiments designed to spark original thinking, to develop facility with writing, and to enhance understanding of the creative process. Students gain in-depth knowledge of the possibilities of creative writing and apply this experience by writing both short creative pieces and longer works.

UXG4639 **Gender Identity in Literature** (5 credits)
Prerequisite (s): UXG1616 or UXG4630 or UXG4631 or UXG4632 or UXG4633 or UXG4634 or UXG4635 or UXG4636

This module introduces students to expressions and representations of gender/sexual identity in literary works, including poetry, fiction, creative non-fiction, drama, and film. The module takes a historical and multicultural approach to the topic, covering key texts from the past and the present by authors from different cultures and backgrounds.

UXG4640 **Special Topics in English** (5 credits)
Prerequisite (s): None
Permission of instructor required.

The content of this module may change each time it is offered. It is for the purpose of offering a new or specialized module of interest to the faculty and students that is not covered by the modules in the current catalog.

UXG4641 **Creative Writing for Game Design** (5 credits)
Prerequisite (s): UXG4631

This module focuses on the narrative elements of creative writing. Exercises generate thinking and hone students' basic storytelling talents, including characterization, exposition, plot, conflict, back-story, dialogue, and appropriate use of language. Students learn how to use symbols to design a story and how to manipulate the symbols to create character, plot, message, and interactivity. Students are encouraged to access their own genius, culture, and life experience in the development of their stories

UXG4642 **Interactive Storytelling** (5 credits)
Prerequisite (s): UXG1616

In this module, students learn to design stories with symbolic language. Exercises help students apply and understand character design and development, archetypes, conflict, plot patterns, back-story, dialogue, exposition, premise, and the psychological dynamics of human choice. Students also learn how to manipulate symbols in images by drawing from a variety of theoretical models, such as Carl Jung's dream analysis, personality profiling per Myers-Briggs, Gestalt psychology, and narrative architecture.

UXG4643 **Cybertexts, Interactive Media and the Future of Narratives** (5 credits)
Prerequisite (s): UXG1616

Video games and other forms of interactive media are widely touted as the future of both popular entertainment and narrative storytelling. If video games and other interactive media are developing into art forms, then we can expect that these emerging narrative forms will be able to accommodate genres of storytelling that have existed since time immemorial, including romance, comedy, tragedy and epic. Yet the dynamics of nonlinear storytelling, the limits of current video game technology, and the constraints of the marketplace do not seem conducive to expanding the narrative elements of interactive media. This module traces the boundaries between narratives and games, and aims to identify areas of overlap that can lead to the development of new expressions of narrativity in interactive media. One central goal of the module is to grapple with the problem(s) posed by interactive narrative. Assigned readings examine the difference between traditional narrative texts and texts that require a higher degree of interactivity, collectively called cybertexts. The goal of the module is to identify what differences may exist, and to analyze the possibilities for adapting traditional narrative into interactive media. This class's central innovation requires students to actively adapt an element of traditional narrative into a cybertext. By the end of the class, students reach a conclusion, based on their reading and module work, as to whether cybertexts can effectively encompass traditional narrative genres, and if not, whether this is due to limitations of the form, or the limitations of technology.

UXG4644 **Advanced Fiction Writing** (5 credits)
Prerequisite (s): UXG4641 or UXG4634 or UXG4637

This module builds upon the concepts and skills taught in previous writing modules. This module offers students the opportunity to further develop their fiction-writing skills by engaging in intensive writing and regular critique of their peers' creative work. The emphasis is on refining narrative writing skills and developing individual style and voice. Students write three full-length short stories and read contemporary fiction by established authors not discussed in previous module.

UXG4645 **Elements of Game Design** (4 credits)
Prerequisite (s): None

Relative to modern technological media, the most important issue to consider is the nature of the interactive loop of influence between media and culture. Interactivity is one of the most powerful and important potentials of the game medium, but the term is often used with superficial understanding of its implications. This module emphasizes the nature of interactivity primarily from psychological and sociological perspectives. Students review and define interactive media using examples drawn from academic research, film, television, and games. Students have ample opportunity to contemplate and discuss how they can apply a more comprehensive understanding of interactivity in order to surpass the current limits of interactive media products.

History Elective Modules

UXG4600 **Introduction to World History 1** (5 credits)
Prerequisite (s): None

Covering a wide range of world history (Prehistoric to Middle Ages, Western and Asian Civilizations), this module provides an overview of events, civilizations, and cultures throughout time that form major historical shifts. Students analyze a series of case studies with particular focus on governments,

technology, religion, and culture, and how clashes between these (and other) themes created changes in culture, power, and civilizations. Three major themes connect several topics discussed in this module with those explored in UXG4601: issues of authority and inequality within civilizations; encounters and conflicts between civilizations; and cultural and technological exchanges within and between civilizations.

UXG4601 **Introduction to World History 2** (5 credits)
Prerequisite(s): UXG4600

This module continues the topics covered in UXG4600, covering from approximately 1650 A.D. until present day (Renaissance to present day, Western and Asian Civilizations). Students analyze a series of case studies with particular focus on governments, technology, religion, and culture, and how clashes between these (and other) themes created changes in culture, power, and civilizations. Three major themes connect several topics discussed in this module with those explored in UXG4600: issues of authority and inequality within civilizations; encounters and conflicts between civilizations; and cultural and technological exchanges within and between civilizations.

Japanese Elective Modules

UXG4610 **Introduction to Japanese 1** (5 credits)
Prerequisite (s): None

This module is designed for students with little or no background in Japanese. The module presents the basics of pronunciation, orthography, speaking, listening comprehension, reading, writing, and the sociolinguistics of modern Japanese. This module emphasizes acquiring the ability to communicate and function accurately and appropriately in both speaking and writing Japanese.

UXG4611 **Japanese 2** (5 credits)
Prerequisite (s): UXG4610

This module is designed for students who have taken UXG4610. The pace of UXG4611 is slightly faster than UXG4610. UXG4611 emphasizes acquiring the ability to communicate and function in Japanese accurately and appropriately, both in speech and in writing. By the end of the module, students are able to speak, understand, read, and write Japanese on a limited variety of topics.

Law Elective Modules

UXG4616 **Introduction to Intellectual Property and Contracts** (5 credits)
Prerequisite(s): None

The animation and computer software industries are founded upon the principle of intellectual property. This module introduces students to the social concepts and traditions that led to the idea of intellectual property. It surveys the various

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

Media Elective Modules

UXG4648 **Race and Ethnicity in Media** (5 credits)
Prerequisite(s): UXG1616

This module explores the origins and evolution of racial and ethnic images in media. It pays special attention to the process of creating new images in both traditional visual media such as film and television and newer interactive media.

Philosophy Elective Modules

UXG4646 **Introduction to Philosophy** (5 credits)
Prerequisite(s): None

This module introduces some of the basic philosophical issues and questions related to everyday life. Topics include human nature (self, mind, consciousness, and freedom), values (ethics, morality, and aesthetics), knowledge (reasoning, rationality, and truth), philosophy of science (universe and origins of life), philosophical positions (naturalism, idealism, realism, pragmatism, and existentialism), and philosophy of religion (god(s) and religion). Students apply these concepts to the philosophical issues related to games and video games, specifically definitional issues, philosophical themes in games, and art in games, among others.

UXG4647 **Special Topics in Philosophy** (5 credits)
Prerequisite(s): None

The content of this module may change each time it is offered. It is for the purpose of offering a new or specialized module of interest to the faculty and students that is not covered by the modules in the current catalog.

Psychology Elective Modules

UXG4621 **Fundamentals of Psychological Research** (5 credits)
Prerequisite(s): UXG1701, UXG1702

This module introduces major topics exploring research procedures and methodology in the behavioural and social sciences. Major topics include principles of the scientific method, fundamental research concepts, terminology, critical evaluation of methodological issues, and best practices for designing psychological testing and research. Differences

in qualitative and quantitative methodology, types of data collection, user experiences and design, and reporting results are also explored. Other topics include research ethics and best practices for data management and presentation.

UXG4622 **Social Psychology** (5 credits)
Prerequisite(s): UXG1701, UXG1702

This module provides an overview of research and theory in social psychology by focusing on concepts including mental processing, attitude formation and change, conflict and aggression, persuasion, and socio-behavioural influences.

UXG4623 **Psychology of the Media** (5 credits)
Prerequisite(s): UXG1702

The module explores the psychology of advertising from its emergence, its relationship to the psychology of propaganda, its influence on political thought during the latter half of the 20th century, and its influence on contextual value formations and cultural reality.

UXG4624 **Special Topics in Psychology** (5 credits)
Prerequisite(s): None
Permission of instructor required

The content of this module may change each time it is offered. It is for the purpose of offering a new or specialized module of interest to the faculty and students that is not covered by the modules in the current catalog.

Social Sciences Elective Modules

UXG4615 **Media and Ethics: A Social Science Perspective** (5 credits)
Prerequisite(s): None

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

UXG4617 **Society and Technology** (5 credits)
Prerequisite(s): None

This module draws on techniques and perspectives from the social sciences, humanities, and cultural studies to explore technology and change in the modern era. In particular, students examine how technology influences and is influenced by values and cultures in America and abroad. The module helps students recognize the range of consequences that technology in general, and information and communication technology (ICT) in particular, have when shaped and used by individuals, organizations, and society. Through readings, discussion, lectures, and written assignments, students become acquainted with current controversies related to the socio-cultural dimensions of technology in the "digital era." While the module examines the impact of technologies—including video gaming and robotics—on the contemporary world, it also uses an historical approach to address some of the technological innovations that have most affected U.S. society in the past. The module considers how technologies are developed and sustained, and how they interact with and affect our urban culture. Specific themes likely to be addressed include technology's impact on the private and public spheres; the body and the self in cyberspace; and the criteria used to determine a technology's success, failure, and danger.

UXG4618 **Introduction to Popular Culture** (5 credits)
Prerequisite(s): UXG1616

This module surveys trends in popular culture and the debates about how those trends affect the larger culture in general. The module will focus on a variety of popular media, which can include: music, video games, movies, television, and social networking. Topics for discussion may cover: the process of invention in popular culture; the relationship between popular culture, intelligence and engagement; the nature of celebrity; the function of simulacra; changes in narrative structure; representation of race and gender, and more.

UXG4619 **Special Topics in Social Sciences** (5 credits)
Prerequisite(s): None
Permission of instructor required.

The content of this module may change each time it is offered. It is for the purpose of offering a new or specialized module of interest to the faculty and students that is not covered by the modules in the current catalog.

Communication Elective Modules

UXG4651 **Gender and Communication** (5 credits)
Prerequisite(s): None

This module introduces the theory and vocabulary of gender studies and relevant socio-political movements such as the women's movement. It investigates how ideas about sex and gender and identities as men, women, and sexual beings are influenced by and manifested in communication behaviors and in the communication channels and messages that permeate society. Key themes include: the fluidity of gender, the gendered body, gender in verbal and non-verbal communication in professional and non-professional settings, and gender-based power and authority.

UXG4652 **Special Topics in Communication** (5 credits)
Prerequisite(s): None

The content of this module may change each time it is offered. It is for the purpose of offering a new or specialized module of interest to the faculty or students that is not covered by the modules in the current catalog.

Department of Mathematics and Physics

Mathematics and Physics Modules

UXG1205 **Introductory Probability and Statistics** (5 credits)
Prerequisite(s): None

This module presents fundamentals of probability and statistics without calculus. Topics include: data representation, population mean, variance, and standard deviation, finite probabilities, events, conditional and marginal probability, discrete random variables, binomial distribution, normal distribution, sampling distributions for mean and variance, estimation of means, confidence intervals, hypothesis testing, inference, and chi-square tests.

UXG2200 **Precalculus with Linear Algebra and Geometry** (7 credits)
Prerequisite(s): None

This module presents fundamentals of college algebra and trigonometry, with an introduction to concepts in 2D geometry and linear algebra. Topics include: polynomial, rational, trigonometric, exponential and logarithmic functions as well as their inverses; analytic trigonometry, trigonometric identities, the unit circle, and trigonometric functions of a real variable; introduction to linear systems, basics of linear transformations in 2D; vectors, parametric lines, dot product, and projections in 2D.

UXG2315 **Introduction to Applied Math and Physics** (5 credits)
Prerequisite(s): None

We live in a world governed by physical laws. As a result we have become accustomed to objects' motions being in accordance with these laws. This module examines the basic physics and mathematics governing natural phenomena, such as light, weight, inertia, friction, momentum, and thrust as a practical introduction to applied math and physics. Students explore geometry, trigonometry for cyclical motions, and physical equations of motion for bodies moving under the influence of forces. With these tools, students develop a broader understanding of the impact of mathematics and physics on their daily lives.

Department of Music and Sound Design

Music Modules

UXG3815 **Fundamentals of Music and Sound Design** (5 credits)
Prerequisite(s): None

This module offers an introduction to the fundamentals of music and sound design, and an overview of the production of music and sound for animation, film, and video games. Topics include music notation, key, meter, rhythm, melody, harmony, texture, tempo, genre and form; historical musical styles; dialog and timing; and digital audio production methods and techniques.

UXG3819 **Special Topics in Music** (5 credits)
Prerequisite(s): None

This module covers topics which are of interest to faculty and students and may vary from trimester to trimester.

Bachelor of Fine Arts in Digital Art and Animation (BFA)

Program Overview

The Bachelor of Fine Arts in Digital Art and Animation degree degree program adopts a broad based learning approach to prepare artists for a career in the digital media and entertainment industry. Forged with a strong foundation in fine arts, animation, film, and digital arts, artists are groomed to adapt in the rapid changing world of the digital media and entertainment industry. Throughout the program, artists' artistic sensibilities and creativity are nurtured alongside as they master the tools and skillsets relevant to the entertainment industry. They will be conditioned in a stimulating environment that fosters creative problem solving, professionalism and teamwork to position them at the forefront of the industry.

Students Learning Outcomes

Graduates will possess a general range of skills in drawing and painting, digital art, modelling, and animation. They will have deep knowledge in one or two specialization areas, including storyboarding, concept art, technical art, environment art, character art, and 2D/3D animation. Graduates will also be familiar with interdisciplinary team-based projects and understand the rudiments of managing personnel. Additionally, they will be well-versed in the technical parameters for game and film pipelines, as well as time management as it relates to milestones and final deliverables.

Job Prospects

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

Degree Requirements

NUMBER OF CREDITS AND GPA
The Bachelor of Fine Arts in Digital Art and Animation degree program requires completion of at least 240 credits with a cumulative GPA of 2.0 or better. The program usually spans nine trimesters of 15 weeks each within a total of four academic years.

MODULE GRADE
Students must receive a grade of "E" (or 1.0 quality points) or higher in all modules for the BFA in Digital Art and Animation degree program. A "Pass" mark must be received for all modules with a "Pass" or "Fail" grade.

