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NEW PROGRAM PROPOSAL FORM

Sponsoring Institution(s): St. Louis Community College

Program Title: Network Engineering

Degree/Certificate: Associate of Applied Science

Options: n/a

Delivery Site(s): St. Louis Community College—Forest Park

CIP Classification: 11.0901 (Please provide a CIP code)

Implementation Date: Summer 2012 or upon approval

Cooperative Partners: n/a

AUTHORIZATION:

Dr. Donna Dare Vice-Chancellor ASA

*Donna E. Dare*

1/31/12

Name/Title of Institutional Officer

Signature

Date

Dianne Lee

314-644-9308

Person to Contact for More Information

Telephone



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**STUDENT ENROLLMENT PROJECTIONS**

Year	1	2	3	4	5
Full Time	10	12	15	15	20
Part Time	30	40	40	45	50
Total	40	52	55	60	70

**What is the market demand for this program?**

The US Department of Labor, the Missouri Economic Research and Information Center (MERIC), and the St. Louis RCGA Greater St. Louis Works Project identify Network and Data Communication Analysts and Network and System Administrators as among the fastest growing occupations—both nationally and locally. The U.S. Department of Labor Bureau of Labor Statistics also states that “growth in network and computer system administrator jobs will be much faster than average.”

CIP code 11.0901 crosswalks to SOC 15.1071 and SOC 15.1081. As evidenced by the attached 15.1081 occupation profile and occupation report, market demand for the proposed program is very strong in the St. Louis Metropolitan Area. Also attached is a table that accompanied an October 30, 2011 story in the St. Louis Post Dispatch, *Experts: As National Hiring Goes (nowhere), So Goes St. Louis*, that shows strong IT employment growth for the St. Louis area. A January 2012 review of the website indeed.com found 452 St. Louis job listings in response to the query “network engineer” and 199 listings in response to the query “network technician.” The query “IT Security” resulted in 962 job listings; “Computer Security,” 835 listings; “Network Security,” 612 listings; and the query “Network Security Engineer” resulted in 246 job listings.

Note that even though the 15.1081 occupation report lists this job as Bachelor degree for education, the profile shows that 66% of people actually working in the jobs have an Associate’s or less. The Network Engineering Associate of Applied Science degree is part of the College’s planned Information Technology Network Engineering Career Pathway which includes stackable credentials aligned to industry certifications. The AAS program will be attractive to individuals seeking an IT academic credential as well as to industry professionals seeking opportunity to up-skill within the network engineering pathway.

**Will student enrollment be capped?**

No, student enrollment will not be capped. The College has sufficient resources to serve more than the anticipated enrollment and, if demand exceeds projections, will assess and adjust resource allocation as needed.

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# Occupation Report for SOC 15-1081 Network Systems and Data Communications Analysts

## Region Info

Region: St. Louis Metro Region

Description: 16 county metro

## Selected Occupations

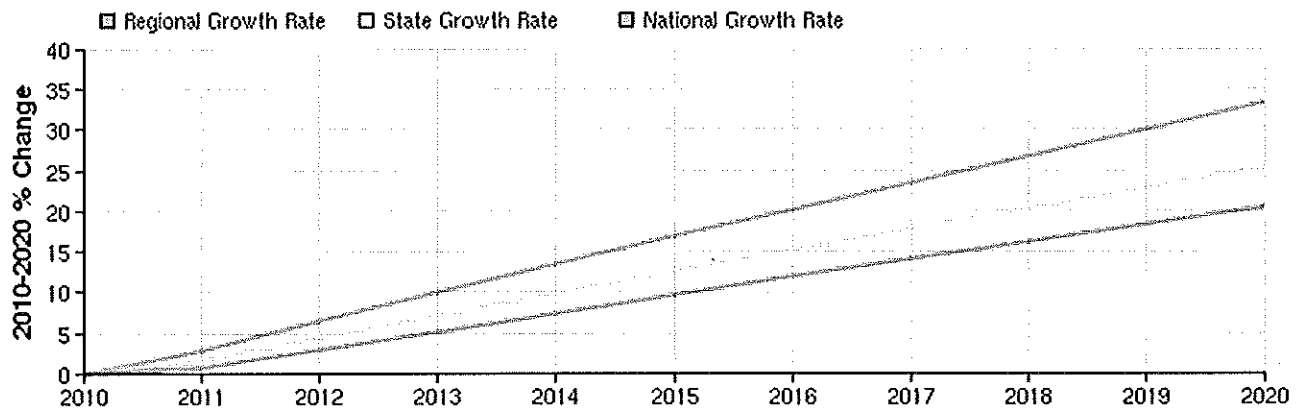
Occupation	Education Level
Network systems and data communications analysts (SOC 15-1081)	Bachelor's degree

