SOFTWARE DEVELOPMENT CONCENTRATION, COMPUTER SCIENCE (BS)

Major Requirements

First Year

Course	Title	Quarter Hours
CSC 241	INTRODUCTION TO COMPUTER SCIENCE I [1]	4
CSC 242	INTRODUCTION TO COMPUTER SCIENCE II [1]	4
CSC 300	DATA STRUCTURES I	4
IT 223	DATA ANALYSIS	4
MAT 140	DISCRETE MATHEMATICS I	4
MAT 141	DISCRETE MATHEMATICS II	4

[1] Students with one (1) semester programming experience may take CSC 243 and one (1) additional Major Elective in lieu of CSC 241 and CSC 242.

Second Year

Course	Title	Quarter Hours
CSC 299	SOPHOMORE LAB IN APPLIED COMPUTING	4
CSC 301	DATA STRUCTURES II	4
CSC 321	DESIGN AND ANALYSIS OF ALGORITHMS	4
CSC 347	CONCEPTS OF PROGRAMMING LANGUAGES	4
CSC 373	COMPUTER SYSTEMS I	4
CSC 374	COMPUTER SYSTEMS II	4
WRD 204	TECHNICAL WRITING	4

Third Year

Course	Title	Quarter Hours
CSC 343	INTRODUCTION TO OPERATING SYSTEMS	4
or CSC 344	AUTOMATA THEORY AND FORMAL GRAMMARS	
or CSC 348	INTRODUCTION TO COMPILER DESIGN	
or CSC 363	THEORY AND PRACTICE OF SAFE SYSTEMS PROGRAMMING	
or CSC 389	THEORY OF COMPUTATION	
or CSE 351	EMBEDDED SYSTEMS I	
CSC 355	DATABASE SYSTEMS	4
CSC 376	DISTRIBUTED SYSTEMS	4
SE 333	SOFTWARE TESTING	4
or SE 359	AGILE SOFTWARE DEVELOPMENT	
or SE 371	PRACTICES OF GLOBAL SOFTWARE DEVELOPMENT	
SE 350	OBJECT-ORIENTED SOFTWARE DEVELOPMENT	4
One (1) Major Elective		4

Fourth Year

Course	Title	Quarter Hours
CSC 394	SOFTWARE PROJECTS	4
Sixteen (16) credit hours of Major Electives		16

Major Electives

Major Electives courses must be selected from the Introductory and Advanced Major Field Course lists below. At least 16 of the 20 Major Field Elective Credit Hours must be taken from the list of Advanced Major Field courses.

Introductory Major Field Courses

Course	Title	Quarter Hours
ANI 230	3D DESIGN & MODELING	
CSC 281	WORKSHOP. JAVA FOR PROGRAMMERS	
CSC 282	WORKSHOP. LINUX FOR PROGRAMMERS	
CSC 233	CODES AND CIPHERS	
CSC 235	PROBLEM SOLVING	
CSC 309	C++ FOR PROGRAMMERS	
CSC 395	RESEARCH COLLOQUIUM	
GAM 226	FUNDAMENTALS OF GAME DESIGN	
GAM 244	GAME DEVELOPMENT I	
GEO 241	GEOGRAPHIC INFORMATION SYSTEMS I: DIGITAL MAPPING	
GAM 344	GAME DEVELOPMENT II (FORMERLY GAM 245)	
GEO 243	EARTH OBSERVATION	
IT 130	INTRODUCTORY COMPUTING FOR THE WEB	
IT 231	WEB DEVELOPMENT I	
IT 232	WEB DEVELOPMENT II	
IT 263	APPLIED NETWORKS AND SECURITY	
MAT 150	CALCULUS I	
MAT 151	CALCULUS II	
UXD 210	INTRODUCTION TO USER EXPERIENCE DESIGN	

Advanced Major Field Courses

Advanced Topics

Course	Title	Quarter Hours
CSC 397	TOPICS IN COMPUTER SCIENCE	

Artificial Intelligence

Course	Title	Quarter Hours
CSC 357	EXPERT SYSTEMS	
CSC 358	SYMBOLIC PROGRAMMING	
CSC 380	FOUNDATIONS OF ARTIFICIAL INTELLIGENCE	

Computational Sciences

Course	Title	Quarter Hours
CSC 331	SCIENTIFIC COMPUTING	

Computer Game Development

Course	Title	Quarter Hours
CSC 361	OPTIMIZED C++	
CSC 386	REAL-TIME NETWORKING (FORMERLY GAM 390)	
GAM 325	APPLIED 3D GEOMETRY	
GAM 350	PHYSICS FOR GAME DEVELOPERS	
GAM 370	RENDERING AND GRAPHICS PROGRAMMING	
GAM 374	GAME ENGINE PROGRAMMING I	
GAM 376	ARTIFICIAL INTELLIGENCE FOR COMPUTER GAMES	
GAM 378	STRATEGY GAMES PROGRAMMING	
GAM 380	CONSOLE GAME DEVELOPMENT ENVIRONMENTS	
GAM 382	SERIOUS GAMES	
GAM 353	TOOL PROGRAMMING FOR GAME DEVELOPMENT	
GAM 372	OBJECT-ORIENTED GAME DEVELOPMENT	
GAM 377	GAME ENGINE PROGRAMMING II	
GAM 386	GAME PROGRAMMING FOR MOBILE DEVICES	
GAM 394	GAME DEVELOPMENT CAPSTONE I	
GAM 395	GAME DEVELOPMENT CAPSTONE II	