ANIMATION
The following Animation modules are required: DAA1201 and DAA1251. (Total: 2 modules, 12 credits)

ART
The following Art modules are required: DAA1101, DAA1115, DAA1120, DAA1125, DAA1130, DAA1150, DAA1151, DAA2110, DAA2101, DAA2151, DAA2100, DAA2150, DAA3101, and DAA4150. (Total: 14 modules, 75 credits)

COMPUTER GRAPHICS
The following Computer Graphics modules are required: DAA2301, DAA2325, DAA2375, and DAA2300. (Total: 4 modules, 24 credits)

FILM
The following Film modules are required: DAA2515 and either DAA2501 or DAA2510. (Total: 2 modules, 10 credits)

ENGLISH
The following English module is required: DAA1616 and a 5-credit English. (Total: 2 modules, 10 credits)

HUMANITIES AND SOCIAL SCIENCES
The following Humanities and Social Sciences modules are required: DAA3099, DAA2099, DAA3650, DAA4616, and DAA4615. (Total: 5 modules, 18 credits)

PROJECTS
The following Project modules are required: DAA1401, DAA2401/2402, DAA2451/2452, DAA3400, DAA3450/DAA3452, DAA4400/DAA4402, and DAA4450. Please note that internship modules DAA4950 and DAA4990 may be taken in place of DAA4400/DAA4402, and DAA4450. (Total: 7 modules, 51 credits)

SCIENCE
The following Programming and Physics modules are required: DAA3715 and DAA3720 (Total: 2 modules, 10 credits)

ELECTIVES
Students must take one open elective, one general education elective, and three designated electives from any of the following 3000 level or higher modules: Art, Animation, Film, or Computer Graphics. (Total: 6 modules, 30 credits)

NOTE ON GENERAL EDUCATION MODULES
The following modules satisfy the general education requirement for the BFA in Digital Art and Animation: DAA1115 (5), DAA1616 (5), any English elective DAA2515 (5), DAA4616 (5), DAA4615 (5), DAA3715 (5), and DAA3650 (5). Additionally, students must take a general education elective. (Total: 10 modules, 50 credits).

BFA Recommended Course Sequence

S/NO	MODULE CODE	MODULE TITLE	MODULE CREDITS
	YEAR 1 | TRIMESTER 1		
1	DAA1201	Animation Basics 1	7
2	DAA1115	Art and Technology	5
3	DAA1101	The Language of Drawing 1	7
4	DAA1616	Storytelling	5
5	DAA1125	Tone, Color, and Composition 1	6
	Sub-Total for YEAR 1 | TRIMESTER 1		**30**
	YEAR 1 | TRIMESTER 2		
6	DAA1251	Animation Basics 2	5
7	DAA1151	Basic Life Drawing	6
8	DAA1120	Language of Drawing 2	5
9	DAA1130	Tone, Color, and Composition 2	6
10	DAA1150	Human Anatomy	5
11	DAA1401	The Basics of Production	5
	Sub-Total for YEAR 1 | TRIMESTER 2		**32**
	YEAR 1 | TRIMESTER 3 (BREAK)		
	YEAR 2 | TRIMESTER 1		
12	DAA2101	Life Drawing 2	5
13	DAA2301	Introduction to 2D Computer Graphics	6
14	DAA2325	Introduction to 3D Computer Graphics	7
15	DAA2401/DAA2402	2D Animation Production or Game Art Project 1	7
16	DAA2515	History of Film and Animation	5
	Sub-Total for YEAR 2 | TRIMESTER 1		**30**
	YEAR 2 | TRIMESTER 2		
17	DAA2151	Character Design	5
18	DAA2150	Storyboards	5
19	DAA2375	Introduction to 3D Animation	5
20	DAA2451/DAA2452	2D Animation Production or Game Art Project 1	7
21	DAA2100	Perspective, Backgrounds, and Layouts	5
22	DAA2099	College Success for Artists	3
	Sub-Total for YEAR 2 | TRIMESTER 2		**30**
	YEAR 2 | TRIMESTER 3 (OIP)		
23	DAA Elective	A Year 3 or Year 4 Art, Animation, Film or Graphics module	5
24	DAA2501 /DAA2510	Cinematography / Cinematography For Visual Effects	5
25	DAA2110	Animal Anatomy	5
26	DAA2300	3D Environment and Level Design	6
	Sub-Total for YEAR 2 | TRIMESTER 3		**21**
	YEAR 3 | TRIMESTER 1		
27	DAA3400	3D Production Pipeline	8
28	DAA Elective	A Year 3 or Year 4 Art, Animation, Film or Graphics module	5
29	DAA Elective	A Year 3 or Year 4 Art, Animation, Film or Graphics module	5
30	DAA3715	Introduction to Scripting and Programming	5
	Sub-Total for YEAR 3 | TRIMESTER 1		**23**

S/NO	MODULE CODE	MODULE TITLE	MODULE CREDITS
	YEAR 3 | TRIMESTER 2		
31	DAA3450/DAA3452	Cinematic Production or Game Art Project 2	8
32	DAA3099	Career and Professional Development	5
33	DAA3650	Professional Communication	5
34	DAA3720	Introduction to Applied Math and Physics	5
35	DAA3101	Conceptual Illustration and Visual Development	5
	Sub-Total for YEAR 3 | TRIMESTER 2		**28**
	YEAR 3 | TRIMESTER 3 (BREAK)		
	YEAR 4 | TRIMESTER 1		
36	DAA4400/DAA4402/ DAA4950	Cinematic Production, or Game Art Project 2, or Internship 1	8
37	DAA4150	Portfolio	5
38	ENG Elective	Any Year 4 English module	5
39	DAA4616	Introduction to Intellectual Property and Contracts	5
	Sub-Total for YEAR 4 | TRIMESTER 1		**23**
	YEAR 4 | TRIMESTER 2		
40	DAA4450/DAA4950/ DAA4990	Professional Practice or Internship 1 or Internship 2	8
41	DAA4615	Media and Ethics: A Social Science Perspective	5
42	GED Elective	Any English, History, Social Sciences, or Psychology module	5
43	Open Elective	A module from any department at DigiPen	5
	Sub-Total for YEAR 4 | TRIMESTER 2		**23**
	TOTAL FOR 4-YEAR PROGRAM		**240**

Module Listings for BFA

Department of Digital Arts

Computer Science Modules

DAA3715 **Introduction to Scripting and Programming** (5 credits)
Prerequisite(s): None

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

Computer Graphics Modules

DAA2301 **Introduction to 2D Computer Graphics** (6 credits)
Prerequisite(s): DAA1251, DAA1120, DAA1130

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

DAA2325 **Introduction to 3D Computer Graphics** (7 credits)
Prerequisite(s): DAA1201, DAA1120, DAA1130

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

DAA2375 **Introduction to 3D Animation** (5 credits)
Prerequisite(s): DAA1251, DAA2325

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

DAA2300 **3D Environment and Level Design** (6 credits)
Prerequisite(s): DAA2375

This module introduces students to the principles of 3D environment design. Theatrical sets, architectural simulations, and level design are considered. In order to provide students with a broader skill set, this module also presents the "mechanics" of how to use other 3D animation software, with an emphasis on the unique strengths of the package. Students explore the comparative strengths of different software packages and the impact that this has on workflow. The module emphasizes critical thinking skills and strategies for tool selection.

Project Modules

DAA1401 **The Basics of Production** (5 credits)
Prerequisite(s): DAA1201, DAA1101, DAA1125

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

DAA2401 **2D Animation Production** (7 credits)
Prerequisite(s): DAA1251, DAA1120, DAA1130, DAA1401

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

DAA2402 **Game Art Project 1** (7 credits)
Prerequisite(s): DAA1251, DAA1120, DAA1130, DAA1401

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

DAA2451 **2D Animation Production** (7 credits)
Prerequisite(s): DAA2401

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

DAA2452 Game Art Project 1 (7 credits)
Prerequisite(s): DAA2402

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

DAA3400 3D Production Pipeline (8 credits)
Prerequisite(s): DAA2451 or DAA2452, DAA2375

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

DAA3450 Cinematic Production (8 Credits)
Prerequisite(s): DAA2100, DAA2300, DAA3400, DAA1616, DAA2150

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

DAA3452 Game Art Project 2 (8 credits)
Prerequisite(s): DAA2100, DAA2300, DAA3400, DAA1616, DAA2150

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

DAA4400 Cinematic Production (8 credits)
Prerequisite(s): DAA2150, DAA3450, DAA1616

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

DAA4402 Game Art Project 2 (8 credits)
Prerequisite(s): DAA3452

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

DAA4450 Professional Practice (8 credits)
Prerequisite(s): DAA4400 or DAA4402

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

Computer Graphics Elective Modules

DAA3303 Hard Surface Modeling and Texturing (5 credits)
Prerequisite(s): DAA2375

Building on the knowledge and skills for modeling taught in DAA2375, this module focuses on the process for optimized modeling and texturing of non-organic scene elements including architecture, props, and vehicles. Students are also introduced to digital sculpting for hard surface models.

DAA3305 Digital Sculpture (5 credits)
Prerequisite(s): DAA2375

This module introduces an array of digital modeling, sculpting, and painting techniques with a set of industry standard 3D and 2D tools. After a series of exercises, students learn the tools and work flow of digital sculpting and enhance their knowledge of anatomy. As part of this class, students create a highly finished 3D character that is fully designed, modelled, posted, sculpted and textured. They also demonstrate knowledge of environmental sculpting.

DAA3350 Graphics for Games (5 credits)
Prerequisite(s): DAA2300

This module examines the unique problems of creating graphics for games, and it teaches effective production techniques for addressing these issues.

DAA4305 Advanced Character Creation (5 credits)
Prerequisite(s): DAA3305

This module focuses on the building techniques and theories behind 3D biped or quadruped character creation, including anatomy, design, lighting, shading, and rendering.

Internship Modules

DAA4950 Internship 1 (8 credits)
Prerequisite(s): None

An internship is any carefully monitored work or service experience in which an individual has intentional learning goals and reflects actively on what she or he is learning

throughout the experience. It is usually a professional activity under general supervision of an experienced professional and in a job situation, which places a high degree of responsibility on the student.

DAA4990 **Internship 2** (8 credits)
Prerequisite(s): None

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

Department of Fine Arts and Animation

Art Modules

DAA1101 **The Language of Drawing 1** (7 credits)
Prerequisite(s): None

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

DAA1115 **Art and Technology** (5 credits)
Prerequisite(s): None

This module provides an overview of art history from Paleolithic times through the modern day. The module examines classical art materials and methods and traces the technological advances of society and art. It considers the interplay between art and technology and how they have historically impacted society.

DAA1125 **Tone, Color, and Composition 1** (6 credits)
Prerequisite(s): None

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

DAA1120 **Language of Drawing 2** (5 credits)
Prerequisite(s): DAA1101

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

DAA1130 **Tone, Color, and Composition 2** (6 credits)
Prerequisite(s): DAA1125

This module builds upon the theories, techniques, and practices introduced in DAA1125 while introducing the concepts of analysis and extrapolation in the creation of a visual reference library for implementation in subsequent modulework.

DAA1150 **Human Anatomy** (5 credits)
Prerequisite(s): DAA1101

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

DAA1151 **Basic Life Drawing** (6 credits)
Prerequisite(s): DAA1101

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

DAA2100 **Perspective, Backgrounds, and Layouts** (5 credits)
Prerequisite(s): DAA2101, DAA2301

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

DAA2101 **Life Drawing 2** (5 credits)
Prerequisite(s): DAA1125, DAA1151

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

DAA2110 **Animal Anatomy** (5 credits)
Prerequisite(s): DAA1150

This module introduces the major skeletal and muscular structures of animals. Topics include terminology, structural arrangement, and kinetic function. The module also considers standard locomotion cycles and the relationship between humans and various animals. This module gives special emphasis to adapting this knowledge to the needs of artists and animators.

DAA2150 **Storyboards** (5 credits)
Prerequisite(s): DAA1616, DAA2101, DAA2515

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

DAA2151 **Character Design** (5 credits)
Prerequisite(s): DAA2101, DAA2301

This module introduces the traditions of character design and the basic structural strategies for creating animated characters. The module explores simplification gradients relative to human, animal, and inanimate object-based characters. It also considers issues of costume, personality, and story interaction. The module emphasizes professional applications, techniques, and standards of quality. The work completed in this module may serve as pre-production design for DAA3400, DAA3450, or DAA3200.

DAA3101 **Conceptual Illustration and Visual Development** (5 credits)
Prerequisite(s): DAA2100

This module explores the animation pre-production skills of conceptual illustration and visual development. Students apply their knowledge of drawing, storytelling, and composition to create speculative drawings for animation. They review compositional systems, design process, and illustration techniques. Additionally, students explore means of using drawing to visually explore story and character ideas from both existing and original story materials. They also consider adaptation, stylization, and visual variety. The module emphasizes professional applications, techniques, and standards of quality. The work completed in this module serves as pre-production design for DAA3400, DAA3450, or DAA3200.

DAA4150 **Portfolio** (5 credits)
Prerequisite(s): DAA3450 or DAA3452

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

Animation Modules

DAA1201 **Animation Basics 1** (7 credits)
Prerequisite(s): None

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

DAA1251 **Animation Basics 2** (5 credits)
Prerequisite(s): DAA1201

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

Film Modules

DAA2501 **Cinematography** (5 credits)
Prerequisite(s): DAA2515

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

DAA2510 **Cinematography for Visual Effects** (5 credits)
Prerequisite(s): DAA2515

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

DAA2515 **History of Film and Animation** (5 credits)
Prerequisite(s): None

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

ART Electives Modules

DAA3125 **3D Design and Sculpture** (5 credits)
Prerequisite(s): DAA2101

This module introduces students to the principles of 3D design using both traditional and digital tools. Students become acquainted with additive, subtractive, and cast sculpture. They consider the basic concepts of architectural space, interior design, landscape design, surface interplay with light, lofted forms, and skinning systems. Students use modern polymer clays and build an animation maquette.

DAA3134 **Survey of Sequential Art** (5 credits)
Prerequisite(s): DAA1125, DAA1151

In this module, students will learn to explore and to exploit the power of sequential images as a medium to craft stories beyond storyboarding, photography, and film. Through the formats of the graphic novel and related forms, students will tackle problems of character and events; their solutions will be limited only by their imaginations. The module will begin with a historical overview of sequential art and will then examine storytelling through pictures, focusing on clarity and emotional impact. Students will examine contemporary styles and conventions and will be required to draw from previous art experiences, while honing their skills in drawing, perspective, design, color, typography, writing, editing, and acting. Demonstrations of multimedia techniques and computer technology relative to this field will also be introduced.

DAA3199 **Special Topics in Art** (5 credits)
Prerequisite(s): None

The content of this module may change each time it is offered. It is for the purpose of offering a new or specialized module of interest to the faculty or students that is not covered by the modules in the current catalog.

DAA4105 **Matte Painting** (5 credits)
Prerequisite(s): DAA3101

This module takes the student through the process of designing and painting (traditionally, digitally or both) backgrounds that can be seamlessly integrated with live action footage, animation, and games.

Animation Electives Modules

DAA3200 **3D Character Animation 1** (5 credits)
Prerequisite(s): DAA1251, DAA2375

This module explores 3D character animation techniques of performance, physicality, and weight using basic rigs provided by the instructor. Special attention is given to thumb nailing key poses, video research, and stagecraft.

DAA3250 **3D Character Animation 2** (5 credits)
Prerequisite(s): DAA3200

This 3D animation module explores acting through the medium of the human voice, including narration, expressive reading, diction, lip-synchronization techniques, and vocal refinement.

