

COURSE CATALOG ADDENDUM: VERSION 1

2020–2021

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

[Updated October 2022]
[Revised Course Sequence]

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	CSD2160	Computer Network	5
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			27
YEAR 2 TRIMESTER 3 (OIP)			
21	CSD3182	Artificial Intelligence for Games	5
22	CSD2250	Linear Algebra	5
23	CSD2300*	Motion Dynamics and Lab	8
24	CSD3150	Spatial Data Structures	5
Sub-Total for YEAR 2 TRIMESTER 3			23

S/NO	MODULE CODE	MODULE TITLE	MODULE CREDITS
YEAR 3 TRIMESTER 1			
25	CSD3130	Algorithm Analysis	5
26	CSD3240	Probability and Statistics	5
27	CSD2170	Programming Massively Parallel Processors	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			
35	CSD4620	Research, Reasoning, and Writing	5
36	CSD4650	Professional Communication	5
Sub-Total for YEAR 3 TRIMESTER 3			10
YEAR 4 TRIMESTER 1			
37	CSD4400	Capstone Project	8
38	CSD4901	Integrated Work-Study Programme (IWSP)	10
Sub-Total for YEAR 4 TRIMESTER 1			18
YEAR 4 TRIMESTER 2			
39	CSD4400	Capstone Project (cont.)	8
40	CSD4901	Integrated Work-Study Programme (IWSP) (cont.)	10
Sub-Total for YEAR 4 TRIMESTER 2			18
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)

[Updated October 2022]
[Revised Course Sequence]

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
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

S/NO	MODULE CODE	MODULE TITLE	MODULE CREDITS
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			
35	CSD4620	Research, Reasoning, and Writing	5
36	CSD4650	Professional Communication	5
Sub-Total for YEAR 3 TRIMESTER 3			10
YEAR 4 TRIMESTER 1			
37	CSD4400	Capstone Project	8
38	CSD4901	Integrated Work-Study Programme (IWSP)	10
Sub-Total for YEAR 4 TRIMESTER 1			18
YEAR 4 TRIMESTER 2			
39	CSD4400	Capstone Project (cont.)	8
40	CSD4901	Integrated Work-Study Programme (IWSP) (cont.)	10
Sub-Total for YEAR 4 TRIMESTER 2			18
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

[Updated October 2022]

[Updated Module Listings]

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

CSD3150 Spatial Data Structures (5 credits)

Prerequisite(s): CSD2150

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.

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

[Updated October 2022]
[Revised Course Sequence]

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	UXG3505	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	UXG4515/UXG4535/ UXG4536	Design Elective	5
35	UXG3650	Professional Communication	5
36	UXG3099	Career and Professional Development	5
Sub-Total for YEAR 3 TRIMESTER 2			27
YEAR 3 TRIMESTER 3			
37	UXG4515/UXG4535/ UXG4536	Design Elective	5
38	PSY Elective	Any Psychology module	5
39	English Elective	Any English module	5
Sub-Total for YEAR 3 TRIMESTER 3			15
YEAR 4 TRIMESTER 1			
40	UXG3475/UXG4400/ UXG4950	Project 3 (part 3), or Project 4, or Internship 1	8
41	UXG4653	Project Management	5
Sub-Total for YEAR 4 TRIMESTER 1			13
YEAR 4 TRIMESTER 2			
42	UXG4400/UXG4450/ UXG4950/UXG4990	Project 4 or Project 4 (Continued), or Internship 1 or Internship 2	8
43	HSS Elective	Any Humanities and Social Sciences module	5
Sub-Total for YEAR 4 TRIMESTER 2			13
TOTAL FOR 4-YEAR PROGRAM			240

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

[Updated October 2022]
[Revised Course Sequence]

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

S/NO	MODULE CODE	MODULE TITLE	MODULE CREDITS
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
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			
36	ENG Elective	Any English module numbered 4000 or higher	5
37	DAA4615	Media and Ethics: A Social Science Perspective	5
38	Open Elective	A module from any department at DigiPen	5
Sub-Total for YEAR 3 TRIMESTER 3			15
YEAR 4 TRIMESTER 1			
39	DAA4400/DAA4402/ DAA4950	Cinematic Production, or Game Art Project 2, or Internship 1	8
40	DAA4150	Portfolio	5
41	DAA4616	Introduction to Intellectual Property and Contracts	5
Sub-Total for YEAR 4 TRIMESTER 1			18
YEAR 4 TRIMESTER 2			
42	DAA4450/DAA4950/ DAA4990	Professional Practice or Internship 1 or Internship 2	8
43	GED Elective	Any English, History, Social Sciences, or Psychology module	5
Sub-Total for YEAR 4 TRIMESTER 2			13
TOTAL FOR 4-YEAR PROGRAM			240