

Master of Science in Computer Networking

The Department of Electrical Engineering and Computer Science offers a Master of Science degree in the area of computer networking. This area has become an essential component of any effort for economic and social progress. Demand for networking experts in the USA is expected to multiply exponentially during the next two decades, as more small businesses and individual citizens "go online."

A Promising Career

As hardware technology continues to advance at a very high rate, computers will become even more integrated into all sectors of our society. Indeed, we have started to witness "society" being redefined at a global scale, where business owners, doctors, engineers and other professionals can provide their services across the globe in real time. Most organizations have started to encourage their customers and employees to utilize online services. Such unprecedented integration of computer technology into various aspects of ordinary life will make it very difficult for any individual citizen or business of any size to remain offline for any period of time. This is certain to increase the demand for networking experts who would design, deploy, support, and maintain computer networks.

According to the US Bureau of Labor Statistics (www.bls.gov), "Employment of network systems and data communication analysts is projected to increase by 53 percent from 2008 to 2018, which is much faster than the average and places it among the fastest growing of all occupations." Graduates of this MS program will have expertise in both hardware and software technologies which will prepare them for a successful career to meet the growing demand for networking experts. A degree with a title that accurately reflects a

student's educational background is certain to enhance employment opportunities.

Program Structure

The Master of Science in Computer Networking is a comprehensive degree program that prepares graduate students for careers in computer networking and information security. The curriculum structure provides the students with an integrated experience in system engineering, economics, architecture, computer security, and policies of computer communication networks. These topics are covered in the core and elective courses. The program encompasses courses offered by departments in several colleges, including Engineering, Liberal Arts and Sciences, and the Barton School of Business. The comprehensive nature of the program aims at enhancing the strong ties that Wichita State University currently enjoys with various companies, including Cisco Systems and NetApp among others.

Degree Requirements

To fulfill the degree requirements, a student must complete the courses on an individual plan of study to be approved by an adviser, the Graduate Coordinator, and the Dean of the Graduate School. A student's plan of study will ensure sufficient depth in both theory and application of computer networking by completing both theory and application of computer networking by completing specific required core courses. It will also provide enough flexibility by allowing the students to choose courses from a wide range of electives to satisfy their individual career goals. This is what makes it a unique and comprehensive program.

The courses in the curriculum provide the students with an integrated experience in system engineering, economics,

architecture, computer security, and policies of computer communication networks. The learning objectives of the core courses include the following:

- 1) Understanding the fundamentals of internetworking.
- 2) Familiarizing with the network reference models
- 3) Learning different network addressing schemes.
- 4) Understanding network policies, protocols and architectures.
- 5) Performing cost and utility analysis of network design.
- 6) Understanding the trends, applications and emerging markets in networks and communications.
- 7) Learning different routing protocols and their pros and cons
- 8) Understanding multi-service network architectures
- 9) Analyzing the network security issues and their solutions.

Admission Requirements

The MS in Computer Networking Program is intended for students with a bachelor degree majoring in engineering or an area related to computers and information technology. Students from other areas may be admitted conditionally and will be required to complete some undergraduate prerequisite courses, to be determined by the Graduate Coordinator at the time of admission. To qualify for admission to the program a student must have earned a GPA of at least 3.00 in the last 60 hours (two years) of study.

Faculty

Electrical Engineering and Computer Science

Visvakumar Aravinthan, Assistant Professor

Abu Asaduzzaman, Assistant Professor

Rajiv Bagai, Associate Professor

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More Information

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