DAA4200 **Cinematic Animation** (5 credits)
Prerequisite(s): DAA3250, DAA3101

This module is a culmination of the student's ability to use animation as a storytelling medium. It also provides an opportunity for the student to demonstrate his or her personal artistic growth. Each student works to complete a short piece of cinematic animation. Working independently or in small groups with the instructor's approval, students may use either 2D or 3D tools.

DAA4250 **Advanced Animation Portfolio** (5 credits)
Prerequisite(s): DAA2300, DAA3250

This module requires students to further extend their portfolio work, principally polishing and refining elements that will align them well for current industry needs. With a generous selection of assignment opportunities to be explored, students will gain advanced instruction on more focused acting, physicality and creature animation. This module will provide students with an ideal opportunity to improve an area of their portfolio work that will better represent animated body mechanics and acting skills.

DAA4299 **Special Topics in Animation** (5 credits)
Prerequisite(s): None

The content of this module may change each time it's offered. It is for the purpose of offering a new or specialized module of interest to the faculty or students that is not covered by the modules in the current catalog.

Film Electives Modules

DAA3515 **Visual Effects Analysis and Process** (5 credits)
Prerequisite(s): DAA3551

This module explores the history of visual effects in film and how the craft has developed in terms of technology and processes. Students also examine the fundamental production pipeline for the planning and execution of visual effects.

DAA3550 **Digital Post-Production** (5 credits)
Prerequisite(s): DAA3551

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 artists add the effects seen in today's movies. This module teaches the fundamental skills these artists use in postproduction. Effective editing skills are the primary outcome of the module. Students will also cover the planning, execution, and addition of special effects to animation.

DAA3551 **Visual Language and Film Analysis** (5 credits)
Prerequisite(s): None

Animation is ultimately film making, and animators should learn from the many classics on how to effectively bring various film production elements together. Students review several films and study how the relationships between scripts, cameras, lighting, sets, production design, sound, acting, costumes, props, directing, and production lead to successful visual stories. They also examine the fundamental theories underlying visual storytelling. Understanding the creative processes utilized by these influential filmmakers provides insight into how students may improve their own animations.

DAA4550 **Compositing 1** (5 credits)
Prerequisite(s): DAA2510, DAA3515, DAA2301

This module introduces students to two key areas of compositing -- image preparation (e.g., rotoscoping, blue/green screen, masks, wire removal) and compositing software (layer-based, node-based). Students apply this knowledge to basic 2D compositing, as well as motion tracking and color correction.

DAA4560 **Compositing 2** (5 credits)
Prerequisite(s): DAA4550, DAA2375

This advanced compositing module focuses on the integration of 3D elements into live action footage. Concepts covered include image stabilization, lighting, green screen setup and shooting, match moving, camera tracking, and body tracking.

Department of Humanities and Social Sciences

English Modules

DAA1616 **Storytelling** (5 credits)
Prerequisite(s): None

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

College Life Modules

DAA2099 **College Success for Artists** (3 credits)
Prerequisite(s): DAA2401 or DAA2402

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

DAA3099 **Career and Professional Development** (5 credits)
Prerequisite(s): None

This is a capstone module for students to prepare their application materials and learn how to effectively search for an entry-level job in their field. The goal of the module is for each student to have a polished resume, cover letter, business card, and online/web presence by the end of the semester, as well as a search strategy for seeking employment.

Communication Modules

DAA3650 **Professional Communication** (5 credits)
Prerequisite(s): None

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

Social Sciences Modules

DAA4615 **Media and Ethics: A Social Science Perspective** (5 credits)
Prerequisite(s): None

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

Law Modules

DAA4616 **Introduction to Intellectual Property and Contracts** (5 credits)
Prerequisite(s): None

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

English Elective Modules

DAA4630 **Speculative Fiction** (5 credits)
Prerequisite (s): DAA1616

This module is a survey of speculative fiction (in literature, television, film, and graphic novels) that moves beyond pure realism to include fantastic or imaginative elements and to present worlds that differ significantly from our own. Each semester, the module will focus on one or more sub-genres which may include science fiction, fantasy, horror, magic realism, alternate history, steampunk, or cyberpunk.

DAA4631 **Mythology** (5 credits)
Prerequisite (s): DAA1616

This module studies myths from different world cultures. It provides an in-depth discussion of the Hero's Journey (a basic pattern that appears in many narratives) and its principal archetypes. It also studies mythology across the arts and examines how essential it is to the study of literature, drama, film and video games.

DAA4632 **Multicultural Literature** (5 credits)
Prerequisite (s): DAA1616, DAA4631

This module explores what modernity and post-modernity have or have not meant to American writers whose histories and cultures are not European in origin but whose writings are steeped in European-American literary traditions. The module explores the cultural hybridism of this literature as well the unique visions of the world they have created. These funny, humorous, bitterly satirical, and downright serious (post)-modern fantasies are quintessentially American, yet also unique and peculiar to these authors' ethnic experiences. The selected works also offer an opportunity to read or re-read well established and newer American works of literature.

DAA4633 **Epic Literature** (5 credits)
Prerequisite (s): DAA1616, DAA4631

This module provides an introduction to the epic as a genre, including poetry, drama, and novels. Particular attention is paid to the theme of heroism and its many cultural manifestations.

DAA4634 **Introduction to Fiction Writing** (5 credits)
Prerequisite (s): DAA1616

This module provides an introduction to the study and practice of fiction writing including characterization, plot, setting, and point of view. It presents selected works of short and long fiction. The module is an opportunity for students to practice their own creative writing skills. They are required to write at least two short stories.

DAA4635 **American Ethnic Literature** (5 credits)
Prerequisite (s): DAA1616

This module covers prominent themes and techniques in American ethic literatures such as Native, African, Asian, and Hispanic American Literatures. Modern Texts are emphasized but pre- or early 20th century classics may also be included.

DAA4636 **The Graphic Novel** (5 credits)
Prerequisite (s): DAA1616

This module provides an introduction to the study of graphic novels, a unique field of inquiry encompassing many world cultures and drawing on many disciplines. Students will read, discuss, and analyze many different types of novels, such as stand-alone, serial, and adaptive books.

DAA4637 **Scriptwriting** (7 credits)
Prerequisite (s): DAA1616, DAA4634

This module covers the fundamentals of concept development, dramatic structure, and writing for a visual medium. It leads to the completion of at least one original preproduction script in screenplay format.

DAA4638 **Creative Writing Across the Arts** (5 credits)
Prerequisite (s): DAA1616

This module focuses on the generation of creative writing in multiple genres and media, including poetry, fiction, creative non-fiction, and graphic novels. Students study and practice writing in a workshop atmosphere and engage in intensive reading of excellent writings, most of which employ interdisciplinary, cross-genre approaches that encompass painting, photography, and other visual art. Discussions of readings are followed by writing experiments designed to spark original thinking, to develop facility with writing, and to enhance understanding of the creative process. Students gain in-depth knowledge of the possibilities of creative writing and apply this experience by writing both short creative pieces and longer works.

DAA4639 **Gender Identity in Literature** (5 credits)
Prerequisite (s): DAA1616 or DAA4630 or DAA4631 or DAA4632 or DAA4633 or DAA4634 or DAA4635 or DAA4636

This module introduces students to expressions and representations of gender/sexual identity in literary works, including poetry, fiction, creative non-fiction, drama, and film. The module takes a historical and multicultural approach to the topic, covering key texts from the past and the present by authors from different cultures and backgrounds.

DAA4640 **Special Topics in English** (5 credits)
Prerequisite (s): None
Permission of instructor required.

The content of this module may change each time it is offered. It is for the purpose of offering a new or specialized module of interest to the faculty and students that is not covered by the modules in the current catalog.

DAA4641 **Creative Writing for Game Design** (5 credits)
Prerequisite (s): DAA4631

This module focuses on the narrative elements of creative writing. Exercises generate thinking and hone students' basic storytelling talents, including characterization, exposition, plot, conflict, back-story, dialogue, and appropriate use of language. Students learn how to use symbols to design a story and how to manipulate the symbols to create character, plot, message, and interactivity. Students are encouraged to access their own genius, culture, and life experience in the development of their stories.

DAA4642 **Interactive Storytelling** (5 credits)
Prerequisite (s): DAA1616

In this module, students learn to design stories with symbolic language. Exercises help students apply and understand character design and development, archetypes, conflict, plot patterns, back-story, dialogue, exposition, premise, and the psychological dynamics of human choice. Students also learn how to manipulate symbols in images by drawing from a variety of theoretical models, such as Carl Jung's dream analysis, personality profiling per Myers-Briggs, Gestalt psychology, and narrative architecture.

DAA4643 **Cybertexts, Interactive Media and the future of Narratives** (5 credits)
Prerequisite (s): DAA1616

Video games and other forms of interactive media are widely touted as the future of both popular entertainment and narrative storytelling. If video games and other interactive media are developing into art forms, then we can expect that these emerging narrative forms will be able to accommodate genres of storytelling that have existed since time immemorial, including romance, comedy, tragedy and epic. Yet the dynamics of nonlinear storytelling, the limits of current video game technology, and the constraints of the marketplace do not seem conducive to expanding the narrative elements of interactive media. This module traces the boundaries between narratives and games, and aims to identify areas of overlap that can lead to the development of new expressions of narrativity in interactive media. One central goal of the module is to grapple with the problem(s) posed by interactive narrative. Assigned readings examine the difference between traditional narrative texts and texts that require a higher degree of interactivity, collectively called cybertexts. The goal of the module is to identify what differences may exist, and to analyze the possibilities for adapting traditional narrative into interactive media. This class's central innovation requires students to actively adapt an element of traditional narrative into a cybertext. By the end of the class, students reach a conclusion, based on their reading and module work, as to whether cybertexts can effectively encompass traditional narrative genres, and if not, whether this is due to limitations of the form, or the limitations of technology.

DAA4644 **Advanced Fiction Writing** (5 credits)
Prerequisite (s): DAA4641 or DAA4634 or DAA4637

This module builds upon the concepts and skills taught in previous writing modules. This module offers students the opportunity to further develop their fiction-writing skills by engaging in intensive writing and regular critique of their peers' creative work. The emphasis is on refining narrative writing skills and developing individual style and voice. Students write three full-length short stories and read contemporary fiction by established authors not discussed in previous modules.

DAA4645 **Elements of Game Design** (4 credits)
Prerequisite (s): None

Relative to modern technological media, the most important issue to consider is the nature of the interactive loop of influence between media and culture. Interactivity is one of the most powerful and important potentials of the game medium, but the term is often used with superficial understanding of its implications. This module emphasizes the nature of interactivity primarily from psychological and sociological perspectives. Students review and define interactive media using examples drawn from academic research, film, television, and games. Students have ample opportunity to contemplate and discuss how they can apply a more comprehensive understanding of interactivity in order to surpass the current limits of interactive media products.

History Elective Modules

DAA4600 **Introduction to World History 1** (5 credits)
Prerequisite (s): None

Covering a wide range of world history (Prehistoric to Middle Ages, Western and Asian Civilizations), this module provides an overview of events, civilizations, and cultures throughout time that form major historical shifts. Students analyze a series of case studies with particular focus on governments,

technology, religion, and culture, and how clashes between these (and other) themes created changes in culture, power, and civilizations. Three major themes connect several topics discussed in this module with those explored in HIS 150: issues of authority and inequality within civilizations; encounters and conflicts between civilizations; and cultural and technological exchanges within and between civilizations

DAA4601 **Introduction to World History 2** (5 credits)
Prerequisite(s): DAA4600

This module continues the topics covered in HIS 100, covering from approximately 1650 A.D. until present day (Renaissance to present day, Western and Asian Civilizations). Students analyze a series of case studies with particular focus on governments, technology, religion, and culture, and how clashes between these (and other) themes created changes in culture, power, and civilizations. Three major themes connect several topics discussed in this module with those explored in HIS 100: issues of authority and inequality within civilizations; encounters and conflicts between civilizations; and cultural and technological exchanges within and between civilizations.

Japanese Elective Modules

DAA4610 **Introduction to Japanese 1** (5 credits)
Prerequisite (s): None

This module is designed for students with little or no background in Japanese. The module presents the basics of pronunciation, orthography, speaking, listening comprehension, reading, writing, and the sociolinguistics of modern Japanese. This module emphasizes acquiring the ability to communicate and function accurately and appropriately in both speaking and writing Japanese.

DAA4611 **Japanese 2** (5 credits)
Prerequisite (s): DAA4610

This module is designed for students who have taken DAA4610. The pace of DAA4611 is slightly faster than DAA4610. DAA4611 emphasizes acquiring the ability to communicate and function in Japanese accurately and appropriately, both in speech and in writing. By the end of the module, students are able to speak, understand, read, and write Japanese on a limited variety of topics.

Media Elective Modules

DAA4648 **Race and Ethnicity in Media** (5 credits)
Prerequisite(s): DAA1616

This module explores the origins and evolution of racial and ethnic images in media. It pays special attention to the process of creating new images in both traditional visual media such as film and television and newer interactive media.

Philosophy Elective Modules

DAA4646 **Introduction to Philosophy** (5 credits)
Prerequisite(s): None

This module introduces some of the basic philosophical issues and questions related to everyday life. Topics include human nature (self, mind, consciousness, and freedom), values (ethics, morality, and aesthetics), knowledge (reasoning, rationality, and truth), philosophy of science (universe and origins of life), philosophical positions (naturalism, idealism, realism, pragmatism, and existentialism), and philosophy of religion (god(s) and religion). Students apply these concepts to the philosophical issues related to games and video games, specifically definitional issues, philosophical themes in games, and art in games, among others.

DAA4647 **Special Topics in Philosophy** (5 credits)
Prerequisite(s): None

The content of this module may change each time it is offered. It is for the purpose of offering a new or specialized module of interest to the faculty and students that is not covered by the modules in the current catalog.

Psychology Elective Modules

DAA1701 **Introduction to Psychology** (5 credits)
Prerequisite(s): None

This module introduces major topics in psychology, specifically as they relate to cognition and learning. These topics include perception, cognition, personality and social psychology, and biological aspects of behaviour. Students are also introduced to human information processing, memory, problem solving, attention, perception, and imagery. Other topics covered may include mental representation and transformation, language processing, and concept formation.

DAA1702 **Cognitive Psychology** (5 credits)
Prerequisite(s): DAA1701

This module emphasizes emergent research and theory exploring the nature of human mental processes. Topics include neuroscience, attention, perception, memory, creativity, decision making, and information processing.

DAA4621 **Fundamentals of Psychological Research** (5 credits)
Prerequisite(s): DAA1701, DAA1702

This module introduces major topics exploring research procedures and methodology in the behavioral and social sciences. Major topics include principles of the scientific method, fundamental research concepts, terminology, critical evaluation of methodological issues, and best practices for designing psychological testing and research. Differences

in qualitative and quantitative methodology, types of data collection, user experiences and design, and reporting results are also explored. Other topics include research ethics and best practices for data management and presentation.

DAA4622 **Social Psychology** (5 credits)
Prerequisite(s): DAA1701, DAA1702

This module provides an overview of research and theory in social psychology by focusing on concepts including mental processing, attitude formation and change, conflict and aggression, persuasion, and socio-behavioural influences.

DAA4623 **Psychology of the Media** (5 credits)
Prerequisite(s): DAA1702

The module explores the psychology of advertising from its emergence, its relationship to the psychology of propaganda, its influence on political thought during the latter half of the 20th century, and its influence on contextual value formations and cultural reality.