## Executive Summary

### Basic Information

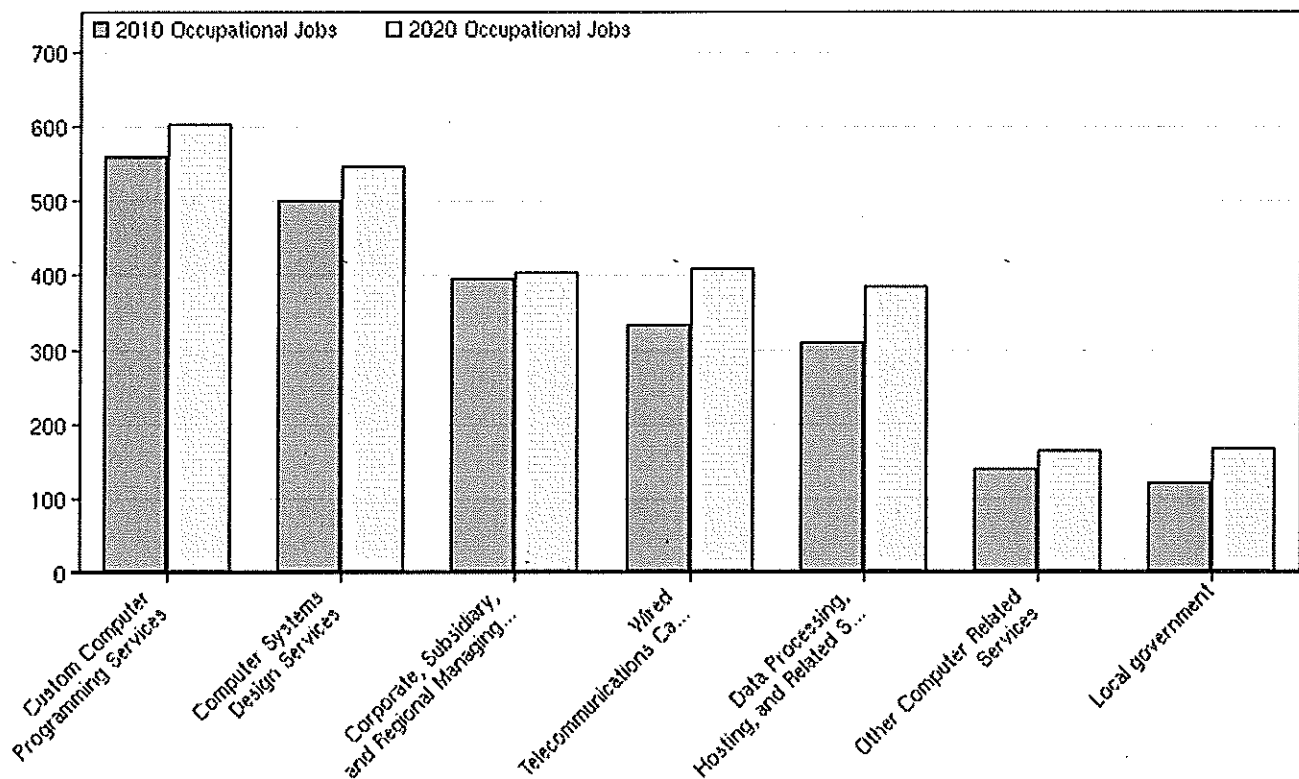
2010 Occupational Jobs	4,141
2020 Occupational Jobs	4,993
Total Change	852
Total % Change	20.57%
Openings	1,610
2011 Avg Hourly Earnings	\$33.34

