

Rochester INSTITUTE OF TECHNOLOGY

Minor Program proposal form

Golisano College Of Computing

and Information Sciences

**Department of Information Sciences and Technologies**

**Name of Minor:** Networking and Systems Administration

**Brief description of the minor to be used in university publications**

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| The minor in networking and systems administration is comprised of a sequence of courses that will provide computing, telecommunications, or engineering students outside of the IST department with a firm foundation in networking and/or systems administration. Computer networks and the systems attached to these networks have become ubiquitous. Therefore knowledge of how computer networks work, their administration and the administration of the systems attached to them can be of value to every computing or data communications professional. |

**1.0 Minor Program Approvals**

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|  | Approval request date: | Approval granted date: |
| Academic Unit Curriculum Committee | Dan Bogaard | 11/05/2015 |
| College Curriculum Committee | Steve Zilora | 11/05/2015 |
| Inter-College Curriculum Committee | Mike Yacci | 11/19/2015 |

**2.0 Rationale:**

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| Networking, data communications, and computing platforms are an integral part of our corporate and personal environments. The technologies required to interconnect multiple computing devices of the same or different types is not only technical but becomes increasingly complex as the number of devices and device types scale up. We live in a world of both wired and wireless networks where users desire to move from one to another in a seamless fashion. Networking in this context refers to the design of complex networks that interconnect to provide this seamless communications for users on a wide variety of platforms. The three course network sequence in this minor will provide the students with knowledge of how these networks and network connected systems interoperate and therefore will provide an important foundation for all those disciplines that either use these networks for transport or those that design and create the hardware or software components that comprise these pervasive networks.  Systems administration refers to the design, customization, and ongoing operations of computing environments in support of the organizations and users that rely on them. This includes a wide variety of platforms and software systems which are integrated to provide the computing environment required to support the way organizations operate and the way individuals live, work, and play. Systems administration is also concerned with system security and the privacy of the information contained on all computing platforms. The two course sequence of scripting with an introduction to systems administration will provide students in this minor the opportunity to understand the basics of how to design and manage the support of this information-rich environment that serves individuals and organizations alike.  We live in a world of constant information flow from our smart phones to large central repositories of information which we draw on every day. This minor provides a view into the technologies that support the flow and delivery of that information to individuals and organizations alike. |

**3.0 Multidisciplinary involvement:**

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| The courses are contained entirely within the department of Information Sciences and Technologies |

**4.0 Students ineligible to pursue this minor:**

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| This minor may not be taken by students in the Networking and Systems Administration BS degree program, Computing and Information Technology BS degree program. In the Computing Security BS degree program, students are unable to take the System Administration Track. Other exclusions will be based on the applicant’s prerequisite knowledge and course work. |

**5.0 Minor Program Structure, Sequence and Course Offering Schedule:**

Narrative of Minor Program Structure:

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| Students who are majoring in a computing program other than the BS in Information Security and Forensics or the BS in Networking and Systems Administration are uniquely situated to take advantage of this minor. Student pursuing this minor must complete the following prerequisite courses prior to taking any of the 200 level or higher courses in the minor:   1. A two course introductory programming sequence such as one of the following:  * CSCI 141 (Computer Science I) and CSCI 142 (Computer Science II) (the standard requirement) * ISTE 120 (Computational Problem Solving in the Information Domain I) and ISTE 121 (Computational Problem Solving in the Information Domain II) * ISTE 100 (Computational Problem Solving in the Network Domain I) and ISTE 101 (Computational Problem Solving in the Network Domain II) * IGME 105 (Game Software Development I) and IGME 106 (Game Software Development II) * CPET 121 (Computational Problem Solving I) and CPET 321 (Computational Problem Solving II) * Or an equivalent sequence as determined by the minor advisor   The first two courses in the minor for all students may be taken prior to or at the same time as the prerequisites listed above. They are :   * Computer Systems Concepts (NSSA-102) * Intro to Routing and Switching (NSSA-241)   Following the completion of the programming prerequisite courses, and NSSA-102 and 241 listed above, the student can proceed to take one of the following two paths of study offered by the Department of Information Sciences & Technologies. While both tracks do not offer upper-level courses, the depth that the students taking the Systems Administration focus warrants the minor while not burdening them with the pre-requisites needed for the upper-level courses.   1. **Networking Focus:**   Wireless Networking (NSSA-242)  VoIP and Unified Communications I (NSSA-341)  Mobile Ad-Hoc and Sensor Networks (NSSA-445)   1. **Systems Administration focus:**   Task Automation w/Interpretive Languages (NSSA-220)  Systems Administration I (NSSA–221)  Virtualization (NSSA-244) |

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| Course Number & Title | SCH | Required | Optional | Fall | Spring | Annual/Biennial | Prerequisites |
| NSSA-102 Computer Systems Concepts | 3 | X - all |  | X | X | Annual | None |
| NSSA-241  Intro to Rout & Switch | 3 | X – all |  | X | X | Annual | NSSA-102 |
| NSSA-242  Wireless Net | 3 | X – Track I |  | X | X | Annual | NSSA-241 |
| NSSA-341  VoIP & Unified Communications | 3 | X – Track I |  | X | X | Annual | NSSA-242 |
| NSSA-445  Mobile Adhoc and Sensor Networks | 3 | X – Track I |  | X | X | Annual | NSSA-242 |
| NSSA-220  Task Auto w/Interp Lang | 3 | X – Track II |  | X | X | Annual | Programming as noted above |
| NSSA-221  Systems Administration I | 3 | X – Track II |  | X | X | Annual | NSSA-102, NSSA-220, NSSA-241 |
| NSSA-244  Virtualization | 3 | X – Track II |  | X | X | Annual | NSSA-221, NSSA-241 |

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| Total credit hours: | 15 credits for track I or 15 credit hours for track II |