Miami Dade College

Computer Programming and Analysis – Internet of Things (IoT) Applications
Associate in Science | Code: 25076 | 60 credits
CIP (1511020101**)**
Effective Term: Fall 2024 (2247)

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 devise support specialists.

<u>**GENERAL EDUCATION REQUIREMENTS (15.00 credits)**</u>
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).

HUMANITIES (3.00 credits)

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

MATHEMATICS (3.00 credits)

MAC 1105	College Algebra	(3 credits)	Prerequisite: MAT 1033♦

♦**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)

<u>**COMPUTER COMPETENCY**</u>
Test type(s) needed:
Computer Competency Test (CCT)
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CGS 1060C	Introduction to Computer Technology & Applications

MAJOR COURSE REQUIREMENTS (21.00 credits)

CGS 1060C	Intro 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 1334

PROGRAM CONCENTRATION CORE (16.00 credits)

CEN 2211	C/C++ Programming for Embedded Devices	(4 credits)	Prerequisite: COP 1334; Corequisite: EET 1033
CEN 2212C	Introduction to Programing the IoT	(4 credits)	Prerequisites: CEN 2211 and EET 1033C
CTS 2466C	Internet of Things (IoT) Development with C#	(4 credits)	Prerequisite: CEN 2211
EET 1033C	Electrical Fundamentals	(4 credits)	

PROGRAM ELECTIVES (8.00 credits)

COP2*		(4 credits)	
CGS 2091	Professional Ethics and Social Issues in CS	(4 credits)	
COP 1047C	Introduction to Python Programming	(4 credits)	
COP 1332	Introduction to Visual Basic Programming	(4 credits)	Pre/Corequisite: CGS 1060C
CTS 1120	Cybersecurity Fundamentals	(4 credits)	
CTS 1134	Networking Technologies	(4 credits)	
CTS 1800	Introduction to Web Development	(4 credits)	
CTS 2148C	IT Project Management	(4 credits)	
CTS 2440	Introduction to Oracle: SQL and PL/SQL	(4 credits)	