DAA4624 **Special Topics in Psychology** (5 credits)
Prerequisite(s): None
Permission of instructor required

The content of this module may change each time it is offered. It is for the purpose of offering a new or specialized module of interest to the faculty and students that is not covered by the modules in the current catalog.

Social Sciences Elective Modules

DAA4617 **Society and Technology** (5 credits)
Prerequisite(s): None

This module draws on techniques and perspectives from the social sciences, humanities, and cultural studies to explore technology and change in the modern era. In particular, students examine how technology influences and is influenced by values and cultures in America and abroad. The module helps students recognize the range of consequences that technology in general, and information and communication technology (ICT) in particular, have when shaped and used by individuals, organizations, and society. Through readings, discussion, lectures, and written assignments, students become acquainted with current controversies related to the socio-cultural dimensions of technology in the "digital era." While the module examines the impact of technologies—including video gaming and robotics—on the contemporary world, it also uses an historical approach to address some of the technological innovations that have most affected U.S. society in the past. The module considers how technologies are developed and sustained, and how they interact with and affect our urban culture.

Specific themes likely to be addressed include technology's impact on the private and public spheres; the body and the self in cyberspace; and the criteria used to determine a technology's success, failure, and danger.

DAA4618 **Introduction to Popular Culture** (5 credits)
Prerequisite(s): DAA1616

This module surveys trends in popular culture and the debates about how those trends affect the larger culture in general. The module will focus on a variety of popular media, which can include: music, video games, movies, television, and social networking. Topics for discussion may cover: the process of invention in popular culture; the relationship between popular culture, intelligence and engagement; the nature of celebrity; the function of simulacra; changes in narrative structure; representation of race and gender, and more.

DAA4619 **Special Topics in Social Sciences** (5 credits)
Prerequisite(s): None
Permission of instructor required.

The content of this module may change each time it is offered. It is for the purpose of offering a new or specialized module of interest to the faculty and students that is not covered by the modules in the current catalog.

Communication Elective Modules

DAA4651 **Gender and Communication** (5 credits)
Prerequisite(s): None

This module introduces the theory and vocabulary of gender studies and relevant socio-political movements such as the women's movement. It investigates how ideas about sex and gender and identities as men, women, and sexual beings are influenced by and manifested in communication behaviors and in the communication channels and messages that permeate society. Key themes include: the fluidity of gender, the gendered body, gender in verbal and non-verbal communication in professional and non-professional settings, and gender-based power and authority.

DAA4652 **Special Topics in Communication** (5 credits)
Prerequisite(s): None

The content of this module may change each time it is offered. It is for the purpose of offering a new or specialized module of interest to the faculty or students that is not covered by the modules in the current catalog.

Department of Mathematics and Physics

Mathematics and Physics Modules

DAA3720 **Introduction to Applied Math and Physics** (5 credits)
Prerequisite(s): None

We live in a world governed by physical laws. As a result we have become accustomed to objects' motions being in accordance with these laws. This module examines the basic physics and mathematics governing natural phenomena, such as light, weight, inertia, friction, momentum, and thrust as a practical introduction to applied math and physics. Students explore geometry, trigonometry for cyclical motions, and physical equations of motion for bodies moving under the influence of forces. With these tools, students develop a broader understanding of the impact of mathematics and physics on their daily lives.

Department of Music and Sound Design

Music Elective Modules

DDA3815 **Fundamentals of Music and Sound Design** (5 credits)
Prerequisite(s): None

This module offers an introduction to the fundamentals of music and sound design, and an overview of the production of music and sound for animation, film, and video games. Topics include music notation, key, meter, rhythm, melody, harmony, texture, tempo, genre and form; historical musical styles; dialog and timing; and digital audio production methods and techniques.

DDA3819 **Special Topics in Music** (5 credits)
Prerequisite(s): None

This module covers topics which are of interest to faculty and students and may vary from trimester to trimester.

Standards of Progress

Semester Credit Hour

DigiPen (Singapore) adopts Singapore Institute of Technology's (SIT) trimester calendar system, which is comparable to ACCSC's definition of a semester system.

DigiPen (Singapore)'s academic year comprises 3 trimesters, including the optional trimester illustrated in each degree's Recommended Course Sequence. Each trimester has 15 weeks comprising 12 weeks of instruction, 1 week of study break and a 2-week examination period. Each degree program requires 240 credits for the award of the degree and are delivered in modules. Each module is assigned a certain number of credits. The credit hour is a measure of student's workload and academic value of each module.

From AY 2020/2021 onwards, DigiPen (Singapore) defines a credit hour as follows:

Generally, 1 credit requires at least 25 notional hours of contact time (lecture or supervised laboratory), projects, practical work, self-study, continual assessment (CA) and examination for a trimester.

The minimum contact time per credit requires at least 8 hours of classroom instruction, or 12 hours of supervised laboratory, or 30 hours of internship experience (excluding Integrated Work Study Program) for a trimester.

Classification of Students

Students are classified as Year 1 to Year 4 students, according to the credits earned. An earned credit is defined as a credit that is awarded a passing final grade for a required module of the degree program.

CLASS STANDING	CREDITS EARNED
Year 1	0 to 40
Year 2	41 to 105
Year 3	106 to 160
Year 4	161 to 240

Grading System

The following 5-point Grade Point Average (GPA) system is adopted for all modules from AY 2020/2021 onwards, except for specific modules, where a "Pass" or "Fail" is awarded.

LETTER GRADE	GRADE POINT	DESCRIPTION	REMARKS
A+	5.0	Excellent attainment of most learning outcomes	
A	5.0		
A-	4.5		
B+	4.0	Good attainment of most learning outcomes	
B	3.5		
B-	3.0		
C+	2.5	Satisfactory attainment of most learning outcomes	
C	2.0		
D	1.5	Limited attainment of most learning outcomes	
E	1.0	Inadequate attainment of most learning outcomes	Minimum grade required for undergraduate students to earn credit
F	0.0	Failure to attain most learning outcomes	

Non-letter grades are as follows:

NON-LETTER GRADE	DESCRIPTION	INCLUDED IN THE COMPUTATION OF CGPA
R(grade)	Repeat attempt with grade point capped at 2.00	Yes
IP	In Progress	No
Pass/Fail	Pass/Fail is given for module where a letter grade is not required	No
EX	Exempted from module	No
TC	Credit Transfer from other universities	No
ABS	Absent with valid reason	No
W	Withdrawal from the module or Institute after 14th day and by 49th day of a trimester	No

ABS- ABSENT WITH VALID REASON
If a student is absent for the final exam or failed to submit the final work due to extenuating circumstances with supporting documents received within the 24 hour notice period, an "ABS" grade would be assigned to the affected module for that trimester. The student will need to sit for the exam or submit the missing assessment by week 15 of the next trimester and the final grade will be assigned.

REPEAT ATTEMPTS

RESULT WITH F GRADE
Students who obtained an F grade for any required module should re-sit the examination or re-submit assignments depending on the requirements of module assessment and the DigiPen (Singapore) Department Chair/SIT Program Director's decision. Only 1 re-sit attempt is allowed for a module with examination. Students will be required to re-module if they are unable to pass the re-sit attempt.

RESULT WITH D OR E GRADE

Students may opt to re-sit an examination or re-module at the next available offer.

Grade Point Average

The academic standing of each student is determined on the basis of the grade point average (GPA) earned each trimester.

The GPA is determined by using the grade points assigned to each module grade a student earns. The grade point value for each grade earned during a trimester is multiplied by the number of credit hours assigned to that module as listed elsewhere in this catalog. The sum of these points is the total number of grade points earned during a trimester. This sum is divided by the number of credit hours attempted (excluding modules with non-letter grades) to obtain the GPA.

The cumulative GPA consists of all modules completed. A repeat grade will have its grade point capped at 2.00. The repeat grade obtained will be shown in parenthesis with a prefix "R". For example, R(B) means that the student attained a B grade, but the grade point is to be capped at 2.00. Only the best attempted grade of a module will be computed in the CGPA. Only letter-graded modules will be included in the computation of CGPA. Modules graded "Pass", "Fail", "W", "ABS", "TC" and "EX" are not included in the computation of cumulative GPA since they carry no grade points.

The following example demonstrates how Year 1 Trimester 1 GPA is calculated:

MODULE CODE	CREDITS	GRADE	GRADE POINTS
CSD1100	7	A	5.00
CSD1610	5	C	2.00
CSD1240	7	B-	3.00
CSD1120	7	F	0.00
CSD1400	5	Pass	NA

$\Sigma(7\times5.00 + 5\times2.00 + 7\times3.00 + 7\times0.00) \div \Sigma(7 + 5 + 7 + 7) = 2.54$

Total grade points divided by total credits equals the grade point average. Therefore, the grade point average for the above example is 66.00 divided by 26 for a 2.54 GPA.

The following example demonstrates how the next trimester, Year 1 Trimester 2 cumulative GPA is calculated:

MODULE CODE	CREDITS	GRADE	GRADE POINTS
CSD1120	7	R(B)	2.00
CSD1250	7	B	3.5
CSD1170	7	E	1.0
CSD1130	5	A-	4.5
CSD1650	5	EX	NA
CSD1450	5	C	2.0

$\Sigma(7\times5.00 + 5\times2.00 + 7\times3.00 + 7\times2.00 + 7\times3.5 + 7\times1.00 + 5\times4.5 + 5\times2.0) \div \Sigma(7 + 5 + 7 + 7 + 7 + 7 + 5 + 5) = 2.88$

Total grade points divided by total credits* equals the cumulative grade point average. Therefore, the grade point average for the above example is 144.00 divided by 50 for a 2.88 cumulative GPA.

Refers to graded module credits of the latest attempt/best attempted grade credits and excludes module credits from repeat attempts.

Assessment Process

DigiPen (Singapore) has an assessment process to evaluate the defined student learning outcomes of the education and training and established competencies. This process includes a combination of methods such as grading, portfolio assessment, projects, internships, and criterion-referenced testing based on developed and appropriate rubrics. Each module syllabus contains clearly defined module objectives and learning outcomes, module requirements, grading policy and allotment, and grading distribution. Students are made aware of the grading policy, performance standards, and grading distribution at the beginning of each module. The faculty measures the student's achievement of the stated module objectives and learning outcomes based on the grading policy published in the module syllabus.

Grade Reports

Final grade of each module will be made available online via *IN4SIT* on Monday, Week 1 of the following trimester. However, grade reports may be withheld from students who have outstanding tuition fees with SIT.

Grade Appeals

Upon release of results in *IN4SIT* on the first day of the following trimester, students have 2 working days to apply for review of results via *IN4SIT*. The outcome of the appeal will be released via *IN4SIT* by the end of the following week.

Graduation Requirement and Degree Classification

Students must fulfill all degree requirements specified in their enrolled degree program within the maximum candidature as stated in the Satisfactory Academic Progress Policy and attain a cumulative GPA of at least 2.0 to graduate.

Most students will follow the graduation requirements published in the Catalog for the year they enter the Institute. Students who interrupt their attendance may be held to the requirements of the current Catalog when they return. Students are responsible for ensuring that all graduation requirements have been completed.

Details regarding collection of transcript and degree diploma, and the invitations to Commencement Ceremony will be emailed to graduates.

Students will be awarded a degree classification as indicated in the table below based on their cumulative GPA attained at the final trimester of their program.

DEGREE CLASSIFICATION	CGPA REQUIREMENT
Honours with Highest Distinction	4.50 ≤ CGPA ≤ 5.00
Honours with Distinction	4.00 ≤ CGPA < 4.50
Honours with Merit	3.50 ≤ CGPA < 4.00
Honours	3.00 ≤ CGPA < 3.50
Pass	2.00 ≤ CGPA < 3.00

Satisfactory Academic Progress

Students need to maintain a minimum cumulative GPA of 2.00 in any trimester to be in Good Academic Standing.

Students should complete the program within the maximum candidature, which refers to the normal candidature as stated in the degree requirements of each program plus two years (6 trimesters) of extension. In addition, the credit hours attempted* by student cannot exceed 1.5 times the credit hours required to complete the program.

Students who are unable to fulfil all degree requirements by the end of the extension period or fail to complete their degree program within the maximum attempted credits allowed, and would like to complete the studies, must submit a letter of appeal to Dean of Faculty and respective SIT Program Director for approval. Approval may be granted based on students' overall academic performance and availability of students' remaining modules.

Refers to any credit that is awarded a final letter grade ("A+" [or 5.0 grade points] to "F" [or 0 grade points]). Credits earning a "W" is not considered attempted credits for the purpose of calculating GPA.

Academic Warning, Probation and Termination

Any student who fails to maintain the required minimum cumulative GPA (CGPA) of 2.00 will be placed on the following Academic Standing:

ACADEMIC STANDING	DEFINITION
Academic Warning	CGPA falls below 2.00 for any given study trimester.
Academic Probation	CGPA falls below 2.00 for two consecutive study trimesters following the issuance of an academic warning letter.
Academic Termination	CGPA falls below 2.00 for the third consecutive study trimesters, or at the end of the final trimester of study. A letter of termination will be issued.

Students who are placed on Academic Warning or Academic Probation are required to meet the Faculty Mentor and the Student Life and Advising Office by the first week of the trimester, to plan for a manageable academic load for the current and subsequent trimesters till graduation.

Students are removed from Academic Warning or Academic Probation as soon as their cumulative GPA is above 2.00.

Students may appeal against Academic Termination within two working days upon receiving the letter of termination from the Registrar's Office.

Academic Overload

Students who follow closely the recommended course sequence per trimester should be able to complete their degree requirements within the normal candidature period.

Students may be enrolled in a maximum of 35 credits, in any trimester, except in the first trimester of their program, subject to the approval by the respective Department Chair/SIT Program Director. Students seeking special permission to take more than the maximum credits in a given trimester should write to *registrar.sg@digipen.edu* before the start of a new trimester.

Attendance

Students more than 15 minutes late to class will be marked as absent for that entire class. Students may not leave class early without permission from instructor. Students absent from all classes without explanation for a period of two consecutive weeks will receive a Letter of Warning from the Registrar's Office and the students must reply with the reasons of absence and resume attending classes within the next 14 calendar days to avoid being withdrawn from the Institute.

Withdrawal

WITHDRAWING FROM INDIVIDUAL MODULES
To withdraw from individual modules without any academic penalty or tuition fee incurred, a student must submit a drop request through the *IN4SIT* by the 14th calendar day of a trimester. Upon successful application, no modules entries will appear on the student's transcript for that trimester.
To withdraw from individual modules and receive "W" grade with no refund of tuition fee, a student must submit a drop request through the *IN4SIT* by the 49th calendar day of a trimester. Upon successful application, a final grade of "W" will be assigned to the requested module.

WITHDRAWING FROM THE INSTITUTE
To formally withdraw from the Institute, a student must submit a withdrawal notice through the *IN4SIT*. The student will be contacted by DigiPen (Singapore)/SIT for an exit interview.

