Computer Networking Minor

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The minor is intended for students who wish to develop and expand their knowledge and practical skill sets in Computer Networking. Students selecting this minor will take 18 credit hours of coding and network applications courses.

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.
- 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 courses.
- Students are only permitted to take more than one minor with appropriate written approval of their department chair or curriculum Dean.

Fall 2018- Subject to Revision

Required:

BCS 120 Fundamentals of Programming I 3
BCS 200 Level or Higher Elective- To be determined in consultation with the Department Chair

When it is deemed necessary, substitutions may be made at the discretion of the department chair.

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 208 Introduction to Networks**
This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IPv4 and IPv6 addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes. The laboratory component of this course will give the students hands-on experience configuring equipment needed to build a LAN. Prerequisite(s): Sophomore status Credits: 3

**BCS 209 Routing and Switching Essentials**
This course describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks. The laboratory component of this course will give the students hands-on experience configuring routers, switches and basic WAN connectivity. Prerequisite(s): BCS 208 with a grade of C or higher. Credits: 3

**BCS 320 Scaling Networks**
This course describes the architecture, components, and operations of routers and switches in a larger and more complex network. Students learn how to configure routers and switches for advanced functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with OSPF, EIGRP, STP, and VTP in both IPv4 and IPv6 networks. Students will also develop the knowledge and skills needed to implement DHCP and DNS operations in a network. Note: Students who have completed BCS 330 or BCS 335 may not receive credit for BCS 320. Prerequisite(s): BCS 209 with a C or higher. Credits: 3

**BCS 321 Connecting Networks**
This course discusses the Wide Area Network (WAN) technologies and network services required by converged applications in a complex network. The course enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. Students learn how to configure and troubleshoot network devices and resolve common issues with data link protocols. Students will also develop the knowledge and skills needed to implement IPSec and
virtual private network (VPN) operations in a complex network. Note: Students who have completed BCS 330 or BCS 335 may not receive credit for BCS 321. Prerequisite(s): BCS 209 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.