Computer Networks

Course	Title	Quarter Hours
NET 362	PRINCIPLES OF DATA COMMUNICATIONS	
NET 363	INTRODUCTION TO LOCAL AREA NETWORKS	
NET 365	NETWORK INTERCONNECTION TECHNOLOGIES	
NET 371	WIRELESS COMMUNICATIONS NETWORKS	
NET 372	WAN SERVICES	
NET 375	NETWORK PROTOCOLS	
NET 377	FUNDAMENTALS OF NETWORK SECURITY	
NET 379	TELECOMMUNICATION AND NETWORK SECURITY PRACTICUM	

Computer Systems

Course	Title	Quarter Hours
CSC 343	INTRODUCTION TO OPERATING SYSTEMS	
CSC 348	INTRODUCTION TO COMPILER DESIGN	
CSC 361	OPTIMIZED C++	
CSC 362	OPTIMIZED C++ MULTITHREADING	
CSC 364	VIRTUALIZATION AND CLOUD COMPUTING	
CSC 366	INTRODUCTION TO PROGRAM ANALYSIS	
CSC 371	MOBILE APPLICATION DEVELOPMENT FOR IOS	
CSC 372	MOBILE APPLICATION DEVELOPMENT FOR ANDROID	
CSC 391	MOBILE APPLICATION DEVELOPMENT FOR IOS II	
CSC 392	MOBILE APPLICATION DEVELOPMENT FOR ANDROID II	
CSE 314	NETWORKING FOR CYBER-PHYSICAL SYSTEMS	
CSE 316	CYBER-PHYSICAL SYSTEM SECURITY	
CSE 331	CYBER-PHYSICAL SYSTEM ENGINEERING I	
CSE 332	ANALOG AND DIGITAL CIRCUITS	
CSE 333	DIGITAL SIGNAL PROCESSING	
CSE 351	EMBEDDED SYSTEMS I	
CSE 352	EMBEDDED SYSTEMS II	
CSE 361	MATHEMATICAL FOUNDATIONS OF AUTONOMOUS SYSTEMS	
CSE 362	FOUNDATIONS OF CYBER-PHYSICAL COMPUTING	
CSE 375	INTRODUCTION TO ROBOTICS	
IT 372	INTRODUCTION TO ANDROID DEVELOPMENT	
NET 368	NETWORK PROGRAMMING	

Computer Vision

Course	Title	Quarter Hours
CSC 381	INTRODUCTION TO DIGITAL IMAGE PROCESSING	
CSC 382	APPLIED IMAGE ANALYSIS	

Data Analysis and Data Mining

Course	Title	Quarter Hours
DSC 323	DATA ANALYSIS AND REGRESSION	
DSC 324	ADVANCED DATA ANALYSIS	
DSC 341	FOUNDATIONS OF DATA SCIENCE	
DSC 333	INTRODUCTION TO BIG DATA PROCESSING	
DSC 345	MACHINE LEARNING	
DSC 365	DATA VISUALIZATION	

Data Storage

Course	Title	Quarter Hours
CSC 352	DATABASE PROGRAMMING	
CSC 353	ADVANCED DATABASE CONCEPTS	

Human-Computer Interaction

Course	Title	Quarter Hours
CSC 360	WEB APPLICATIONS	
IT 330	USER INTERFACE DEVELOPMENT FOR INTERACTIVE SYSTEMS	
UXD 260	USER EXPERIENCE RESEARCH AND EVALUATION	

Security

Course	Title	Quarter Hours
CSEC 320	COMPUTER FORENSIC AND INCIDENT RESPONSE	
CSEC 340	FUNDAMENTALS OF INFORMATION ASSURANCE	
CSEC 388	SECURITY TESTING AND ASSESSMENT	
CSEC 389	CYBER DEFENSE EXERCISES AND ATTACK RESPONSES	
CSC 333	CRYPTOLOGY	

Software Engineering

Course	Title	Quarter Hours
SE 325	INTRODUCTION TO SOFTWARE ENGINEERING	
SE 333	SOFTWARE TESTING	
SE 341	CONTINUOUS DELIVERY AND DEVOPS	
SE 352	OBJECT-ORIENTED ENTERPRISE APPLICATION DEVELOPMENT	
SE 359	AGILE SOFTWARE DEVELOPMENT	
SE 371	PRACTICES OF GLOBAL SOFTWARE DEVELOPMENT	

Theory of Computation

Course	Title	Quarter Hours
CSC 327	PROBLEM SOLVING FOR CONTESTS	
CSC 344	AUTOMATA THEORY AND FORMAL GRAMMARS	
CSC 389	THEORY OF COMPUTATION	

Web Development

Course	Title	Quarter Hours
CSC 308	FRAMEWORKS FOR WEB APPLICATION DEVELOPMENT	
CSC 360	WEB APPLICATIONS	
IT 320	CONTENT MANAGEMENT SYSTEMS	

Open Electives

Open Elective Credit Hours are required to meet the minimum graduation requirements of 192 hours. Open Electives may be taken from any unit at DePaul.