Upon withdrawing from DigiPen (Singapore) and SIT, the student shall immediately return all materials in the student's possession relating to the program, whether created by the student or other students or provided by the Institute. A letter

of notification would be provided to student via email upon completion of the withdrawal process. The following shows the grade received upon withdrawal from the institute at various period of a trimester:

CALENDAR DAY OF A TRIMESTER	GRADE ASSIGNED	INCLUDED IN THE COMPUTATION OF CGPA
1st to 14th	Modules withdrawn, no grades assigned	No
15th to 89th	"W" Grade	No
90th to end of trimester	Final grade	Yes

Students may seek a hardship withdrawal when one of three conditions prevents a student from completing all modules: death of a close family member, severe/terminal illness in the family, or injury or illness that incapacitates the student. Hardship withdrawals may be sought any time after the last date to withdraw from classes, as listed in the Academic Calendar, but not after all materials for a module have been completed (i.e., after submitting the final exam or final assignment). The Hardship Withdrawal Form, a personal statement, and appropriate documentation (i.e., death certificate, obituary, letter from a state-licensed physician or mental health professional) must be provided to support all requests to the Student Life and Advising Office. Once all documents are received, the Student Life and Advising Office will forward the documents to the Hardship Withdrawal Review Committee. If the committee grants a hardship withdrawal, the student will receive "W" grades in all approved modules and is ineligible to receive a letter grade in any module in that trimester. The student will be withdrawn from DigiPen (Singapore), effective the student's last day of attendance. Students seeking readmission must abide by the Institute's readmission policy.

Provost's List

SIT issues Provost's List to students from the SIT-Joint programs (BSCS RTIS, BSCS IMGD and BEng in Mechatronics Systems), whose trimester grades indicate distinguished academic accomplishment. To find out more about SIT's Provost's List requirements, please refer to the SIT Academic Guide.

Dean's Honor List Requirements

Prepared at the end of each trimester (excluding optional trimester and OIP), the Dean's Honor List officially recognizes and commends students from the BFA and BA UXGD whose trimester grades indicate distinguished academic accomplishment. Both the quality and quantity of work done are considered.

Students must meet all the following qualifications in a compulsory trimester to be a recipient of this honor:
- A full-time matriculated student.

- Achieve a minimum GPA of 4.5 in a compulsory trimester. Only passing grades ("A" to "E") in credit-bearing modules are counted for eligibility. Modules with non-letter grades (Pass/Fail, EX, TC, IP, ABS, or W) are excluded when calculating qualifying credits.
- Complete 20 or more credits of required modules.
- No failing grade ("F") in any modules.

Grievances and Appeals

Students who would like to file an appeal against a decision regarding their academic standing in a particular module should discuss the matter with their instructor. If a satisfactory resolution is unattainable, students may file an appeal with the Department Chair for that module. If the resultant solution is still unsatisfactory, then students may file an appeal with the Dean of Faculty.

Students may appeal the final grades and review exams no later than two days after grade reports are released on *IN4SIT*. The Institute reserves the right to destroy any examination papers after the appeal period. Academic records will be kept indefinitely.

Students who feel that they have any dispute with the Institute should file a complaint with the relevant Department Chair or supervisor. A copy of this complaint shall be given to those involved with the dispute. If the student is not satisfied with the decision of the Department Chair or supervisor, a second complaint may be submitted to the Chief Operating Officer—International. If the student is still dissatisfied with the decision, they may appeal to the President of the Institute.

Student may also file a formal grievance report to SIT by emailing to, *Phase1Resolution@SingaporeTech.edu.sg*. More details could be found in SIT Student Intranet.

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

Accrediting Commission of Career Schools and Colleges
2101 Wilson Boulevard
Suite 302
Arlington, VA 22201
Tel: (703) 247-4212
www.accsc.org

A copy of the Commission's Complaint Form is available at the Institute and may be obtained by contacting Tan Chek Ming, Managing Director. If students are unsure of whom to speak to

regarding a complaint, they may contact Tan Chek Ming at the following address or at *www.accsc.org*:

Tan Chek Ming
Managing Director
DigiPen Institute of Technology Singapore
510 Dover Road, #03-01
SIT@SP Building
Singapore 139660
Telephone: +65 6577 1900
Email: *chekming.tan@digipen.edu*

Transcripts

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 routine release of the student's academic records or any information based upon the records, and withhold the issue of the student's transcripts.

Students with any questions may contact the Registrar's Office at +65 6577 1900. Unofficial transcript can be downloaded from *IN4SIT*. All graduates will be issued the official transcript and they will be informed of the collection details via email. Students who need an official transcript before graduation should make a request to *registrar.sg@digipen.edu*. Requests are usually processed within five to seven business days.

Examinations

All students are required to be in attendance at the times scheduled by the Institute for final examinations. Students who arrive late for an examination but within the first 30 minutes of the paper are allowed to sit for the examination but no extra time will be given. Students who are more than 30 minutes late from the start of an examination will not be allowed to sit for the examination.

DigiPen (Singapore) is not required to make arrangements for individuals to take final examinations at a different time than the rest of the class.

Should a student miss an examination, it is the student's responsibility to notify the Registrar's Office via email within 24 hours of the missed examination. In the event that a student fails to provide such notification, or if the Institute does not find the reasons for missing an examination justifiable, the student will be deemed to have failed the module if the overall mark obtained is below the passing range and he/she will have to either re-sit the examination or re-module.

If a student misses a final examination and notifies the Registrar's Office within 24 hours of the missed examination, the Registrar's Office shall review the individual circumstances. Only documented emergencies (i.e. valid medical certificate) will be considered acceptable reasons for missing exams and will be allowed to attempt the examination in the next offer and the marks obtained will be combined with those that he/she has already attained in the continual assessments.

Examples of unacceptable reasons for missing an examination include 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 module, etc. A retaken examination shall be different than the original one taken by the other students of the class.

General Policies

General Information

Institutional Mission

DigiPen Institute of Technology Singapore provides exemplary education and furthers research and innovation in science, engineering, arts, digital media, and interactive computer technologies. Building on a foundation of academics, applied learning, industry knowledge, and multi-disciplinary team-based collaboration, we inspire our students to pursue lifelong learning as well as scientific and creative exploration, and empower them to become leaders and originators on a global level.

Notice of Non-Discrimination

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

DigiPen Institute of Technology Singapore does not discriminate in its educational and employment policies on the basis of race, color, creed, religion, national/ethnic origin, sex, sexual orientation, or age.

Accreditation

DigiPen Institute of Technology is accredited by the Accrediting Commission of Career Schools and Colleges ("ACCSC", or "the Commission"), a recognized accrediting agency by the United States Department of Education.

Important dates in DigiPen's accreditation history are as follows:

- 2002: DigiPen was granted initial accreditation by ACCSC, including the approval for the Bachelor of Science in Real-Time Interactive Simulation degree program.
- 2002: DigiPen received ACCSC approval for the Bachelor of Fine Arts in Production Animation degree program.
- 2003: DigiPen received ACCSC approval for the Bachelor of Science in Computer Engineering degree program.
- 2005: DigiPen was granted a renewal of accreditation by ACCSC.
- 2006: DigiPen was granted approval for its Master of Science in Computer Science degree program by ACCSC.
- 2008: DigiPen was granted approval for its Bachelor of Arts in Game Design and Bachelor of Science in Game Design degree programs by ACCSC.
- 2010: DigiPen was granted approval for its change of location to its current facility by ACCSC.
- 2010: DigiPen received ACCSC approval allowing DigiPen (Singapore) to disclose in its advertising that it is a branch campus of DigiPen Institute of Technology.
- 2010: DigiPen was granted approval to change the program name from the Bachelor of Fine Arts in

Production Animation to the Bachelor of Fine Arts in Digital Art and Animation.
- 2011: DigiPen was granted approval to change the program name from the Bachelor of Science in Real-Time Interactive Simulation to the Bachelor of Science in Computer Science in Real-Time Interactive Simulation.
- 2011: DigiPen (Singapore) was granted accreditation by ACCSC as a branch campus of the main school located in Redmond, Washington, USA.
- 2011: DigiPen was granted approval for its Master of Fine Arts in Digital Arts degree program by ACCSC.
- 2012: DigiPen was granted approval for its Bachelor of Arts in Music and Sound Design and Bachelor of Science in Engineering and Sound Design degree programs by ACCSC.
- 2012: DigiPen was granted approval to change the program name from the Bachelor of Science in Game Design to the Bachelor of Science in Computer Science and Game Design.
- 2013: DigiPen (Singapore) was granted ACCSC renewal of accreditation for five years.
- 2014: DigiPen was granted approval for its Bachelor of Science in Computer Science degree program by ACCSC.
- 2014: DigiPen (Singapore) was granted approval for its first joint degree program with Singapore Institute of Technology, Bachelor of Engineering with Honours in Systems Engineering (ElectroMechanical Systems).
- 2015: DigiPen (Singapore) was granted approval for its change of location to its current facility by ACCSC.
- 2015: DigiPen's Bachelor of Science in Computer Engineering program was accredited by the Engineering Accreditation Commission of ABET, *www.abet.org*.
- 2016: DigiPen was granted approval to change the program name from the Bachelor of Science in Engineering and Sound Design to the Bachelor of Science in Computer Science and Digital Audio.
- 2016: DigiPen was granted approval for its substantive changes to the Master of Fine Arts in Digital Arts program.
- 2017: DigiPen's Bachelor of Science in Computer Science in Real-Time Interactive Simulation program was accredited by the Computing Accreditation Commission of ABET, *www.abet.org*.
- 2018: DigiPen was granted approval for its Bachelor of Science in Computer Science in Machine Learning degree program by ACCSC.
- 2018: DigiPen (Singapore) was granted ACCSC renewal of accreditation for five years.
- 2019: DigiPen (Singapore) was granted approval to change the program name from Bachelor of Engineering with Honours in Systems Engineering (ElectroMechanical Systems) to Bachelor of Engineering in Systems Engineering (ElectroMechanical Systems).
- 2019: DigiPen (Singapore) was granted approval to change the program name from Bachelor of Arts in Game Design to Bachelor of Arts in User Experience and Game Design.
- 2019: DigiPen (Singapore) was granted approval for two joint degree programs with Singapore Institute of Technology
- (BS in Computer Science in Real-Time Interactive Simulation) and BS in Computer Science in Interactive

- Media and Game Development), and the Master of Science in Computer Vision degree program.
- 2020: DigiPen was granted approval to offer a portion of degree programs via distance education.
- 2020: DigiPen (Singapore) was granted approval to change the program name from Bachelor of Engineering in Systems Engineering (ElectroMechanical Systems) to Bachelor of Engineering in Mechatronics Systems.

Any person desiring information about the accreditation requirements or the applicability of these requirements to the Institute may contact ACCSC by mail at 2101 Wilson Boulevard, Suite 302, Arlington, VA 22201, or by phone at (703) 247-4212. ACCSC's website address is *www.accsc.org*.

History of DigiPen Institute of Technology

DigiPen was founded in 1988 as a computer simulation and animation company based in Vancouver, British Columbia, Canada. As the demand for production work increased, DigiPen faced difficulty finding qualified personnel, and in 1990, it began offering a dedicated training program in 3D computer animation to meet this growing need.

That same year, DigiPen approached Nintendo of America to jointly establish a post-secondary program in video game programming. The result of this collaborative effort was the DigiPen Applied Computer Graphics School, which in 1994, officially accepted its first class of video game programming students to its Vancouver campus for the two-year Diploma in the Art and Science of 2D and 3D Video Game Programming. In 1995, DigiPen implemented a revised two-year 3D computer animation program and graduated student cohorts over each of the following four years.

Around this time, the video game industry underwent a paradigm shift from dealing primarily with 2D graphics and gameplay to full 3D worlds that players could freely explore. As these worlds became more sophisticated, so did the task of programming, designing, and animating them. In anticipation of this change, DigiPen developed a four-year bachelor's degree in video game programming (the Bachelor of Science in Computer Science in Real-Time Interactive Simulation) that would prepare students for the challenges of creating complex 3D game and simulation software.

In 1996, the Washington State Higher Education Coordinating Board (HECB) granted DigiPen the authorization to award both Associate and Bachelor of Science degrees in Real-Time Interactive Simulation. Two years later, in 1998, DigiPen Institute of Technology opened its campus in Redmond, Washington, USA. In 1999, DigiPen began offering the Associate of Applied Arts in 3D Computer Animation. At this time, DigiPen phased out its educational activities in Canada, moving all operations to its Redmond campus. On July 22, 2000, DigiPen held its first commencement ceremony, where it awarded Associate of Science and Bachelor of Science degrees.

In 2002, DigiPen received accreditation from the Accrediting Commission of Career Schools and Colleges (ACCSC).

In 2004, DigiPen began offering three new degrees: the Bachelor of Science in Computer Engineering, the Master of Science in Computer Science*, and the Bachelor of Fine Arts in Digital Art and Animation (previously Bachelor of Fine Arts in Production Animation). In 2008, DigiPen added two more degree programs: the Bachelor of Science in Computer Science and Game Design (previously Bachelor of Science in Game Design) and the Bachelor of Arts in Game Design.

Also in 2008, DigiPen partnered with Singapore's Economic Development Board to open its first international branch campus, offering the following degrees: the Bachelor of Science in Computer Science in Real-Time Interactive Simulation (previously Bachelor of Science in Real-Time Interactive Simulation), the Bachelor of Science in Computer Science and Game Design, the Bachelor of Fine Arts in Digital Art and Animation, and the Bachelor of Arts in Game Design. In 2010, DigiPen announced plans to open its first European campus in Bilbao, Spain**.

That same year, DigiPen relocated its U.S. campus to its current location at 9931 Willows Road Northeast in Redmond, Washington.

On September 26, 2011, DigiPen launched DigiPen Institute of Technology Europe-Bilbao offering two bachelor's degree programs: the Bachelor of Science in Computer Science in Real-Time Interactive Simulation and the Bachelor of Fine Arts in Digital Art and Animation.

On October 11, 2011, DigiPen (Singapore) was granted accreditation by ACCSC as a branch campus of the main school located in Redmond, Washington, USA.

In 2012, DigiPen added three new degree programs: the Bachelor of Arts in Music and Sound Design, the Bachelor of Science in Computer Science and Digital Audio (previously Bachelor of Science in Engineering and Sound Design), and the Master of Fine Arts in Digital Arts.

In 2014, DigiPen added a new degree program: the Bachelor of Science in Computer Science. In that same year, DigiPen (Singapore) received approval for the Bachelor of Engineering in Systems Engineering (ElectroMechanical Systems) degree program.

In 2015, DigiPen's Bachelor of Science in Computer Engineering degree program was accredited by the Engineering Accreditation Commission of ABET, *www.abet.org*.

In 2015, DigiPen (Singapore) was granted approval to move from Pixel Building, 10 Central Exchange Green to SIT@SP Building, 510 Dover Road.

In 2017, DigiPen's Bachelor of Science in Computer Science in Real-Time Interactive Simulation degree program was accredited by the Engineering Accreditation Commission of ABET, *www.abet.org*.

In 2018, DigiPen launched the new BS in Computer Science in Machine Learning degree program.

In 2018, B.Eng. in Systems Engineering (ElectroMechanical Systems) Program sought the provisional accreditation by the Engineering Accreditation Board (EAB) of IES for a term of three years for students entering the program from Academic Year 2014/2015. Full accreditation will be sought in Academic Year 2020/2021 when the program has graduated two batches of students.

