Information Systems Technology – Software Engineering Concentration
Bachelor of Science | Code: S9501 | 120 credits
CIP (1101101034**)**
Effective Term: Fall 2025 (2257)

The Bachelor of Science (BS) in Information Systems Technology (IST) degree program prepares students with essential skills and knowledge to effectively support the design, planning and management of information infrastructures and information resources within diverse organizational settings. The Software Engineering concentration focuses on designing and creating software. Students learn how to specify software requirements from clients and how to design, implement and validate software solutions for real-world problems.

GENERAL EDUCATION REQUIREMENTS (36.00 Credits)
Courses require a grade of "C" or higher to satisfy the general education requirement.

COMMUNICATIONS (6.00 Credits)

ENC 1101	English Composition 1 (W)	(3 credits)	Appropriate college placement
ENC 1102	English Composition 2 (W)	(3 credits)	Prerequisite: ENC 1101

ORAL COMMUNICATIONS (3.00 Credits)
Select one course from the following offerings.

SPC 1017	Introduction to Communications (W)	(3 credits)
SPC 2608	Introduction to Public Speaking (W)	(3 credits)

HUMANITIES (6.00 Credits)
Select one course from State Core <u>AND</u> one course from MDC Core.

State Core (3.00 credits)

ARH 1000	Art Appreciation	(3 credits)	
HUM 1020	Introduction to Humanities	(3 credits)	
LIT 2000	Introduction to Literature (W)	(3 credits)	Prerequisite: ENC 1101
MUL 1010	Music Appreciation	(3 credits)	
PHI 2010	Introduction to Philosophy (W)	(3 credits)	
THE 2000	Theatre Appreciation (W)	(3 credits)	

---AND---

MDC Core (3.00 credits)

ARC 2701	History of Architecture 1	(3 credits)	
ARC 2702	History of Architecture 2 (W)	(3 credits)	
ARH 1000	Art Appreciation	(3 credits)	
ARH 2050	Art History 1	(3 credits)	
ARH 2051	Art History 2 (W)	(3 credits)	Prerequisite: ARH 2050
ARH 2740	Cinema Appreciation (W)	(3 credits)	
DAN 2100	Dance Appreciation	(3 credits)	
DAN 2130	Dance History 1 (W)	(3 credits)	
HUM 1020	Introduction to Humanities	(3 credits)	
IND 1100	History of Interiors 1	(3 credits)	
IND 1130	History of Interiors 2 (W)	(3 credits)	
LIT 2000	Introduction to Literature (W)	(3 credits)	Prerequisite: ENC 1101
LIT 2120	A Survey of World Literature 2 (W)	(3 credits)	Prerequisites: ENC 1101, ENC 1102
MUH 2111	Survey of Music History 1	(3 credits)	
MUH 2112	Survey of Music History 2 (W)	(3 credits)	Prerequisite: MUH 2111
MUL 1010	Music Appreciation	(3 credits)	
MUL 2380	Jazz & Popular Music in America (W)	(3 credits)	
PHI 2010	Introduction to Philosophy (W)	(3 credits)	
PHI 2600	Introduction to Ethics (W)	(3 credits)	
THE 2000	Theatre Appreciation (W)	(3 credits)	

SOCIAL SCIENCES (6.00 Credits)

Select one course from State Core AND one course from MDC Core. To meet the Civic Literacy Competency Requirement for graduation **one course selection should be AMH 2010 or AMH 2020 or POS 2041**.

State Core (3.00 credits)

AMH 2010	History of the US to 1877	(3 credits)
AMH 2020	History of the US Since 1877	(3 credits)
ANT 2000	Introduction to Anthropology	(3 credits)
ECO 2013	Principles of Economics (Macro) (W)	(3 credits)
POS 2041	American Federal Government	(3 credits)
PSY 2012	Introduction to Psychology	(3 credits)

---AND---

MDC Core (3.00 credits)

AMH 2010	History of the US to 1877	(3 credits)
AMH 2020	History of the US Since 1877	(3 credits)
ANT 2000	Introduction to Anthropology	(3 credits)
ANT 2410	Introduction to Cultural Anthropology	(3 credits)
CLP 1006	Psychology of Personal Effectiveness	(3 credits)
DEP 2000	Human Growth and Development	(3 credits)
ECO 2013	Principles of Economics (Macro) (W)	(3 credits)
ISS 1120	The Social Environment	(3 credits)
ISS 1161	The Individual in Society	(3 credits)
POS 2041	American Federal Government	(3 credits)
PSY 2012	Introduction to Psychology	(3 credits)
SYG 2000	Introduction to Sociology	(3 credits)
WOH 2012	History of World Civilization to 1789	(3 credits)
WOH 2022	History of World Civilization from 1789	(3 credits)

NATURAL SCIENCES (6.00 Credits)

Select one course from State Core AND one course from MDC Core. Laboratory courses do not fulfill this area's requirements.