## Occupational Change Summary



Region	2010 Jobs	2020 Jobs	Change	% Change	Openings	2011 Avg Hourly Earnings
Regional Total	4,141	4,993	852	21%	1,610	\$33.34
State Total	19,667	24,673	5,006	25%	8,613	\$32.08
National Total	396,573	529,163	132,590	33%	206,175	\$30.82

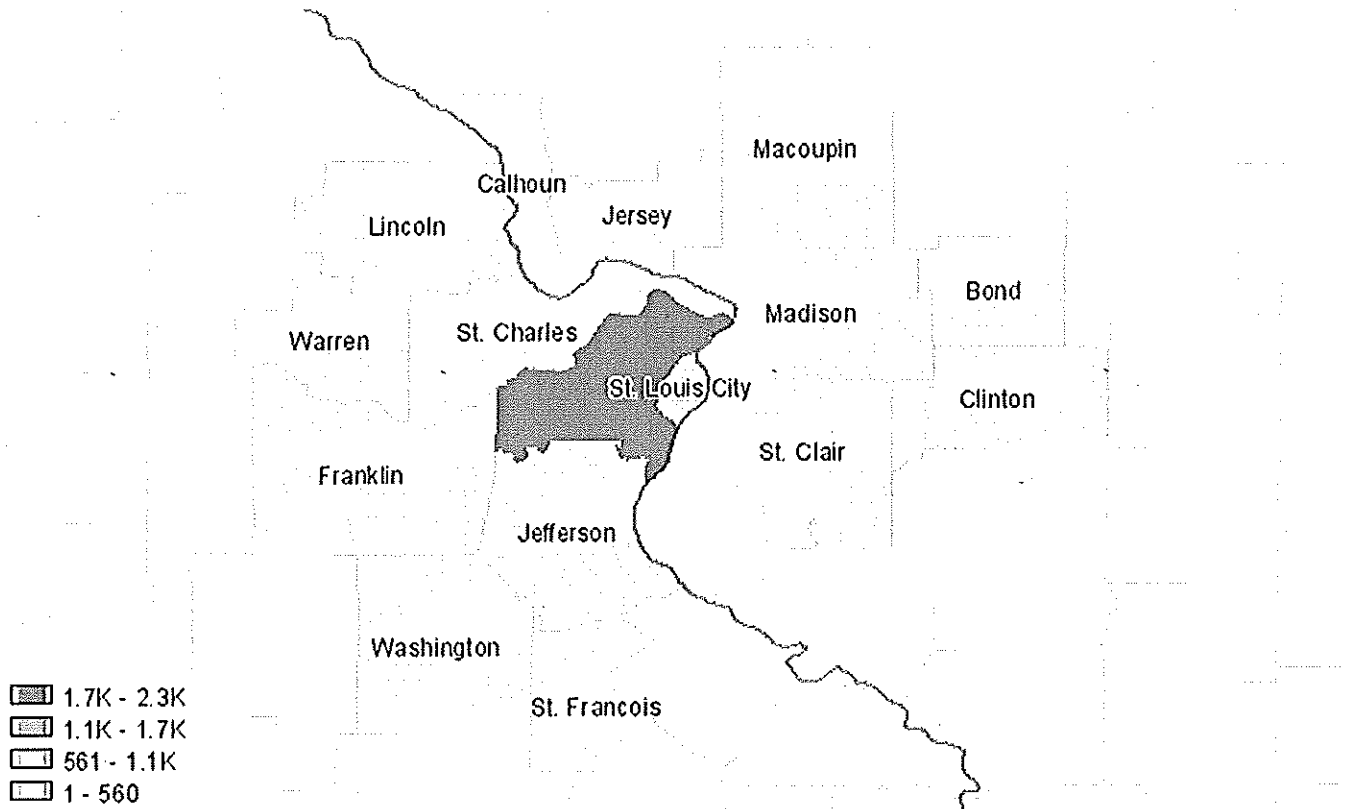
## Top Industries for Selected Occupation



NAICS Code	Name	2010 Jobs	2020 Jobs	Change	% Change
541511	Custom Computer Programming Services	559	602	43	8%
541512	Computer Systems Design Services	502	546	44	9%
551114	Corporate, Subsidiary, and Regional Managing Offices	396	404	8	2%
517110	Wired Telecommunications Carriers	335	410	75	22%
518210	Data Processing, Hosting, and Related Services	309	385	76	25%
541519	Other Computer Related Services	139	163	24	17%
930000	Local government	121	167	46	38%

