Information Systems Technology – Software Engineering Concentration
Bachelor of Science | Code: S9501 | 120 credits
CIP (1101101034**)**
Effective Term: Fall 2024 (2247)

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 Credits Required
Courses require a grade of "C" or higher to satisfy the general education requirement.

1. Communications – 6 Credits Required

		Credits	Requisites
ENC 1101	English Composition 1 (W)	3	Appropriate college placement
ENC 1102	English Composition 2 (W)	3	Pre-Req ENC 1101

2. Oral Communications – 3 Credits Required
Select one course from the following offerings. These courses also fulfill program prerequisites.

SPC 1017	Introduction to Communication (W)	3
SPC 2608	Introduction to Public Speaking (W)	3

3. Humanities – 6 Credits Required
Select one course from Group A-State Core AND one course from Group B-MDC Core. At least one Gordon Rule Writing (W) course must be selected from Group A or Group B.

Group A: State Core (3 credits)

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

---AND---

Group B: MDC Core (3 credits)

ARC 2701	History of Architecture 1	3	
ARC 2702	History of Architecture 2 (W)	3	
ARH 1000	Art Appreciation	3	
ARH 2050	Art History 1	3	
ARH 2051	Art History 2 (W)	3	Pre-Req ARH 2050
ARH 2740	Cinema Appreciation (W)	3	
DAN 2100	Dance Appreciation	3	
DAN 2130	Dance History 1 (W)	3	
HUM 1020	Introduction to Humanities	3	
IND 1100	History of Interiors 1	3	
IND 1130	History of Interiors 2 (W)	3	
LIT 2000	Introduction to Literature (W)	3	Pre-Req ENC 1101
LIT 2120	A Survey of World Literature 2 (W)	3	Pre-Req ENC 1101, 1102
MUH 2111	Survey of Music History 1	3	
MUH 2112	Survey of Music History 2 (W)	3	Pre-Req MUH 2111
MUL 1010	Music Appreciation	3	
MUL 2380	Jazz & Popular Music in America (W)	3	
PHI 2010	Introduction to Philosophy (W)	3	Pre-Req ENC 1101
PHI 2604	Critical Thinking/Ethics (W)	3	Pre-Req ENC 1101
THE 2000	Theatre Appreciation (W)	3	

4. Behavioral and Social Science – 6 Credits Required
Choose two courses from Option A OR Option B. Within selected option, one course must be State Core and one MDC Core. Selecting AMH 2010 or AMH2020 or POS2041 is recommended as these courses also fulfill the civic literacy graduation requirement.

Option A (6 credits): Choose one course from State Core A-Behavioral Sciences and one course from MDC Core A-Social Sciences.

State Core A: Behavioral Sciences (3 credits)

ANT 2000	Introduction to Anthropology	3
PSY 2012	Introduction to Psychology	3
SYG 2000	Introduction to Sociology	3

AND

MDC Core A: Social Sciences (3 credits)

AMH 2010	History of the US to 1877	3
AMH 2020	History of the US Since 1877 (⧫)	3
ECO 2013	Principles of Economics (Macro (W)	3
ISS 1120	The Social Environment	3
POS 2041	American Federal Government (⧫)	3
WOH 2012	History of World Civilization to 1789	3
WOH 2022	History of World Civilization from 1789	3

--- OR ---

Option B (6 credits): Choose one course from State Core B-Social Sciences and one course from MDC Core B-Behavioral Sciences.

State Core B: Social Sciences (3 credits)

AMH 2010	History of the United States to 1877	3
AMH 2020	History of the United States since 1877	3
ECO 2013	Principles of Economics (Macro) (W)	3
POS 2041	American Federal Government	3

AND

MDC Core B: Behavioral Sciences (3 credits)

ANT 2000	Introduction to Anthropology	3
ANT 2410	Introduction to Cultural Anthropology	3
CLP 1006	Psychology of Personal Effectiveness	3
DEP 2000	Human Growth and Development	3
ISS 1161	The Individual in Society	3
PSY 2012	Introduction to Psychology	3
SYG 2000	Introduction to Sociology	3

5. Natural Science – 6 Credits Required

Choose two courses from Option A OR Option B. Within selected option, one course must be State Core and one MDC Core. Laboratory courses do not fulfill this area's requirements.

Option A (6 credits): Choose one course from State Core A-Life Sciences and one course from MDC Core A-Physical Sciences

State Core A: Life Sciences (3 credits)

BSC 1005	General Education Biology	3	
BSC 2010	Principles of Biology	3	Pre/Co-Req CHM 1045/BSC 2010L
BSC 2085	Human Anatomy and Physiology 1	3	Co-Req BSC2085L
EVR 1001	Introduction to Environmental Science	3	

AND

MDC Core A: Physical Sciences (3 credits)

AST 1002	Descriptive Astronomy	3	
ESC 1000	General Education Earth Science	3	
PSC 1121	General Education Physical Science	3	Pre-Req MAT 1033
PSC 1515	Energy in the Natural Environment	3	
Any course with prefix CHM*, GLY*, MET*, OCE*, PHY*		3	

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Option B (6 credits): Choose one course from State Core B-Physical Sciences and one course from MDC Core B-Life Sciences