State Core (3.00 credits)

AST 1002	Descriptive Astronomy	(3 credits)	
BSC 1005	General Education Biology	(3 credits)	
BSC 2010	Principles of Biology	(3 credits)	Pre/Corequisites: CHM 1045, BSC 2010L
BSC 2085	Human Anatomy and Physiology 1	(3 credits)	Corequisite: BSC 2085L
CHM 1020	General Education Chemistry	(3 credits)	
CHM 1045	General Chemistry and Qualitative Analysis	(3 credits)	Prerequisites: CHM 1025 or a passing score on the CART exam, and MAC 1105 Corequisite: CHM 1045L
ESC 1000	General Education Earth Science	(3 credits)	
EVR 1001	Introduction to Environmental Science	(3 credits)	
GLY 1010	Physical Geology	(3 credits)	
OCE 1001	Introduction to Oceanography	(3 credits)	
PHY 1020	General Education Physics	(3 credits)	
PHY 2048	Physics with Calculus 1	(4 credits)	Prerequisites: HS physics, or PHY 1025, PHY 2053 or departmental approval and MAC 2311; Corequisite: PHY 2048L
PHY 2053	Physics (without Calculus) 1	(3 credits)	Prerequisites: MAC 1114, MAC 1147; Corequisite: PHY 2053L

---AND---

MDC Core (3.00 credits)

AST 1002	Descriptive Astronomy	(3 credits)	
BOT 1010	Botany	(3 credits)	Corequisite: BOT 1010L
BSC 1005	General Education Biology	(3 credits)	
BSC 1084	Functional Human Anatomy	(3 credits)	
BSC 2010	Principles of Biology	(3 credits)	Pre/Corequisites: CHM 1045, BSC 2010L
BSC 2020	Human Biology: Fund. of Anatomy & Physiology	(3 credits)	
BSC 2085	Human Anatomy and Physiology 1	(3 credits)	Corequisites: BSC 2085L

CHM 1020	General Education Chemistry	(3 credits)	
CHM 1025	Introductory Chemistry	(3 credits)	
CHM 1033	Chemistry for Health Sciences	(3 credits)	
CHM 1045	General Chemistry and Qualitative Analysis	(3 credits)	
CHM 1046	General Chemistry and Qualitative Analysis	(3 credits)	
CHM 2200	Survey of Organic Chemistry	(3 credits)	
CHM 2210	Organic Chemistry 1	(3 credits)	
CHM 2211	Organic Chemistry 2	(3 credits)	
ESC 1000	General Education Earth Science	(3 credits)	
EVR 1001	Introduction to Environmental Sciences	(3 credits)	
GLY 1010	Physical Geology	(3 credits)	
GLY 1100	Historical Geology	(3 credits)	
HUN 1201	Essentials of Human Nutrition	(3 credits)	
MET 1010	Introduction to Weather	(3 credits)	
OCB 1010	Introduction to Marine Biology	(3 credits)	
OCE 1001	Introduction to Oceanography	(3 credits)	
PCB 2033	Introduction to Ecology	(3 credits)	
PCB 2033	Introduction to Ecology	(3 credits)	Prerequisite: PSC 1515 or BSC 2011
PHY 1004	Physics with Applications 1	(3 credits)	
PHY 1020	General Education Physics	(3 credits)	
PHY 1025	Basic Physics	(3 credits)	
PHY 2048	Physics with Calculus 1	(3 credits)	
PHY 2049	Physics with Calculus 2	(3 credits)	
PHY 2053	Physics (without Calculus) 1	(3 credits)	
PHY 2054	Physics (without Calculus) 2	(3 credits)	
PSC 1121	General Education Physical Science	(3 credits)	Prerequisite: MAT 1033
PSC 1515	Energy in the Natural Environment	(3 credits)	

MATHEMATICS (6.00 Credits)
MAC 1105 may be replaced by a higher-level mathematics with prefix MAC*, MAD*, MAS*, or MAP*. These courses also fulfill program prerequisites.

MAC 1105	College Algebra	(3 credits)	Prerequisite: MAT 1033
STA 2023	Statistical Methods	(3 credits)	Prerequisite: MAT 1033 or MGF 1131

GENERAL EDUCATION ELECTIVE (3.00 Credits)
Choose one course from the following options. These courses also fulfill program prerequisites.

ECO 2013	Principles of Economics (Macro) (W)	(3 credits)
ECO 2023	Principles of Economics (Micro)	(3 credits)

Computer Competency Requirement
The following course fulfills MDC's computer competency requirement and a program prerequisite:

CGS 1060C	Introduction to Computer Technology and Applications	(4 credits)

Foreign Language Competency Requirement
Students must fulfill this requirement via three options:
Option A: Successful completion of two (2) credits (i.e., the equivalent of two years) in one (1) foreign language at the secondary (high school) level.

---**OR**---

Option B: Successful completion of the following courses at the elementary 2 level: ASL 1150C, CHI 1121, FRE 1121, GER 1121, ITA 1121, JPN 1121, POR 1121, RUS 1121, SPN 1121. These credits count towards the Lower Division Requirements area.