In 2019, DigiPen (Singapore) was granted approval for its joint degree programs with Singapore Institute of Technology, Bachelor of Science in Computer Science in Real-Time Interactive Simulation and Bachelor of Science in Computer Science in Interactive Media and Game Development. In addition, DigiPen (Singapore) was granted approval for its Master of Science in Computer Vision program.

In 2022, DigiPen (Singapore) will launch the new MS in Computer Vision degree program.

DigiPen began offering the MS in Computer Science program in 2004 before ACCSC expanded its scope of recognition by the United States Department of Education to grant approval for master's degree programs. ACCSC granted approval for this degree in 2006.

**DigiPen's Europe-Bilbao campus does not fall within the scope of ACCSC accreditation.*

About DigiPen (Singapore)'s Facilities and Equipment

DigiPen (Singapore) encompasses over 2,960 square meters with a library, dedicated computer labs for students, and classrooms for lectures and instruction. The classrooms vary in size from lecture halls accommodating up to 80 students to small classrooms accommodating 60 students. The labs also vary in size from those accommodating 150 students to smaller ones seating 50 students.

The computer workstations provided at DigiPen are selected to meet or exceed the hardware specifications for required educational software. These computers are equipped with industry software for 2D and 3D animation production and development tools for game engine creation. All computers are on an internal network and have access to printers, servers, and archival media. The Institute upgrades the computer equipment on a periodic basis.

Description of the Library Facilities and Internet Access

LIBRARY SERVICES
DigiPen (Singapore)'s library aims to support the Institute's curriculum, students, and faculty. Students have access to a variety of resources and reference books relevant to their program of study. The library also subscribes to a selection of major journals and magazines related to the fields of gaming, simulation, and animation. Furthermore, the library allocates an annual budget for updating the contents of the library. In addition to curriculum-related resources, the library has a

collection of career-oriented materials, including books on resumes, cover letters, and interviews.

INTERNET ACCESS
Internet access is a regulated service and is provided for students free of charge. Students may lose this privilege if they do not abide by the *Network and Internet Usage Policy.*

Student Network and Internet Usage Policy

GENERAL POLICIES
DigiPen (Singapore)'s computer and network resources are provided exclusively for educational purposes. To ensure that these resources remain available for legitimate academic usage, DigiPen (Singapore) requires compliance with the following policies:
- Students are required to respect the Institute's property. Students may not abuse, damage, vandalize, steal, or in any way alter the Institute's property in any manner that would prevent another student from using it.
- Students may not install software, drivers, patches, or any other program on the Institute's computers. Additional software may be requested through an instructor; it is the sole responsibility of the Institute to decide if, how, and when any software is installed.
- Students are responsible for their own data and are encouraged to protect their work by utilizing the resources provided by DigiPen (Singapore) and by using a personal storage device such as a flash drive or laptop computer.
- Students may not attempt to access another student's information or display any material that may offend another student.
- Students may not copy, publish, or make available any DigiPen (Singapore)'s property without written consent. This includes, but is not limited to, storing materials on any unauthorized network service or personal server.
- Commercial use of DigiPen (Singapore)'s computer or network resources is expressly and strictly forbidden. Any commercial activity will result in legal action against the offender.

The Institute reserves the right to monitor, log, and inspect any data stored on any DigiPen computer or transmitted over the DigiPen network without restriction or limitation in order to ensure compliance with the above policies. Students found to be in violation of these policies may be restricted from the Institute's network and subject to disciplinary action.

Internet Filter Policy

Internet access through the DigiPen (Singapore)'s network is filtered to ensure that students are better able to access information and materials related to their education. All internet traffic from within DigiPen (Singapore)'s network, including labs, classrooms, and administrative offices, are sent through a system of proxies, filters, and analyzers to protect school resources from outside disruption, prevent network abuse, and prioritize legitimate educational usage. For

questions or concerns about this policy, or to report a problem with internet access, contact *helpdesk.sg@digipen.edu*.

Applying to DigiPen (Singapore)

Visiting DigiPen (Singapore)

Prospective students who are interested in finding out more about DigiPen (Singapore)'s admission requirements, application process, and degree programs are encouraged to attend the annual Preview Day, shadow a current student or schedule a one-on-one meeting with an Admissions representative.

For more information, please visit *digipen.edu.sg/visit-us*.

Undergraduate Application Process

SIT administers the admissions process as follows::
- Applicants are to submit an online application via the SIT Admission Portal at: *singaporetech.edu.sg*.
- Application fee payment of $18 can be made via online payment or by NETS at the SIT Student Services Centre at SIT@Dover and the respective SIT@Poly buildings.
- SIT Admissions will review all applications and only shortlisted applicants will be invited for an interview assessment.
- Applicants will be notified of their application status through the SIT Admission Portal and via email.
- Successful applicants can accept offers by the Joint Acceptance Deadline and will receive a pre-matriculation package via email.
- Successful applicants will need to complete the pre-matriculation procedure by a stipulated deadline

For more information about the undergraduate admission process, please visit *singaporetech.edu.sg*.

Applicants should possess one of the qualifications listed below:

1. Full-Time Diploma from any local Polytechnic
   - Nanyang Polytechnic
   - Ngee Ann Polytechnic
   - Republic Polytechnic
   - Singapore Polytechnic
   - Temasek Polytechnic

Final semester polytechnic students can apply by submitting their results for the first five semesters of their studies. Results for the sixth semester must be furnished once available.

2. GCE A Level
   - Obtained passes in at least two H2 subjects and offered either General Paper (GP) or Knowledge & Inquiry (KI) in the same sitting

- A pass in one of the following H2 subjects (Mathematics or Physics or Computing); or a pass in H1 Mathematics*
- Met one of the following Mother Tongue Language (MTL) requirements**:
  » A minimum 'S' grade for the H1 or H2 MTL paper or General Studies in Chinese taken at the GCE A Level examination
  » Pass in the MTL 'B' Syllabus paper at the GCE A Level examination.
  » A minimum D7 for the higher MTL paper taken at the GCE O Level examination.

3. International Baccalaureate Diploma (IB)
   - Obtained a minimum grade five in at least two Higher Level (HL) and one Standard Level (SL) subjects
   - Obtained the IB Diploma
   - A pass in one of the following HL subjects (Mathematics or Physics or Computing); or a pass in SL Mathematic*
   - Met one of the following Mother Tongue Language (MTL) requirements**:
     » A minimum pass grade for the HL/SL MTL A: Literature.
     » A minimum pass grade for HL/SL MTL A: Language and Literature.
     » A minimum pass grade for HL/SL Language B.
     » A minimum D7 for the higher MTL paper taken at the GCE O Level examination.

4. NUS High School Diplomas
   - Obtained the NUS High School Diploma
   - Met one of the following Mother Tongue Language (MTL) requirements**:
     » A minimum 'S' grade for the H1 or H2 MTL paper or General Studies in Chinese taken at the GCE A Level examination
     » Pass in the MTL 'B' Syllabus paper at the GCE A Level examination.
     » A minimum D7 for the higher MTL paper taken at the GCE O Level examination.

Applicable to BS in Computer Science in Real-Time Interactive Simulation, BS in Computer Science in Interactive Media and Game Development and BEng in Mechatronics Systems.

**For those who are exempted from MTL, the MOE-approved subject-in-lieu will be considered as their MTL subject. Those who have not fulfilled the MTL requirement may still apply for admission with no prejudice to their application. However, if accepted, they will be required to (i) attain any of the minimum requirements as a private candidate, or (ii) attend equivalent courses conducted by language schools, which are approved by SIT, before being allowed to graduate.*

5. Diplomas from Other Institutions

   Applicants who hold local diplomas from other local institutions and other qualifications equivalent to Year-12 formal qualifications may be considered for admission to selected programmes on a case-by-case basis.

Diploma from Nanyang Academy of Fine Arts and LASALLE College of the Arts may be considered for admissions to BFA in Digital Arts and Animation.

6. International Qualifications

   SIT-DigiPen (Singapore) accepts a limited number of applicants holding international qualifications.

   Applicants presenting an International qualification (e.g. Malaysia STPM, UEC, India Standard XII-CBSE, ISCE, Indonesia SMA UAN, Vietnam High School Graduation Certificate, etc) or other qualifications not stated in the preceding groups above, should have completed at least 12 years of formal education and may be considered for admission on a case by case basis. SAT I and SAT II will be taken into account for admission purposes, when applicable.

   In particular, applicants presenting an international qualification where the main language of instruction is not English are required to submit a Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) or its equivalent. The minimum scores required are either TOEFL 90 or IELTS 6.5. This requirement is not applicable to applicants who have completed a minimum of four years of high school education at an English-speaking school, or an International School where the primary language of instruction is English. Details will be made available on SIT's website at *singaporetech.edu.sg* prior to the admissions exercise which commences in mid-January each year.

   Please see the SIT Application Guide (International Qualifications) for more information. SIT Application Guide (International Qualification) - *singaporetech.edu.sg/sites/default/files/ApplicationGuideForInternationalQual.pdf*

   For applicants who do not fall under any of the above categories, please contact the DigiPen (Singapore) Admissions Office.

PERSONAL STATEMENT
To be completed within SIT's online application portal (maximum 300 words). This section is required for ALL undergraduate applicants regardless of the program to which they are applying. Answers must be drafted and prepared before beginning the online application.

The personal statement is an important part of the application for admission. What you write will help us find out information about you that is not apparent from your application or transcripts. Proofread your essay carefully and avoid any spelling, grammar or punctuation mistakes. Please see the section below for the requirements and recommendations about completing this important component of the application.

Topic: Please address all of the following in your personal statement essay:
- What are your reasons for applying to DigiPen (Singapore)?

- Describe an exceptional achievement that highlights your academic and employment experience gained. How would these support your choice of programs and help you attain your goal(s) in life?
- What are your plan(s) upon graduation?

OPTIONAL ADDITIONAL ESSAY
- You may also submit an optional essay to explain any unusual circumstances or situations that you think may have an impact on your application.

SUBMISSION
- Applicants must submit their personal statement via SIT's online application portal. Answers must be drafted and prepared before beginning the online application

Additional Requirements by Program

BFA IN DIGITAL ART AND ANIMATION (BFA)

ART PORTFOLIO
Applicants to the BFA in Digital Art and Animation degree programme are required to submit an art portfolio that showcases the applicant's best and most recent work. This portfolio must contain between 10-15 samples of artwork created by the applicant.

The portfolio should include:
- **Prescribed Drawings from Direct Observation**
  Using graphite pencil or charcoal and on quality art paper, the applicant should draw the following four Prescribed Drawings from real life (not from images or photographs):
  - Pair of shoes
  - Same pair of shoes as above but from a different perspective (e.g. shoes drawn from the back) or a different orientation (e.g. shoes turned upside down)
  - Interior space, such as a kitchen or bedroom
  - Self-portrait

On the corner of the page for each of these drawings, please write the date created and length of time spent on the drawing.

The primary objective of these four Prescribed Drawings is for the applicant to demonstrate foundational drawing skills. The applicant should focus on drawing realistically and accurately, and should NOT apply any artistic style (e.g. cartooning) to these four Prescribed Drawings.

- **Miscellaneous Art Samples**
  The remaining 6-11 pieces should demonstrate an applicant's current range, skill, and process. These personal works may include animations, figure/animal studies, color studies, original character designs, architectural renderings, landscape studies, sculptures, and paintings. The submitted work should not contain illustrations copied directly from manga, animé,

animations, paintings, or photographs (cited master copies are acceptable).

Please note: All the artworks submitted should be less than two years old and the Images should be in focus and properly oriented for the subject.

GUIDELINES FOR ART PORTFOLIO SUBMISSIONS

1. All applicants are required to submit their portfolios via SIT's application portal by the application closing date. This applies to all applicants who have indicated BFA in Digital Art and Animation in any of their five choices. If the applicant does not submit a portfolio or submits an incomplete portfolio by the application closing date, their application will be deemed as disqualified/rejected and they will not be considered for the BFA in Digital Art and Animation program.

2. Applicants should label all artworks with the date of completion and the medium used. Clearly indicate which drawings are the four prescribed drawings from direct observation.

3. For the four prescribed drawings from direct observation and other still images, the only acceptable format is PDF (max file size is 5 MB). Please submit via the "DP BFA Portfolio" tab.

4. For miscellaneous artworks such as animations and videos, they can be hosted on a public drive/cloud. Please copy the web link into a word document and submit the word document via the "DP Additional Requirements" tab.

Admission/Denial to DigiPen (Singapore)'s Programs

DigiPen (Singapore) considers every part of an applicant's materials and qualifications when evaluating the applicant for admission. Meeting the minimum standards is not a guarantee for admission. Applicants who exceed the minimum standards are more likely to be admitted.

Accepted undergraduate applicants will receive an enrollment agreement packet via email before the start of classes in September. By returning the signed enrollment agreement, an applicant has confirmed enrollment. Applicants who are accepted and enroll are required to attend an official orientation session prior to the start of the program.

Applicants who are not accepted to the Institute will receive a letter of rejection via email by SIT. When possible, DigiPen (Singapore) will attempt to provide information about the specific areas in which an applicant needs improvement if the applicant wishes to reapply in subsequent years.

Reapplication Information

Applicants who are denied admission are encouraged to reapply for a future year. To reapply, applicants should submit a new application through the SIT application portal at *singaporetech.edu.sg*.

Readmission Information

Any student who wishes to return to the Institute after an absence may apply to do so by contacting SIT's admission team. SIT or DigiPen (Singapore) may require certified-true copies of transcripts from all institutions attended since last attending the Institute and other official documentation for specific circumstances as requested below:

MEDICAL WITHDRAWALS
A physician's statement must be included, and it must indicate that the applicant is ready to resume studying. Additionally, it should describe any special needs the student may require upon returning to DigiPen (Singapore).

READMISSION AFTER ACADEMIC DISMISSAL
A statement explaining how time away from the Institute was spent, why the student wishes to return, and how the student plans to be successful by returning should be submitted as part of the application for readmission. Students dismissed for academic reasons must wait at least one year before they can matriculate. It is highly recommended that students take the time away to raise their GPA through college-level coursework in order to boost the likelihood of being readmitted.

READMISSION AFTER DISCIPLINARY ACTION
Students should include a formal appeal for the Appeals and Disciplinary Committee to review along with their application for readmission. Students previously withdrawn for disciplinary reasons must receive clearance from the Appeals and Disciplinary Committee to return.

READMISSION FOR PERSONAL REASONS
There are usually no impediments to returning to the Institute if there is space available; however, an academic plan may need to be developed with the student's advisor upon re-enrollment, and students requesting readmission after an extended period of time must meet with an academic advisor to determine the viability of completing their degree program.

READMISSION AFTER NON-PAYMENT OF ACCOUNT
Outstanding accounts must first be settled before applying for readmission. Once settled, the policy for readmission follows the same guidelines listed under the *Readmission for Personal Reasons* section.

Exceptions to these requirements will only be made on a case-by-case basis at the discretion of SIT and the Institute.

SUBMISSION OF OFFICIAL TRANSCRIPTS OF COURSEWORK FROM OTHER UNIVERSITIES/COLLEGES

All readmission applicants to DigiPen Institute of Technology Singapore must request an official transcript from the Institute's Registrar's Office to be sent to the Admissions Office as part of their application. Additionally, if the applicant has taken courses from another college since leaving the Institute, any and ALL official transcripts must be forwarded to the Admissions Office from the Registrar of each institution attended. The transcripts should show all academic work

until the last semester or quarter completed. If the applicant is approved for readmission with coursework in progress, the applicant's admission status will be provisional, pending receipt of the final transcript(s). Finally, readmission applicants who are applying for readmission more than one year after withdrawing and who are not native English speakers may have to submit additional Proof of English language proficiency. Please see the English Language Requirement under the SIT Application Guide (International Qualifications).

