The requirements for a minor in Mobile Applications Development will meet all the requirements of a minor as stated in the college catalog.

About Academic Minors

Farmingdale State College students are invited to enhance their studies with an "Academic Minor." A minor is a cluster of thematically related courses drawn from one or more departments. In addition to department based minors (e.g. computer programming & info systems), interdisciplinary minors are also available (e.g. legal studies).

Academic minors are approved by the College-Wide Curriculum Committee and the Provost. Students must make application for an academic minor through the department offering the minor in conjunction with the Registrar's Office. Specific course work must be determined in consultation with a faculty member in the department offering the minor. A statement of successful completion of the academic minor will appear on the student's transcript at the time of graduation.

• A minor is considered to be an optional supplement to a student's major program of study.
• Completion of a minor is not a graduation requirement and is subject to the availability of the courses selected. However, if the requirements for a minor are not completed prior to certification of graduation in the major, it will be assumed that the minor has been dropped. Consequently, the student will only be certified for graduation in their primary major.
• Only students in 4 year baccalaureate programs can apply for a minor.
• A minor should consist of 15 to 21 credits, with the exception of the Chemistry and Air Force ROTC minors which require 22 credits.
• At least 12 credits must be in courses at the 200 level or higher.
• At least 9 credits must be residency credits.
• Specific requirements for each minor are determined by the department granting the minor. Each minor and criteria are described in the Academic Minors Information Guide.
• Students must maintain a minimum cumulative GPA of at least 2.0 in their minor. Some minors may require a higher GPA.
• Students are prohibited from declaring a minor in the same discipline as their major (e.g. one cannot combine an applied math minor with an applied math major). Academic minors may not apply to all curricula.
• Students are permitted to double-count minor courses with liberal arts courses, general education courses and free electives but can only double-count up to 6 credits of required major coursework toward the minor.
• Students are only permitted to take more than one minor with appropriate written approval of their Department Chair or School Dean.

Fall 2017: Subject to Revision

Required:
BCS 120 Fundamentals of Programming I
BCS 230 Fundamentals of Programming II
BCS 345 JAVA Programming
BCS 421 Android Mobile Application Development
BCS 422 iOS Mobile Application Development

Choose one of the following:

BCS 370 – Data Structures
BCS 3XX Level or higher with permission of Chair
BCS 427- Game Programming

Course Descriptions

**BCS 120 Fundamentals of Programming I**
This course introduces the C++ Programming Language as a means of developing structured programs. Students will be taught to develop algorithms using top-down stepwise refinement. Students will be introduced to the concept of Object Oriented programming. In addition, students will get a thorough exposure to C++ syntax and debugging techniques. Credits: 3

**BCS 230 Fundamentals of Programming II**
This course expands the knowledge and skills of Foundations of Computer Programming I. Among the topics covered are: arrays, pointers, strings, classes, data abstraction, inheritance, composition and overloading. Prerequisite(s): BCS 120 with a grade of C or higher Credits: 3

**BCS 345 JAVA Programming**
This course is designed for students with some experience with programming. The syntax of the Java programming language, object-oriented programming, creating graphical user interfaces (GUI), exceptions, file input/output (I/O), and how to create Java applications and applets will be covered. Prerequisite(s): BCS 230 with grade of a C or higher. Credits: 3

**BCS 421 Android Mobile Application Development**
This course provides an introduction to Android mobile application development. Techniques for designing the user interface will be discussed. The Android application lifecycle and issues related to battery life will be covered. Storing application data using a database will be explored. Students will receive hands-on experience using the Android mobile application development platform. Prerequisite(s): BCS 345 with a C or higher. Credits: 3

**BCS 422 iOS Mobile Application Development**
This course provides an introduction to iOS mobile application development for Apple devices. Students will be introduced to the Swift programming language. Emphasis will be placed on good programming practices, on object oriented techniques, and on using established design patterns for mobile applications. Students will receive hands-on experience using the Xcode development environment to build example apps. Basic instruction in Objective-C will provide students with the ability to read and reuse legacy iOS code. Prerequisite(s): BCS 345 or BCS 370 with a grade of C or higher. Credits: 3

**BCS 370 – Data Structures**
This course will present sequential and linked representations of various built-in and abstract data structures including arrays, records, stacks, queues and trees. Algorithms will be developed relating to various sorting and searching techniques, merging and recursion. A high-level structured programming language, such as C, using both static and dynamic storage concepts, will be used in exploring and developing these algorithms. Prerequisite(s): BCS 230 with a grade of C or higher. Credits: 3

BCS 427- Game Programming
This course provides an introduction to two-dimensional game programming. Students will learn how to draw and manage game objects. Techniques for adding sound to a game will be discussed. Creation of computer controlled game objects will also be covered. Students will receive hands-on experience with a current game development platform. Students will be expected to create their own two-dimensional game by the end of the course. Prerequisite(s): BCS 345 with a grade of C or higher. Credits: 3

Admission to Farmingdale State College - State University of New York is based on the qualifications of the applicant without regard to age, sex, marital or military status, race, color, creed, religion, national origin, disability or sexual orientation.