---**OR**---

Option C: Students may demonstrate completion of the elementary 2 level through standardized examination that document the required foreign language competency.

<u>LOWER DIVISION REQUIREMENTS (24.00 Credits)</u>
Group A: 16.00 credits

CGS 1060C	Introduction to Computer Technology and Applications	(4 credits)	
CGS 1540C	Database Concepts and Design	(4 credits)	
COP 1334	Introduction to C++ Programming	(4 credits)	
COP 2800	Java Programming	(4 credits)	Prerequisites: COP 1047C, COP 1334 or COP 2270

Group B: 4.00 credits

| CTS 1134 | Networking Technologies | (4 credits) |
| CTS 1650 | CCNA: Cisco Fundamentals | (4 credits) |

Group C: 4.00 credits
Any transferrable type-1 or type-2 courses. Please see academic advisor for support with course selection, including program prerequisites.

UPPER DIVISION REQUIREMENTS (40.00 Credits)
Professional Core (8.00 Credits)

| CGS 3763 | Operating System Principles | (4 credits) | Prerequisite: COP 1334 |
| CIS 3360 | Principles of Information Security | (4 credits) | Prerequisite: CTS 1134 or CTS 1650 |

Discipline Content Core (32.00 Credits)

CET 3126C	Computer Architecture	(4 credits)	
CET 3383C	Software Engineering I	(4 credits)	Prerequisite: COP 2800 or CET 2369C
CEN 4065C	Software Architecture and Design	(4 credits)	Prerequisite: COP 3530. Students must enroll in this course one semester before taking CEN 4090C
CEN 4090C	Software Engineering Capstone	(4 credits)	Department Permission Required
COP 3530	Data Structures	(4 credits)	Prerequisite: COP 2800
COT 3100	Discrete Structures	(4 credits)	Prerequisite: MAC 1105 and COP 1334
COT 4400	Design and Analysis of Algorithms	(4 credits)	Prerequisite: COP 2800; Pre/Corequisite: COP 3530
ETI 4480C	Applied Robotics	(4 credits)	Prerequisite: CET 2123C or CET 3383C

PROGRAM ELECTIVES (20.00 Credits)
Group A: 8 credits
CAI*, CAP *, CEN *, CET *, CGS *, CIS *, CNT *, COP *, CTS *

Group B: 12 credits
CAI 2*, CAI 3*, CAP 2*, CAP 3*, CAP 4*, CEN 2*, CEN 3*, CEN 4*, CGS 2*, CGS 3*, CGS 4*, CIS 2*, CIS 3*, CIS 4*, CNT 2*, CNT 3*, CNT 4*, COP 2*, COP 3*, COP 4*, CTS 2*, CTS 3*, CTS 4*, CET 2*, CET 3*, CET 4*, MAC 2333

*Includes any and all courses within associated prefix
W = Writing Intensive Course
C = Computational Course

IMPORTANT INFORMATION

Civic Literacy Competency: Civic Literacy Competency: To earn a baccalaureate, students first entering the Florida College System or State University System in the 2021-2022 school year and thereafter must demonstrate competency in civic literacy. This requirement may be satisfied by passing AMH 2010, AMH 2020, or POS 2041 (listed under the Social Sciences core) AND passing an approved assessment. Civic literacy requirements vary for students who entered the College or University system prior to academic year 2021-22. For more information, go to Civic Literacy Competency.

Foreign Language: Students admitted to the baccalaureate degree program without meeting the foreign language admission requirement of at least 2 courses (8-10 credit hours) of sequential foreign language at the secondary level or the equivalent of such instruction at the postsecondary level must earn such credits prior to graduation. For more information, refer to Foreign Language Competency.

Computer Competency:
All MDC degree-seeking students with 16 or more credits must demonstrate computer competency prior to graduation. Students demonstrate this competency by passing the MDC computer competency test or by enrolling in and successfully completing an equivalent course. For more information, see Computer Competency.

Required Credit Hours and GPA: The baccalaureate requires students to earn a minimum of 120 unduplicated credit hours with a minimum cumulative grade point average of 2.0. All general education and all upper division requirements must be passed with the grade of "C" or better.

Pursuing or Have Earned an Associate's Degree: Students entering with an AS or AAS degree may have more than 24 elective credits and may need additional General Education credits to meet the 36 General Education credits required for the baccalaureate degree. Students entering with an AA degree may need additional electives to provide appropriate background for the baccalaureate program.

Graduation Requirements: Additional requirements may apply, which include, but are not limited to enrollment in courses that involve substantial writing and mathematical skill development (rule 6A-10.030, often referenced as Gordon Rule) and residency (number of credits that must be earned at MDC). Students should review their individualized Degree Audit Report to determine the specific graduation policies in effect for their program of study for the year and term they entered Miami Dade College. Students are highly encouraged to meet with their academic advisor on a regular basis and review the College Catalog to learn about all graduation requirements. The final responsibility for meeting graduation requirements rests with the student.