DigiPen
INSTITUTE OF TECHNOLOGY
SINGAPORE

COURSE CATALOG
ADDENDUM: VERSION 1

2022–2023

Table of Contents

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

[Updated April 2023]
[Revised Course Sequence]

BSCS RTIS Recommended Course Sequence

MODULE CODE AND TITLE		CREDITS	PRE-REQUISITES/REMARKS
**YEAR 1	TRIMESTER 1**			
CSD1101	Computer Environment	6	
CSD1121	High-Level Programming 1	6	
CSD1241	Linear Algebra & Geometry	6	
CSD1401	Software Engineering Project 1	6	Pass or Fail grade
UDC1001	Digital Competency Essentials	2	Pass or Fail grade To be completed by 6th trimester (asynchronous)
CSD4902A	Integrated Work Study Programme (Career Skills)	-	First Career Readiness Micro-Module (asynchronous)
**YEAR 1	TRIMESTER 1 TOTAL**		**26**	
**YEAR 1	TRIMESTER 2**			
CSD1130	Game Implementation Techniques	5	Pre-req: CSD1121, Co-req: CSD1171
CSD1171	High-Level Programming 2	6	Pre-req: CSD1121
CSD1251	Calculus & Analytic Geometry 1	6	
CSD1451	Software Engineering Project 2	6	Pre-req: CSD1121, CSD1401
UCS1001	Critical Thinking and Communicating*	4	
CSD4902A	Integrated Work Study Programme (Career Skills)	-	Second Career Readiness Micro-Module (asynchronous)
**YEAR 1	TRIMESTER 2 TOTAL**		**27**	
**YEAR 1	TRIMESTER 3**			
CSD2101	Introduction to Computer Graphics	6	Pre-req: CSD1171, CSD1241
UDE1001	Introduction to Design Innovation*	2	
CSD4902A	Integrated Work Study Programme (Career Skills)	-	Third Career Readiness Micro-Module (asynchronous)
**YEAR 1	TRIMESTER 3 TOTAL**		**8**	
**YEAR 2	TRIMESTER 1**			
CSD2126	Modern C++ Design Patterns	6	Pre-req: CSD1171
CSD2182	Operating Systems	6	Pre-req: CSD1101, CSD1171
CSD2201	Calculus & Analytic Geometry 2	6	Pre-req: CSD1251
CSD2401	Software Engineering Project 3	6	Pre-req: CSD1171, CSD1130, CSD1451
UDE2001	Interdisciplinary Design Innovation*	4	Pre-req: UDE1001
CSD4902A	Integrated Work Study Programme (Career Skills)	-	Fourth and Fifth Career Readiness Micro-Modules (asynchronous)

MODULE CODE AND TITLE		CREDITS	PRE-REQUISITES/REMARKS
YEAR 2 | TRIMESTER 1 TOTAL		**28**	
YEAR 2 | TRIMESTER 2			
CSD2151	Introduction to Real-Time Rendering	6	Pre-req: CSD2101
CSD2161	Computer Network	6	Pre-req: CSD2182, CSD2126
CSD2183	Data Structures	6	Pre-req: CSD2126
CSD2259	Discrete Mathematics	6	Pre-req: CSD2201
CSD2451	Software Engineering Project 4	6	Pre-req: CSD2401
YEAR 2 | TRIMESTER 2 TOTAL		**30**	
YEAR 2 | TRIMESTER 3 (OIP)			
CSD2251	Linear Algebra	6	Pre-req: CSD2201
CSD2301	Motion Dynamics & Lab	6	Pre-req: CSD1251
CSD3151	Spatial Data Structures	6	Pre-req: CSD2151
CSD3183	Artificial Intelligence for Games	6	Pre-req: CSD2126
YEAR 2 | TRIMESTER 3 TOTAL		**24**	
YEAR 3 | TRIMESTER 1			
CSD3116	Low Level Programming	6	Pre-req: CSD1101, CSD2126
CSD3131	Algorithm Analysis	6	Pre-req: CSD2201, CSD2183, CSD2126
CSD3241	Probability and Statistics	6	Pre-req: CSD2201
CSD3401	Software Engineering Project 5	6	Pre-req: CSD2451, CSD2151
USI2001	Social Innovation Project*	3	Pass or Fail grade. Pre-req: UDE1001
YEAR 3 | TRIMESTER 1 TOTAL		**27**	
YEAR 3 | TRIMESTER 2			
CSD2171	Programming Massively Parallel Processors	6	Pre-req: CSD2151
CSD3121	Developing Immersive Applications	6	Pre-req: CSD1130, CSD2182
CSD3156	Mobile and Cloud Computing	6	Pre-req: CSD2182, CSD2183
CSD3186	Machine Learning	6	Pre-req: CSD3183
CSD3451	Software Engineering Project 6	6	Pre-req: CSD3401
YEAR 3 | TRIMESTER 2 TOTAL		**30**	
YEAR 3 | TRIMESTER 3			
CSD4401	Capstone Project	3	Pre-req: CSD3451
CSD4902B	Integrated Work-Study Programme (Work Attachment)	10	Pre-req: CSD3451, CSD4902A
YEAR 3 | TRIMESTER 3 TOTAL		**13**	
YEAR 4 | TRIMESTER 1			
CSD4401	Capstone Project	3	Continuation from previous trimester
CSD4902B	Integrated Work-Study Programme (Work Attachment)	1-	Continuation from previous trimester
YEAR 4 | TRIMESTER 1 TOTAL		**13**	
YEAR 4 | TRIMESTER 2			
CSD4401	Capstone Project	4	Continuation from previous trimester
CSD4902B	Integrated Work-Study Programme (IWSP) (cont.)	10	
YEAR 4 | TRIMESTER 2 TOTAL		**14**	
GRAND TOTAL		**240**	

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

Module Listings for BSCS RTIS and BSCS IMGD

Department of Computer Science

[Updated April 2023]
[Updated Module Listings]

CSD3121 Developing **Immersive Applications** (6 credits)
Prerequisite(s): CSD1130, CSD2182

Virtual Reality (VR), Augmented Reality (AR), and other eXtended Reality (XR) or immersive applications in general, are increasingly becoming an important medium of interaction with the digital realm. This course provides a practice-based introduction to the concepts and techniques to develop and evaluate immersive applications. Topics covered include implementation techniques, in the context of immersive applications, for interaction, locomotion and creation of virtual environments. At the end of this module, the student will be proficient in explaining the core components of immersive applications, as well as develop and evaluate a basic 3D immersive application with appropriate interaction modalities.