State Core B: Physical Sciences (3 credits)

AST 1002	Descriptive Astronomy	3	
CHM 1020	General Education Chemistry	3	
CHM 1045	General Chemistry and Qualitative Analysis	3	Pre/Co-Req CHM1025 & MAC1105/CHM1045L
ESC 1000	General Education Earth Science	3	
PHY 1020	General Education Physics	3	
PHY 2048	Physics with Calculus 1	4	Pre/Co-Req HS physics, or PHY1025 or 2053, or dept. approval, and MAC2311/PHY2048L
PHY 2053	Physics (without Calculus) 1	3	Pre/Co-Req MAC1147, 1114, 1140/PHY2053L

AND

MDC Core B: Life Sciences (3 credits)

BOT 1010	Botany	3	Co-Req BOT 1010L
BSC 1005	General Education Biology	3	
BSC 1030	Social Issues in Biology	3	
BSC 1050	Biology & Environment	3	
BSC 1084	Functional Human Anatomy	3	
BSC 2010	Principles of Biology	3	Pre/Co-Req CHM 1045/BSC 2010L
BSC 2020	Human Biology: Fundamental of Anatomy & Physiology	3	
BSC 2085	Human Anatomy and Physiology 1	3	Co-Req BSC 2085L
BSC 2250	Natural History of South Florida	3	
EVR 1001	Introduction to Environmental Sciences	3	
HUN 1201	Essentials of Human Nutrition	3	
OCB 1010	Introduction to Marine Biology	3	
PCB 2033	Introduction to Ecology	3	Pre-Req PSC1515 or BSC2011
PCB 2340C	Field Biology	3	
ZOO 1010	Zoology	3	Co-Req ZOO 1010L

6. Mathematics – 6 Credits Required

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	Pre-Req MAT 1033
STA 2023	Statistical Methods	3	Pre-Req MAT 1033 or MGF 1131

7. General Education Elective – 3 Credits Required

Choose one course from the following options. These courses also fulfill program prerequisites.

ECO 2013	Principles of Economics (Macro) (W)	3	
ECO 2023	Principles of Economics (Micro)	3	Pre-Req MAT 1033

Computer Competency Requirement

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

CGS 1060C	Introduction to Computer Technology & Applications	4

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: ASL1150C, CHI1121, FRE1121, GER1121, ITA1121, JPN1121, POR1121, RUS1121, SPN1121. 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 Credits Required</u>

Group A: 16 credits

CGS 1060C	Introduction to Computer Technology & Applications	4	
CGS 1540C	Database Concepts and Design	4	
COP 1334	Introduction to C++ Programming	4	Pre/Co CGS 1060C
COP 2800	Java Programming	4	Pre-req COP 1334 or COP 2270

Group B: 4 credits

Select one course from the following offerings:

CTS 1134	Networking Technologies	4
CTS 1650	CCNA: Cisco Fundamentals	4

Group C: 4 credits

Select one course from the following offerings:

MAD 1100	Discrete Mathematics for Computer Science	3	Pre-req MAC 1105
MAD 2104	Discrete Mathematics	3	Pre-req MAC 1106, MAC1140, or MAC 1147

AND

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

UPPER DIVISION REQUIREMENTS – 36 Credits Required

Professional Core – 12 Credits Required

CGS 3763	Operating System Principles	4	Pre COP 1334
CIS 3360	Principles of Information Security	4	Pre CTS 1134 or CTS 1650
CIS 3510	IT Project Management	4	

Discipline Content Core – 24 Credits Required

CET 3126C	Computer Architecture	4	
CET 3383C	Software Engineering I	4	Pre COP 2800 or CET 2369C
CEN 4025C	Software Engineering II	4	Pre CET 3383C
CEN 4090C	Software Engineering Capstone	4	Department Permission Required
COP 3530	Data Structures	4	Pre COP 2800
COT 4400	Design and Analysis of Algorithms	4	Pre COP 2800 and Co COP 3530

PROGRAM ELECTIVES – 24 Credits Required

Group A: 8 credits
CAP *, CEN *, CET *, CGS *, CIS *, CNT *, COP *, CTS *

Group B: 16 credits
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

TOTAL CREDITS

General Education Requirements	36 credits
Lower Division/Common Prerequisite Requirements	24 credits
Upper Division Requirements	36 credits
Electives	24 credits
Total	**120 credits**

IMPORTANT INFORMATION

Civic Literacy Competency: First time in college students for the 2018-2019 school year and thereafter must demonstrate competency in civic literacy to earn a baccalaureate. This requirement may be satisfied by passing AMH2020 or POS2041 (listed under the Social Sciences area), or an equivalent AP or CLEP exam.

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.

Computer Competency: By the **16th earned** college level credit (excluding EAP and college preparatory courses), a student **must take** the Computer Competency Test and pass

Or

By the **31st earned** college level credit (excluding EAP and college preparatory courses), a student **must pass** CGS 1060C, an equivalent continuing education or vocational credit course or retest with a **passing score on the Computer Competency Test**.

Required Credit Hours and GPA: The baccalaureate requires student 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: 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.