Source: EMSI Complete Employment - 2011.3

## Occupation Distribution



County	2010 Jobs
St. Louis, MO (29189)	2,249
St. Louis City, MO (29510)	673
St. Charles, MO (29183)	451
St. Clair, IL (17163)	241
Madison, IL (17119)	187
Jefferson, MO (29099)	147
Franklin, MO (29071)	72
Macoupin, IL (17117)	22
Clinton, IL (17027)	21
Lincoln, MO (29113)	20
St. Francois, MO (29187)	18
Jersey, IL (17083)	13
Warren, MO (29219)	12
Bond, IL (17005)	<10
Washington, MO (29221)	<10
Calhoun, IL (17013)	<10

Source: EMSI Complete Employment - 2011.3

## Data Sources and Calculations

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### Industry Data

In order to capture a complete picture of industry employment, EMSI basically combines covered employment data from Quarterly Census of Employment and Wages (QCEW) produced by the Department of Labor with total employment data in Regional Economic Information System (REIS) published by the Bureau of Economic Analysis (BEA), augmented with County Business Patterns (CBP) and Nonemployer Statistics (NES) published by the U.S. Census Bureau. Projections are based on the latest available EMSI industry data, 15-year past local trends in each industry, growth rates in statewide and (where available) sub-state area industry projections published by individual state agencies, and (in part) growth rates in national projections from the Bureau of Labor Statistics.

### Occupation Data

Organizing regional employment information by occupation provides a workforce-oriented view of the regional economy. EMSI's occupation data are based on EMSI's industry data and regional staffing patterns taken from the Occupational Employment Statistics program (U.S. Bureau of Labor Statistics). Wage information is partially derived from the American Community Survey. The occupation-to-program (SOC-to-CIP) crosswalk is based on one from the U.S. Department of Education, with customizations by EMSI.

### State Data Sources

This report uses state data from the following agencies: Illinois Department of Employment Security, Employment Projections; Missouri Department of Economic Development.

