



Computer Programming and Analysis – Internet of Things (IoT) Applications

Associate in Science | Code: 25076 | 60 credits

CIP (1511020101)

Effective Term: Spring 2025 (2253)

Students in the AS in Computer Programming and Analysis with an IoT Applications concentration are trained to help individuals and organizations by increasing convenience and productivity through the connection of “smart” devices. This is done with the development of applications that can run on microcontroller boards, designing and simulating the function of the devices, and building physical prototypes. Students learn how to develop applications in the dominant programming languages used in IoT, configure different single board computers, and complete projects that can be included in a portfolio. Graduates are prepared for positions as entry-level application programmers, rapid prototyping assistants, programmer specialists, embedded software developers, IoT consultants, and connected device support specialists.

GENERAL EDUCATION REQUIREMENTS (15.00 Credits)

COMMUNICATIONS (3.00 credits)

ENC 1101	English Composition 1	(3 credits)	Prerequisite: Student must meet the Developmental Education reading and writing requirements in State Rule 6A-10.0315 (by course, placement score, or eligible exemption).
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HUMANITIES (3.00 credits)

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

MATHEMATICS (3.00 credits)

MAC 1105	College Algebra	(3 credits)	Prerequisite: MAT 1033♦
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♦Note: Students must seek advisement for proper mathematics course from discipline chairperson.

NATURAL SCIENCE (3.00 credits)

AST 1002	Descriptive Astronomy	(3 credits)
BSC 1005	General Education Biology	(3 credits)
CHM 1020	General Education Chemistry	(3 credits)
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)

SOCIAL SCIENCE (3.00 credits)

AMH 2010	History of the US to 1877	(3 credits)
AMH 2020	History of the US Since 1877	(3 credits)
POS 2041	American Federal Government	(3 credits)

COMPUTER COMPETENCY

Test type(s) needed:

Computer Competency Test (CCT)

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CGS 1060C	Introduction to Computer Technology and Applications
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MAJOR COURSE REQUIREMENTS (21.00 Credits)

CGS 1060C	Introduction to Computer Technology and Applications	(4 credits)
CGS 1540C	Database Concepts and Design	(4 credits)
CIS 2331	Systems Analysis, Design and Implementation	(5 credits)
COP 1334	Introduction to C++ Programming	(4 credits)
COP 2800	Java Programming	(4 credits)

Prerequisite: COP, 1047C, COP 1334, or COP 2270

PROGRAM CONCENTRATION CORE (16.00 Credits)

CEN 2211	C/C++ Programming for Embedded Devices	(4 credits)
CEN 2212C	Introduction to Programing the IoT	(4 credits)
CTS 2466C	Internet of Things (IoT) Development with C#	(4 credits)
EET 1033C	Electrical Fundamentals	(4 credits)

Prerequisite: COP 1334;

Corequisite: EET 1033

Prerequisites: CEN 2211 and EET 1033C

Prerequisite: CEN 2211

PROGRAM ELECTIVES (8.00 Credits)

CAI*, CEN*, COP*, CTS*

CGS 2091	Professional Ethics and Social Issues in CS	(4 credits)
GEB 1432	Applied Artificial Intelligence (AI) in Business	(3 credits)
PHI 2680	Artificial Intelligence (AI) Ethics	(3 credits)