SIT Application Guide (International Qualification) - *singaporetech.edu.sg/sites/default/files/ApplicationGuideForInternationalQual.pdf.*

Credit Exemption, Transfer Credit and Articulation

Students who have taken relevant modules in other institutions (postsecondary or university level), which are comparable in scope and content to courses offered at DigiPen Institute of Technology Singapore, may apply for credit exemption or transfer of credit. Credits awarded more than 8 years prior to enrolment into the current program will not be considered. A student must take a minimum of 50% of the entire program at the Institute (unless the student attended an institution with which the Institute has established an articulation agreement).

The following shows the various type of credit recognition accepted by DigiPen (Singapore):

TYPE OF CREDIT RECOGNITION	AWARDING INSTITUTIONS	GRADE TRANSFER AND COUNT TOWARDS CGPA	CREDITS RECOGNIZED AS FULFILMENT OF GRADUATION REQUIREMENTS
Credit Exemption	Postsecondary education or equivalent	No	Yes
Transfer Credit	Universities or equivalent	No	Yes
Articulation	College with an articulation agreement with the Institute	Yes	Yes

Credit Exemption

Students who achieved good results in the relevant subjects/courses of the following qualification or equivalent may apply for credit exemption during the pre-matriculation period:

QUALIFICATION	MINIMUM SCORE/ GRADE OBTAINED FOR A SUBJECT/COURSE TO BE CONSIDERED FOR CREDIT EXEMPTION
Full -Time Diploma from any Local Polytechnic	B

QUALIFICATION	MINIMUM SCORE/ GRADE OBTAINED FOR A SUBJECT/COURSE TO BE CONSIDERED FOR CREDIT EXEMPTION
GCE A Level	B
International Baccalaureate Diploma (IB)	5
NUS High School Diplomas	B
Advanced Placement Examinations	4
College-Level Examination Program (Subject examinations only)	mean score achieved by students in the national norms sample or a minimum score of 50, whichever is higher

Credit Exemption may be accepted subject to the following conditions and restrictions:

1. The subject(s) or course(s) must be comparable in academic quality to the modules offered by the Institute. The final decision regarding the credits exemption remains at the Institute's discretion.

2. Application for credit exemption is strictly via *IN4SIT* during the stipulated application period stated in the academic calendar. Please refer to *IN4SIT* for the step-by-step guide.

3. Upon submission on *IN4SIT*, applicant must submit a copy of the official transcript and course syllabus with details of course duration, credit hours, assessment methods, topics, etc., to *registrar.sg@digipen.edu*.

4. A validation examination may be conducted to determine the applicant's knowledge of the subject.

5. "Credit" or "Pass" grades will not be accepted for credit exemption.

6. Outcome of the applications will be published in *IN4SIT* by week 2 of the next trimester.

If a course is accepted for credit, it will be counted as an exemption. No grade points from the exempted modules will be calculated in the Institute grade point average.

Transfer Credit

Credit earned by examination at other colleges or universities within the last 8 years may be transferred, provided such credit meets the guidelines used by the Institute. Due to the rigorous nature and subject specificity of the programs at the Institute, students transferring in to the Institute should expect that no more than 25% of credits required to graduate will transfer.

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

1. The course(s) offered for transfer must be taken at a bona fide, legitimate institution recognized and

approved by a regulatory authority which oversees the educational system in the country where the institution is located. These courses must appear on official transcripts from the institution and must be comparable in academic quality to the modules offered by the Institute. The final decision regarding the transferability of credits remains at the Institute's discretion.

2. Transfer credit will be considered for courses in which the grade of "B-" or better is recorded.

3. Application for transfer credit is strictly via *IN4SIT* during the matriculation exercise in July. Please refer to *IN4SIT* for the step-by-step guide.

4. Upon submission on *IN4SIT*, applicant must submit a copy of the official transcript and course syllabus with details of course duration, credit hours, assessment methods, topics, etc., to *registrar.sg@digipen.edu*.

5. A validation examination may be conducted to determine the applicant's knowledge of the subject.

6. "Credit" or "Pass" grades will not be accepted for credit exemption.

7. Outcome of the applications will be published in *IN4SIT* by week 2 of the next trimester.

Students who participated in the DigiPen Foundation Course or DigiPen Honor Track and have earned credits at the DigiPen (Singapore) or DigiPen's U.S. campus may apply for Transfer Credit, subject to above conditions and restrictions.

If a course is accepted for credit, it will be counted as a transfer credit. No grade points from such transfer courses will be calculated in the Institute grade point average. However, grades transferred for courses taken in residence at institutions with which the Institute has articulation agreements are exempt from this policy and will be recorded. Credit hours from another institution that are accepted towards the student's educational program must count as both attempted and completed hours. Courses transferred in may not be used to substitute improved grades for passing grades earned at the Institute.

Articulation Agreements

Credits from a college with an articulation agreement with DigiPen Institute of Technology Singapore will be accepted and grades earned will be included in students' DigiPen (Singapore) transcripts. Please contact the Registrar for a list of colleges with articulation agreements.

Transferability of Credits to Other Institutions

A student wishing to transfer DigiPen (Singapore) credits to another institution may request the Institute to furnish transcripts and other documents necessary to a receiving institution. The Institute advises all prospective students

that the courses and credits reflected on their transcript may or may not be accepted by a receiving institution. Students should inquire with the specific receiving institution about the transferability of DigiPen (Singapore) credits.

Tuition and Fees

Tuition, Miscellaneous, and Incidental Fees

All tuition, miscellaneous, and incidental fees are collected by SIT.

Students who withdraw before the end of the second week of a trimester are not liable to pay tuition fees;

Students who leave SIT either through a withdrawal of their own accord, or termination of candidature by SIT after the second week of a trimester, will be liable to pay tuition fees for the entire trimester.

For the most updated information, please refer to SIT's website at *singaporetech.edu.sg,* the SIT student handbook, or contact SIT's Registrar's Office.

Alumni Audit Fee

Tuition, application, and enrollment fees are waived, but alumni are responsible for any course fees.

An administrative and technology fee of S$214 (inclusive of GST) is also payable per application to DigiPen (Singapore). Fees are non-refundable for alumni audits.

Books and Supplies

Textbooks and supplies are estimated to be approximately S$1,500 (plus 7% GST) per year. This cost is not included as part of the tuition.

Cancellation and Refund Policies

THE INSTITUTE'S CANCELLATION POLICY:
Applicants who have not visited the school prior to enrollment will have the opportunity to withdraw without penalty within three (3) business days following either the regularly scheduled orientation procedures or following a tour of the school facilities and inspection of equipment where training and services are provided.

SINGAPORE INSTITUTE OF TECHNOLOGY'S REFUND POLICIES:
For more information on SIT's withdrawal and refund policy, please refer to SIT's website at *singaporetech.edu.sg*, the SIT student handbook or contact SIT's Registrar's Office.

Student Life and Advising

The Student Life and Advising Office provides services to all degree-seeking students in order to support their academic, professional, and personal development. The Student Life and Advising Office provides services that a student will need in their life at DigiPen (Singapore) and beyond, including:

- Academic Advising
- Academic Support Center
- Campus Life
- Counseling Helplines
- Disability Support Services

The sections below detail some aspects of a few of the services provided by Student Life and Advising Office.

Student Advising

DigiPen (Singapore) has adopted a faculty advisor model to provide academic and career-related advising for students. Each student is assigned a full-time faculty member as an academic advisor. Advisors provide answers to academic questions, approve extra courses, and perform degree audits and other administrative functions. Students meet with their advisor during new student orientation and are encouraged to meet with their advisors twice per semester or as-needed during their education. Advisors are instructed to follow up with advisees once a semester, especially during course registration time. Students are required to seek advisor approval for academic status changes, such as changing majors or applying for graduation.

Academic Support Center

Peer tutoring is available for most Year 1 courses in the Academic Support Center. For further information please contact *asc.sg@digipen.edu*.

Disability Support Services

DigiPen (Singapore) is committed to providing equal access to all of its programs, courses, events, activities, and services. Wherever possible, reasonable accommodations will be offered provided they neither fundamentally alter the nature of the programs or the academic requirements that are considered essential to the program of study, nor create an undue hardship for DigiPen (Singapore).

DigiPen (Singapore) staff will engage in a collaborative effort with students to ensure equal access for students with disabilities.

Overseas Immersion Program

As required by the collaboration with Singapore Institute of Technology, DigiPen Institute of Technology Singapore operates an overseas exchange program, named as "Overseas Immersion Program," for all DigiPen – SIT students to attend a particular phase of the Institute's baccalaureate degree programs of study (as defined by the Program Directors) at the main campus, DigiPen Institute of Technology, located in Redmond, Washington, USA.

The Overseas Immersion Program is designed to allow DigiPen (Singapore)'s students to acquire overseas learning and immersion experience at the main campus, which enriches their baccalaureate programs of study. All DigiPen – SIT students should complete this program at their own expense. For more information, please refer to SIT's website at *singaporetech.edu.sg* and DigiPen (Singapore)'s website at *digipen.edu.sg*.

Regulation of Conduct and Disciplinary Procedures

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

Rules and Regulations

1. It is strictly forbidden to bring in or out of the premises any digital storage and any form of memory sticks or optical media, diskettes, video recorders, etc. other than for academic and approved usages which directly apply to courses being taken by the student during the term of this agreement, or for the required purpose of maintaining back-up copies of student-created projects and assignments. Students are responsible for guaranteeing that any files transferred to and from the Institute's equipment are free of malicious viruses or Trojan horses. In respect to the above, students are only allowed to carry in and out of the Institute's premises data files only and not executable files. This includes student-created executables. Following this policy will greatly reduce the risks of virus infections to the Institute's network. In order for the Institute's faculty to review and grade projects and assignments, source code must be stored and executables must be generated at the Institute from the corresponding source code.

2. Students are forbidden from downloading any files from the internet or installing any software, including but not limited to freeware and/or shareware, without the written approval from an Institute faculty member or from the Institute's IT staff. Furthermore, illegal use of the internet may be prosecuted to the fullest extent of the law.

3. In order to prevent damage to equipment and facilities, food and/or drink are not permitted anywhere within the training areas of the premises.

4. Smoking is not permitted anywhere within the premises, including, but not limited to, the washrooms, elevators, and stairwells.

5. Student ID tags must be worn visibly when on the premises. Lost or stolen ID tags must be reported to the Administration Office as soon as possible.

6. All student projects must receive approval from the Institute's instructors prior to commencement of any production. The Institute reserves the right to reject ideas or to stop production of any student game, animation, or project for reasons deemed appropriate to the Institute. The Institute will not allow the production of any student work that contains or makes a direct or indirect reference to any of the following material/subjects:
   » Religious content
   » Religious symbols
   » Pornographic material
   » Excessive violence
   » Sexual and nude content
   » Promotion of illegal substances
   » Promotion of racism or hate
   » Content demeaning to any group of society

7. Plagiarism will not be tolerated. Any student who submits the work of another person as the student's own is considered to have committed plagiarism. Types of work that can be plagiarized include, but are not limited to, source code, artwork, concepts, designs, or other material. Anyone submitting someone else's work without the explicit written permission from the legal owner may have violated the owner's intellectual property rights or copyrights, in addition to committing plagiarism. If any student is unsure as to what constitutes a case of plagiarism, the student should consult an instructor for clarification.

8. Students shall not submit any work to the Institute that infringes upon the intellectual property rights of a third party. If, during the program, a student submits such work to the Institute, the student shall indemnify or hold harmless the Institute from and against all loss, damage, cost (including legal fees), and other liability, which the Institute may suffer as a result of the same.

9. Cheating on an examination will not be tolerated. Using any materials other than those authorized by the examiners during an exam is an example of cheating.

10. Submitting false documents, transcripts, or any other academic credentials to gain admission to DigiPen or to obtain any academic benefit is grounds for expulsion without recourse.

11. Disrupting instructional activities, including making it difficult to proceed with scheduled lectures, seminars, examinations, tests, etc., shall be considered an offense.

12. In the interest of maintaining an environment that is safe and free of violence and/or threats of violence for its employees, students, and visitors, possession of a dangerous weapon is prohibited on property owned by or under the control of the Institute. Weapons and ammunition are potential safety hazards. Possession, use, or display of weapons or ammunition is inappropriate in an academic community for any reason, except by law enforcement officials. No weapons or ammunition shall be worn, displayed, used, or possessed on campus. Any member of the Institute community who violates this policy shall be subject to appropriate disciplinary action up to and including dismissal from the Institute and shall be subject to all appropriate procedures and penalties including, but not limited to, the application of the criminal trespass provisions of the law of the state of Washington. Any person who is not a member of the DigiPen community who violates this policy shall be subject to all appropriate procedures and penalties including, but not limited to, the application of the criminal trespass provisions of the law of the Republic of Singapore. Members of the Institute community who are aware of any violations of this policy or who have other concerns about safety or weapons should report them to the Dean of Faculty, Managing Director, or the Chief Operating Officer – International.

13. Evidencing symptoms of alcohol or drug use while on Institute property, or the procurement or possession of alcohol or illegal substances on Institute property, is considered an offense.

14. It is forbidden to damage, remove, or make 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.

15. It is strictly forbidden to use any equipment in the premises to produce any commercial work. The equipment is only to be used for homework and training purposes. Any attempt to produce commercial work will result in legal action against the offenders.

16. Public areas and equipment of the building must be kept clean. No tampering, moving, defacing, or otherwise altering the premises, equipment, or the building property is allowed.

17. Graffiti, other forms of mural art, or the posting of signs anywhere in the premises and the building without permission of the Administration is not permitted.

18. Office equipment (photocopier, fax, office phone, etc.) is not available for student use.

19. The assault of individuals, whether verbal, non-verbal, written, or physical, including conduct, or any other kind of assault 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, is considered an offense.

20. In accordance with applicable law, DigiPen prohibits sexual harassment and harassment between employees, between students, and between employees and students. Harassment due to race, sex, color, national origin, ancestry, religion, physical or mental

disability, veteran status, age, or any other basis protected by federal, state, or local law may violate the law and will not be tolerated. The Institute's policy prohibits inappropriate conduct even though it may not reach the legal standard for harassment.

21. It is forbidden to attempt to engage in, or aid and abet others to engage in, conduct which would be considered an offense.

22. Failing to comply with any penalty imposed for misconduct is considered an offense.

Disciplinary Process

1. Student Life and Advising Office will be notified of the alleged student misconduct.

2. Student Life and Advising Office will gather information to determine if the allegations are warranted, what, if any, policies were violated, and the extent of the violations.

3. Student Life and Advising Office will assess the need for a disciplinary hearing.

    a. One offense of academic dishonesty may or may not result in a disciplinary hearing, however two notifications of academic dishonesty will automatically result in a hearing with the Appeals and Disciplinary Committee.

4. The student(s) involved will be contacted through email, phone, or letter indicating the alleged violation and a meeting time with Student Life and Advising Office.