# Profile for: 15-1081.00 - Network Systems and Data Communications Analysts

Region: St. Louis Metro Region

Description: 16 county metro

## Executive Summary

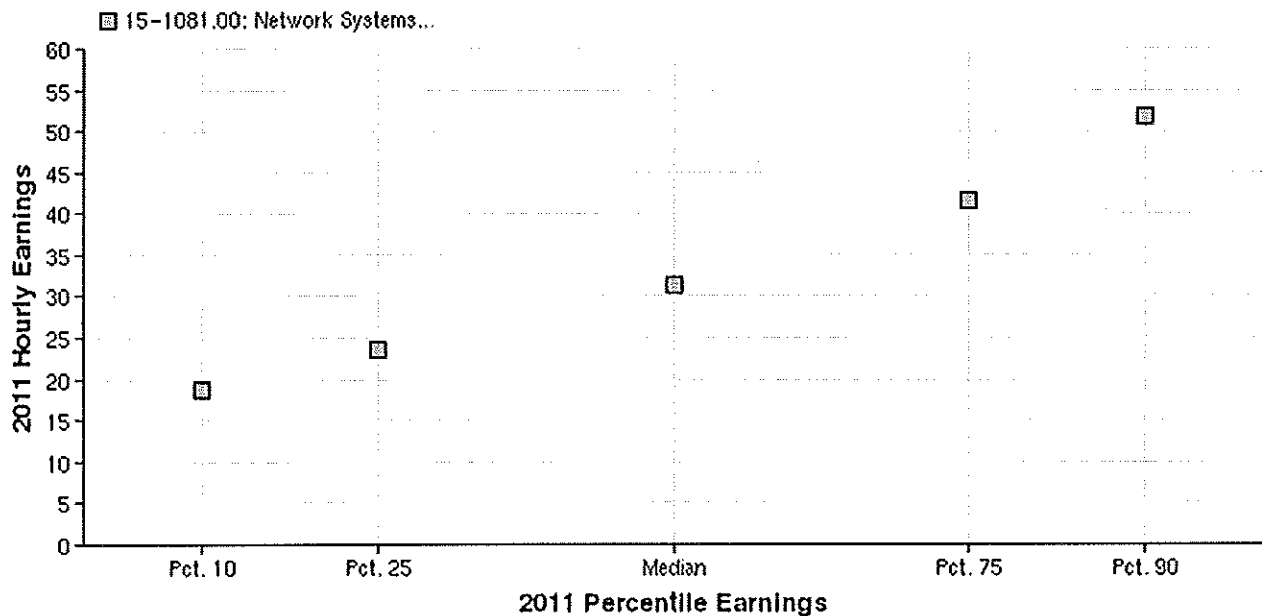
### Basic Information

O*NET Occupation	15-1081.00
Title	Network Systems and Data Communications Analysts
Description	Analyze, design, test, and evaluate network systems, such as local area networks (LAN), wide area networks (WAN), Internet, intranet, and other data communications systems. Perform network modeling, analysis, and planning. Research and recommend network and data communications hardware and software. Includes telecommunications specialists who deal with the interfacing of computer and communications equipment. May supervise computer programmers.
2010 Occupational Jobs	4,141
2010-2020 Growth	851
Openings	1,610
2011 Median Earnings	\$31.35

Source: EMSI Complete Employment - 2011.3

## Wages

Wages are the 2011 median hourly wage for this occupation for the region. The chart below shows wages for the source occupation and the target occupation by percentile, comparing the earnings potential of each occupation.



O*NET Code	Title	Pct. 10	Pct. 25	Median	Pct. 75	Pct. 90
15-1081.00	Network Systems and Data Communications Analysts	\$18.69	\$23.63	\$31.35	\$41.45	\$51.84

## Sample of Current Job Listings (103 as of 8/31/11)

This list contains the most recent job listings for this occupation in the selected region.

Position	Company	Location	Date
Provider Network Pricing Analyst	Centene	St. Louis, MO	Aug. 30, 2011
Director, Pharmacy Network Development	Centene Corporation	St. Louis, MO	Aug. 30, 2011
SAP P2P Data Analyst	Ferguson Consulting	St. Louis, MO	Aug. 30, 2011
IT/Help Desk/Communications/IA Professionals	SRA International	Scott AFB, IL	Aug. 29, 2011
IS Help Desk Technician	AAA Missouri	St. Louis, MO	Aug. 29, 2011
Data Analyst - Trauma	Barnes Jewish Hospital	St. Louis, MO	Aug. 28, 2011
Data Analyst	ISSG, Inc.	Chesterfield, MO	Aug. 27, 2011
Data Analyst	ISSG, Inc. - Information Systems Services Group	St. Louis, MO	Aug. 27, 2011
Senior Data Analyst	NetEffects, Inc.	Chesterfield, MO	Aug. 27, 2011
sr data analyst	Techgene Solutions	Hoffman, IL	Aug. 27, 2011
Tivoli Systems Specialist	Programmer Resources International Inc (PRI Inc.)	St. Louis, MO	Aug. 27, 2011
SAP MM Data Analyst	EdgeTech Consulting, Inc.	St. Louis, MO	Aug. 27, 2011
Network Engineer	Emerson Corporate Headquarters	St. Louis, MO	Aug. 26, 2011
Cisco Network Engineer	Kelly Mitchell	Clayton, MO	Aug. 25, 2011
IT/Help Desk/Communications/IA Professionals - Scott AFB	SRA International	St. Louis, MO	Aug. 25, 2011
Data Analyst	Digital Technology Solutions	Creve Coeur, MO	Aug. 25, 2011
Systems Engineer -Voice and Network Infrastructure	ISSG, Inc. - Information Systems Services Group	St. Louis, MO	Aug. 25, 2011
Network Engineer	CompNova	St. Louis, MO	Aug. 25, 2011
ETL Data Analyst	Ferguson Consulting	St. Louis, MO	Aug. 25, 2011
Network Analyst	Collabera	St. Louis, MO	Aug. 25, 2011
Data Analyst / ETL Analyst	Ferguson Consulting, Inc	Chesterfield, MO	Aug. 24, 2011



Position	Company	Location	Date
Data Analyst	Ferguson Consulting, Inc	Chesterfield, MO	Aug. 24, 2011
Data Analyst II	Centene	St. Louis, MO	Aug. 24, 2011
Sr. Data Analyst	Sriven Technologies, LLC	St. Louis, MO	Aug. 24, 2011
ETL DATA Analyst/Architect (ETL, SQL)	Collabera	St. Louis, MO	Aug. 24, 2011

Job Listings by Indeed

## Training

The table below shows the distribution of workers in this occupation according to education level.

Education Level	Percent of Workers
Post-Doctoral Training	0%
Doctoral Degree	0%
First Professional Degree	0%
Post-Master's Certificate	0%
Master's Degree	0%
Post-Baccalaureate Certificate	0%
Bachelor's Degree	34%
Associate's Degree (or other 2-year degree)	27%
Some College Courses	6%
Post-Secondary Certificate	33%
High School Diploma (or GED or High School Equivalence Certificate)	0%
Less than a High School Diploma	0%

Source: EMSI Complete Employment - 2011.3

This is a list of available training providers within the selected region, as reported to IPEDS. Please note that some regions may have specific training not included in the IPEDS database due to reporting issues.

### Programs By Institution

CIP Code	Title	Institution	Award Level	2009 Region Completions
11.0901	Computer Systems Networking and Telecommunications	CALC Institute of Technology	Award of less than 1 academic year	4
11.1002	System, Networking, and LAN/WAN Management/Manager	CALC Institute of Technology	Award of less than 1 academic year	1
11.0901	Computer Systems Networking and Telecommunications	East Central College	Award of at least 1 but less than 2 academic years	1
11.0901	Computer Systems Networking and Telecommunications	East Central College	Associate's degree	1
11.0101	Computer and Information Sciences, General	Fontbonne University	Bachelor's degree	2
11.0101	Computer and Information Sciences, General	Greenville College	Bachelor's degree	0
11.1002	System, Networking, and LAN/WAN Management/Manager	Hickey College	Associate's degree	5

CIP Code	Title	Institution	Award Level	2009 Region Completions
11.0101	Computer and Information Sciences, General	Hickey College	Award of at least 1 but less than 2 academic years	2
11.0901	Computer Systems Networking and Telecommunications	ITT Technical Institute-Arnold	Associate's degree	54
11.1003	Computer and Information Systems Security	ITT Technical Institute-Arnold	Bachelor's degree	18
11.1003	Computer and Information Systems Security	ITT Technical Institute-Earth City	Bachelor's degree	16
11.0901	Computer Systems Networking and Telecommunications	ITT Technical Institute-Earth City	Associate's degree	38
11.0901	Computer Systems Networking and Telecommunications	Jefferson College	Associate's degree	8
11.0901	Computer Systems Networking and Telecommunications	Lewis and Clark Community College	Associate's degree	13
11.0901	Computer Systems Networking and Telecommunications	Lewis and Clark Community College	Award of less than 1 academic year	44
11.0103	Information Technology	Lindenwood University	Bachelor's degree	35
11.0101	Computer and Information Sciences, General	Lindenwood University	Bachelor's degree	0
11.0103	Information Technology	McKendree University	Bachelor's degree	7
11.0901	Computer Systems Networking and Telecommunications	Mineral Area College	Award of at least 1 but less than 2 academic years	0
11.0901	Computer Systems Networking and Telecommunications	Mineral Area College	Associate's degree	6
11.0101	Computer and Information Sciences, General	Missouri Baptist University	Bachelor's degree	3
11.0103	Information Technology	Missouri Tech	Bachelor's degree	0
11.0901	Computer Systems Networking and Telecommunications	Missouri Tech	Award of less than 1 academic year	3
11.0901	Computer Systems Networking and Telecommunications	Missouri Tech	Bachelor's degree	3
11.0103	Information Technology	Missouri Tech	Associate's degree	3
11.0901	Computer Systems Networking and Telecommunications	Missouri Tech	Award of at least 1 but less than 2 academic years	12
11.0901	Computer Systems Networking and Telecommunications	Missouri Tech	Associate's degree	6
11.0101	Computer and Information Sciences, General	Saint Louis Community College-Florissant Valley	Award of at least 1 but less than 2 academic years	0
11.1002	System, Networking, and LAN/WAN Management/Manager	Saint Louis Community College-Florissant Valley	Associate's degree	3
11.0501	Computer Systems Analysis/Analyst	Saint Louis Community College-Florissant Valley	Award of less than 1 academic year	0
11.0501	Computer Systems Analysis/Analyst	Saint Louis Community College-Florissant Valley	Award of at least 1 but less than 2 academic years	0
11.0901	Computer Systems Networking and Telecommunications	Saint Louis Community College-Florissant Valley	Award of at least 1 but less than 2	1