5. Based on the severity of the alleged violation, a Student Life and Advising Officer will determine during the meeting if the student will have the disciplinary meeting with:

    a. Student Life and Advising Officer(s) (if the alleged violation does not have the possibility of resulting in suspension or expulsion), or

    b. Appeals and Disciplinary Committee (if the alleged violation does have the possibility of resulting in suspension or expulsion).

        I. The Appeals and Disciplinary Committee consists of faculty, and staff who are briefed on the alleged violation and review relevant information to the alleged misconduct.

6. If the student is not found to be in violation of any academic or campus policy, there will be no further action.

7. If the student is found to be in violation of any academic or campus policy, the Student Life and Advising Office or the Appeals and Disciplinary Committee will determine the appropriate sanction, which can include, but is not

limited to, a failing grade, suspension, or expulsion from the Institute.

8. The student will be notified in writing of the decision and of any possible sanctions.

9. Student Life and Advising Office will monitor any sanction imposed on the student.

10. Students who fail to comply with the terms of their sanction will be committing an additional policy violation and could be subject to more disciplinary action.

11. All documentation of the violation will be kept on file with the Student Life and Advising Office.

Warnings

1. The penalty for plagiarism or for cheating is normally suspension from the Institute.

2. Charges filed under the law of the Republic of Singapore and/or the commencement of legal proceedings do not preclude disciplinary measures taken by the Institute.

Penalties

The penalties that may be imposed, singly or in combination, for any of the above offenses may include, but are not limited to, the following:

1. A failing grade or mark of zero for any course, examination, or assignment in which the academic misconduct occurred.

2. Suspension from the Institute for a specified period of time or indefinitely. Students will not receive credit for courses taken at another institution during a suspension.

3. Reprimand, with the letter placed in the student's file.

4. Restitution, in the case of damage to property or unauthorized removal of property.

5. A notation on the student's permanent record of the penalty imposed.

6. Expulsion from the Institute.

7. Legal action against the student committing the offense.

Appealing a Charge of Academic Dishonesty or Policy Violation

A student has the right to appeal a charge of academic dishonesty or policy violation, or the penalties assigned for academic dishonesty or policy violation, with the Appeals and

Disciplinary Committee. The student has two weeks from the official written charge to appeal the alleged violation.

Appealing a Decision Made by the Appeals and Disciplinary Committee

The student has the right to dispute the decision of the Appeals and Disciplinary Committee. If the student wishes to make an appeal, the student must notify the Dean of Faculty (or designee) and must provide a full explanation of the reasons for appealing in writing within one week of being notified of the decision. Appeal hearings take place before the Dean of Faculty (or designee). A member of the Appeals and Disciplinary Committee puts forth the reason for the original decision. As soon as possible after the hearing is completed, the Dean of Faculty (or designee) will notify the student of the final decision in writing.

The student has the right to dispute the disciplinary decision of the Dean of Faculty (or designee) for all decisions resulting in suspension or expulsion. If the student wishes to make an appeal, the student must notify the Chief Operating Officer – International in writing within one week of being notified of the decision, and must provide a full explanation of the reasons for appealing. The Dean of Faculty (or designee) puts forth the reasons for the original decision. As soon as possible after the hearing is completed, the Chief Operating Officer – International will notify the student of the final decision in writing.

Dismissal by the Institute

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

Career and Alumni Services

Career Services

DigiPen (Singapore)'s Career Services staff provides a variety of resources for enrolled degree-seeking students to jumpstart their professional development before they graduate and transition into the industry. These resources include on-campus events for students to meet and interact with industry professionals, online tools and on-campus facilities to connect students with prospective employers, communication workshops, and both group and one-on-one appointments to review application materials (e.g., resumes,

cover letters, websites) and discuss interviewing and other job search skills.

The Career Services staff coordinates a variety of on-campus events for students; recruiters meet with juniors and seniors to offer insight into their companies, review resumes and student work, and interview potential hires. Career Services hosts an annual Career Fair for all graduating students to showcase their projects and portfolios to employers and recruiters from local companies. DigiPen (Singapore)'s Career Services staff also works closely with faculty to invite industries to give Company Talks to students.

DigiPen (Singapore)'s Career Services staff establishes relationships with potential employers and maintains an online professional/social networking groups for alumni. The Career Services staff also maintains an SRS bulletin board where open job and internship opportunities for students and visiting alumni are posted.

For further information, please email the Career Services staff at *careerservices.sg@digipen.edu*. Please note that employment upon graduation is not guaranteed, nor is the Institute obligated to secure employment on behalf of students.

Alumni Relations

DigiPen (Singapore) maintains a database of all graduates and DigiPen (Singapore) alumni are encouraged to report back regarding changes to their professional status. DigiPen (Singapore) hosts alumni gathering events for alumni to connect with one another. The Institute also provides career resources post-graduation and encourages alumni to remain connected with the DigiPen community.

The Alumni Audit allows graduates of DigiPen Institute of Technology to take courses tuition-free within two calendar years of graduation. Participating alumni must review and sign an Alumni Audit Enrollment Agreement prior to attending courses.

Student Internships

There are two types of student internships available:

1. Internships for credit, for BA in User Experience and Game Design and BFA in Digital Art and Animation students.

2. Integrated Work Study Programme (IWSP), for BS in Computer Science in Real-Time Interactive Simulation, BS in Computer Science in Interactive Media and Game Development and Bachelor of Engineering in Mechatronics Systems.

INTERNSHIPS FOR CREDIT FOR BA IN USER EXPERIENCE AND GAME DESIGN AND BFA IN DIGITAL ART AND ANIMATION STUDENTS

DigiPen (Singapore)'s Career Services staff will disseminate internship opportunities for BA in User Experience and Game

Design and BFA in Digital Art and Animation students through various internal channels.

<u>OVERVIEW OF INTERNSHIPS FOR CREDIT</u>
Student internships are monitored, on-site work or service experiences for which students earn credit. Students who meet the prerequisites and are in good academic standing are eligible for internships.

Internships can be arranged for any setting related to a student's career goals. The internship usually takes place in a professional workplace under the supervision of an experienced professional, whereby a high degree of responsibility is placed on the student. Internships can be part-time or full-time. Internships must be approved in advance by the Institute.

<u>OBJECTIVES OF INTERNSHIPS FOR CREDIT</u>
Through an internship program, students establish and meet intentional learning goals through actual product development experience, while actively reflecting on what they are learning throughout the experience. The goals for the internship may include:
- Academic learning - applying knowledge learned in the classroom to tasks in the workplace.
- Career development - gaining knowledge necessary to meet minimum qualifications for a position in the student's field of interest.
- Skill development - an understanding of the skills and knowledge required in a specific job category.
- Personal development - gaining decision-making skills, critical thinking skills, and increased confidence and self-esteem.

Since internships have a strong academic component, students are carefully monitored and evaluated for academic credit. Internships may vary in duration but generally last for one trimester and credit is granted based on the respective credit hour requirement. Typically, students may replace up to two of their respective program's projects courses. Please refer to individual program requirements for more information.

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

INTEGRATED WORK STUDY PROGRAMME (IWSP) FOR BS IN COMPUTER SCIENCE IN REAL-TIME INTERACTIVE SIMULATION, BS IN COMPUTER SCIENCE IN INTERACTIVE MEDIA AND GAME DEVELOPMENT AND BACHELOR OF ENGINEERING IN MECHATRONICS SYSTEMS

The Integrated Work Study Programme (IWSP) is a distinctive feature of the Bachelor of Science in Computer Science in Real-Time Interactive Simulation, Bachelor of Science in Computer Science in Interactive Media and Game Development and Bachelor of Engineering in Mechatronics Systems programs. It is compulsory for all students enrolled in these three programs, with no exceptions.

IWSP openings would be posted on SIT's ReadyTalent portal.

<u>OBJECTIVES OF IWSP</u>
The Integrated Work Study Programme (IWSP) is an uninterrupted 8-month duration (two trimesters) work placement programme that will provide students with unique learning opportunities to achieve the following objectives:

1. applied learning – integration of theory and practice, acquisition of specialist knowledge and development of professional skills,

2. exposure to real-world conditions – appreciation of real-world constraints in respective industry contexts to develop skills of adaptability, creativity and innovation, and,

3. smooth transition to jobs – practical experience which shortens the work induction period.

More detailed information about the IWSP programmes can be found in the respective degree programs' course details.

Change of Major within DigiPen (Singapore)

Students wishing to change their major are encouraged to speak with their academic advisor and Student Life & Advising Officer before submitting an application. To apply for a change of major, the following steps must be completed:

1. Submit a "Change of Program" via *IN4SIT* during the next SIT Admissions period (January to March).

2. Students are required to pay an application fee of $16.05 (non-refundable) to SIT.

3. Students who applied for change of major should continue their current degree program as per normal, including meeting class registration deadlines.

4. If students are applying for a change of major to BFA, students will be contacted by the Institute to submit a portfolio. Please refer to "Additional Requirements by Program" on page 69–70 of the course catalog regarding requirements of the portfolio. Portfolios should be submitted in hard copy or electronic format, as originals will not be returned.

5. All transfers will be assessed on a case-by-case basis. Students may be required to undergo an interview and/or written test to assess their suitability for the new program.

6. Outcome of the application will be sent to the student via email. Students approved for a change of major will be emailed a Student Enrollment Agreement corresponding to the new program. The student must either sign this agreement electronically through DocuSign or print, sign, and return it to the Registrar's Office before the change can take effect.

7. Before commencement of class registration for the new program, successful applicants would be notified via

email to apply for credit exemption and transfer of credit via *IN4SIT*.

8. Upon successful admission into the new program, students are required to apply for a new student card at any SIT Student Services Center with an application fee of $32.10.

Any questions about the status of a change of major request or about this process should be directed to the Registrar's Office, *registrar.sg@digipen.edu*.

Transfer of Credit for Change of Major

Students who successfully changed major to following AY2021 programs would have the grades or credits transferred as follows:

TRANSFER FROM BFA OR BA UXGD TO A JOINT DEGREE PROGRAM (BSCS RTIS, BSCS IMGD OR BENG IN MECHATRONICS SYSTEMS)
Module with a passing letter-grade that is taken in the old program and is comparable in content and academic rigor to a module required in the new program, could be transferred to the new program with a "TC" grade via the credit transfer application. "TC" grade is not included in the computation of Cumulative Grade Point Average (CGPA).

TRANSFER FROM A JOINT DEGREE PROGRAM (BSCS RTIS, BSCS IMGD OR BENG IN MECHATRONICS SYSTEMS) TO BFA OR BA UXGD
Module with a passing letter-grade that is taken in the old program and is comparable in content and academic rigor to a module required in the new program, would have the letter-grade transferred to the new program. The transferred letter-grade would be included in the computation of Cumulative Grade Point Average (CGPA).

TRANSFER FROM BFA TO BA UXGD OR VICE VERSA
Module with a passing letter-grade that is taken in the old program and is comparable in content and academic rigor to a module required in the new program, would have the letter-grade transferred to the new program. The transferred letter-grade would be included in the computation of Cumulative Grade Point Average (CGPA).

The final decision regarding transfer of credit remains at the Institute's discretion.

Short Leave

Students may be excused from classes due to sickness, demise of an immediate family member, military services or representing the Institute in external events, provided that these absences are supported with valid documentary proof issued by relevant authorities, i.e. the Medical Certificate (MC) must be issued by a medical practitioner / dentist registered with the Singapore Medical/Dental Council and should cover the period of sick leave. Submissions should be done within 7

days via *IN4SIT*. Late submissions will not be accepted unless there are extenuating circumstances.

Students who are medically unwell and absent from an examination, an MC must be submitted within 24 hours of the missed examination. In the event of a serious illness or hospitalization, family members may submit the MC / doctor's letter to the Registrar's Office on the student's behalf during office hours, or email a scanned copy of the document to *registrar.sg@digipen.edu*. Failure to do so or late submissions will not be accepted unless there are extenuating circumstances.

Leave of Absence

Leave of Absence is administered by SIT. Students who are unable to attend classes for a prolonged period due to medical or personal reasons that incapacitate the students, may choose to apply for leave of absence (LOA) via *IN4SIT*, subject to the maximum candidature period allowed by SIT. First-year students or re-admitted students will not be granted LOA during the first trimester of their course of studies unless due to unforeseen medical conditions. Students are only allowed 1 trimester of leave of absence in a 12-month period. Only LOA taken for personal reasons is counted towards the maximum candidature period.

Students are strongly encouraged to discuss with their academic advisor prior applying for Leave of Absence as there are implications as shown in the following table:

LEAVE OF ABSENCE SUBMITTED ON CALENDAR DAY OF THE TRIMESTER	GRADE RECORDED, IF APPLICATION IS APPROVED	TUITION FEE CHARGED
1st to 14th	No grades recorded	No
15th to 49th	"W" grade	Yes
50th to end of trimester	Only accepts LOA application for next trimester	

Students' applications for LOA are assessed by SIT on a case by case basis. A successful applicant would receive a letter of notification regarding the LOA period granted via email. Students are expected to attend classes as per normal until the start of the approved LOA.

Students who do not wish to return following the leave of absence must inform SIT and complete the withdrawal process before the start of a new trimester.

For any clarifications please contact the Registrar's Office, *registrar.sg@digipen.edu*.

Educational Rights and Privacy of Student Records

DigiPen Institute of Technology Singapore reserves for students certain rights with respect to their education records. These rights are:

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

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

3. The right to consent to disclosures of personally identifiable information contained in the student's education records. One exception, which permits disclosure without consent, is disclosure to school officials with legitimate educational interests. A school official is defined as a person employed by the Institute in an administrative supervisory, academic, or support staff position; law enforcement officials and health staff; a person or company with whom the Institute has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; or a student serving on an official committee, 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 to which a student seeks or intends to enroll.

Release of Student Directory, Academic, and Financial Records

If a student's parent, guardian, family member, or other individual wishes to obtain any of the student's information (including, but not limited to, account balance, tuition payments due, class registration, etc.), the student must fill out and submit the Student Consent for Release of Records Form listing the names of the individuals to whom the student's information may be released. This form will be distributed to all new students prior to matriculation. It can also be obtained online through the Student Records System (SRS).

Personal Data Protection Act

The Personal Data Protection Act (PDPA) of 2012 established regulations on collection, use and disclosure of personal data. It primarily aims to recognize the rights of individuals to protect, access, and correct their personal data (including directory information such as contact number, postal address) and the needs of organizations to collect, use, or disclose personal data for reasonable and valid purposes. PDPA also includes the DO NOT CALL provision (DNC) which restricts organizations from sending marketing and promotional information to individuals without their consent.

In compliance to PDPA, DigiPen Institute of Technology Singapore has outlined the following general guidelines in handling matriculated student data:

- Accumulated student data (personal and educational records) will be used for the purpose of delivering academic and administrative services, conducting internal analysis/research, report generation for authorized internal or external (i.e. auditors, government agencies) parties as well as in promoting educational activities organized by the Institute.
- Access to student data is limited to authorized staff or faculty members of the Institute who require such information to perform their educational duties. Personal data, including educational records, of any student will not be disclosed by the Institute to any external party without the student's written consent.
- The Institute will correct any error or missing information on the student record upon written request.

If you have any questions on PDPA, please contact the Registrar at *registrar.sg@digipen.edu*.