CIP Code	Title	Institution	Award Level	2009 Region Completions
11.0101	Computer and Information Sciences, General	Saint Louis Community College-Forest Park	academic years Award of at least 1 but less than 2 academic years	0
11.0901	Computer Systems Networking and Telecommunications	Saint Louis Community College-Forest Park	Award of at least 1 but less than 2 academic years	0
11.1002	System, Networking, and LAN/WAN Management/Manager	Saint Louis Community College-Forest Park	Associate's degree	1
11.0901	Computer Systems Networking and Telecommunications	Saint Louis Community College-Forest Park	Award of less than 1 academic year	0
11.0501	Computer Systems Analysis/Analyst	Saint Louis Community College-Forest Park	Award of at least 1 but less than 2 academic years	0
11.0501	Computer Systems Analysis/Analyst	Saint Louis Community College-Forest Park	Award of less than 1 academic year	0
11.0501	Computer Systems Analysis/Analyst	Saint Louis Community College-Meramec	Award of less than 1 academic year	1
11.0501	Computer Systems Analysis/Analyst	Saint Louis Community College-Meramec	Award of at least 1 but less than 2 academic years	2
11.0101	Computer and Information Sciences, General	Saint Louis Community College-Meramec	Award of at least 1 but less than 2 academic years	0
11.0901	Computer Systems Networking and Telecommunications	Saint Louis Community College-Meramec	Award of less than 1 academic year	0
11.0901	Computer Systems Networking and Telecommunications	Saint Louis Community College-Meramec	Award of at least 1 but less than 2 academic years	3
11.1002	System, Networking, and LAN/WAN Management/Manager	Saint Louis Community College-Meramec	Associate's degree	16
11.0101	Computer and Information Sciences, General	Saint Louis University-Main Campus	Bachelor's degree	20
11.0101	Computer and Information Sciences, General	Saint Louis University-Main Campus	Postbaccalaureate certificate	3
11.0101	Computer and Information Sciences, General	Southwestern Illinois College	Associate's degree	11
11.0901	Computer Systems Networking and Telecommunications	Southwestern Illinois College	Award of less than 1 academic year	39
11.0101	Computer and Information Sciences, General	University of Missouri-St Louis	Bachelor's degree	20
11.0101	Computer and Information Sciences, General	University of Missouri-St Louis	Master's degree	25
11.0101	Computer and Information Sciences, General	University of Phoenix-St Louis Campus	Bachelor's degree	20
11.1003	Computer and Information Systems Security	Vatterot College-O'Fallon Campus	Award of at least 1 but less than 2 academic years	0
11.0103	Information Technology	Vatterot College-O'Fallon Campus	Award of at least 1 but less than 2 academic years	12
11.0103	Information Technology	Vatterott College	Award of at least 1	10

CIP Code	Title	Institution	Award Level	2009 Region Completions
11.1003	Computer and Information Systems Security	Vatterott College	but less than 2 academic years Award of at least 1 but less than 2 academic years	0
11.0103	Information Technology	Vatterott College	Award of at least 1 but less than 2 academic years	21
11.0101	Computer and Information Sciences, General	Webster University	Bachelor's degree	3

Source: National Center for Education Statistics

## Data Sources and Calculations

### Occupation Data

Organizing regional employment information by occupation provides a workforce-oriented view of the regional economy. EMSI's occupation data are based on EMSI's industry data and regional staffing patterns taken from the Occupational Employment Statistics program (U.S. Bureau of Labor Statistics). Wage information is partially derived from the American Community Survey. The occupation-to-program (SOC-to-CIP) crosswalk is based on one from the U.S. Department of Education, with customizations by EMSI.

### Competency Data

The competency data in this report is taken directly from the O\*NET database.

### State Data Sources

This report uses state data from the following agencies: Illinois Department of Employment Security, Employment Projections; Missouri Department of Economic Development.

## **JOB LISTINGS IN THE ST. LOUIS AREA**

Top 20 aggregated St. Louis-area job postings (from commercial Internet job sites, company HR sites and other media) over the past 30 days.

Registered nurses

**903**

Truck drivers, heavy

**813**

Computer specialists

**525**

Customer service representatives

**464**

Sales managers

**418**

Truck drivers, light or delivery

**316**

Computer software engineers

**305**

Sales representatives

**301**

Physical therapists

**276**

Retail sales supervisors/managers

**250**

Computer network administrators

**236**

Managers

**229**

Accountants

**215**

General and operations managers

**213**

Child care workers

**205**

Computer support specialists

**195**

Computer systems analysts

**185**

Management analysts

**172**

Computer and IT managers

**164**

Medical and health service managers

**164**



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PROGRAM STRUCTURE

A. Total credits required for graduation: 66-67 credit hours

B. Residency requirements, if any: Click here to enter text.

C. General education: Total credits: 22 credit hours

Courses (specific courses OR distribution area and credits):

ENG:101 College Composition I	3 cr.
ENG:102 College Composition II or ENG:103 Report Writing	3 cr.
MTH:160 College Algebra	4 cr.
MTH:186 Survey of Calculus	4 cr.
Missouri State Requirement	3 cr.
Social Science Elective	3 cr.
Physical Education Activity	2 cr.

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D. Major requirements: Total credits: 44-45 credit hours

IS:112 Software and Hardware Concepts	3 cr.
IS:130 Hardware and Software Support	3 cr.
IS:237 Fundamentals of Information Assurance/Security	3 cr.
IS:229 Unix/Linux I	3 cr.
IS:264 Unix/Linux II	3 cr.
IT:101 Cisco Networking Academy I: Networking Basics	5 cr.
IT:102 Desktop Client Support	3 cr.
IT:202 Cisco Networking Academy III:Switching Basics and Intermediate Routing	5 cr.
IT:202 Cisco Networking Academy III:Switching Basics and Intermediate Routing	5 cr.
IT:210 Firewall and VPN Security	3 cr.
Choose from one of the following three focus areas:	13-14 cr.
Server Focus (13 cr.)	
IT:140 Windows Server Configuring Active Directory	3 cr.
IT:142 Windows Server Configuring Infrastructure	3 cr.
IT:246 Windows Server Administration	3 cr.
IT:211 Introduction to Virtualization and Cloud Computing	4 cr.
Infrastructure Focus (13 cr.)	
IT:201 Cisco Networking Academy II: Routers/Routing Basics	5 cr.
IT:203 Cisco Networking Academy IV: WAN Technologies	5 cr.
IT:235 Network Infrastructure Design	3 cr.

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Security Focus (14 cr.)	
IT:120 Enterprise Security Management	3 cr.
IT:121 Secure E-Commerce and E-Government	3 cr.
IT:208 Cisco Networking Academy: CCNA Security	5 cr.
IT:216 Digital Forensics	3 cr.

E. Free elective credits: none (Sum of C, D, and E should equal A.)

F. Requirements for thesis, internship or other capstone experience:  
none

G. Any unique features such as interdepartmental cooperation:  
n/a



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## PROGRAM CHARACTERISTICS AND PERFORMANCE GOALS

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Institution Name     St. Louis Community College  
Program Name         Network Engineering  
Date     September 2011

(Although all of the following guidelines may not be applicable to the proposed program, please carefully consider the elements in each area and respond as completely as possible in the format below. Quantification of performance goals should be included wherever possible.)

### Student Preparation

- Any special admissions procedures or student qualifications required for this program which exceed regular university admissions, standards, e.g., ACT score, completion of core curriculum, portfolio, personal interview, etc. Please note if no special preparation will be required.  
No special preparation will be required.
- Characteristics of a specific population to be served, if applicable.  
The Network Engineering AAS degree is designed to meet the needs of multiple populations. Students will be traditional and non-traditional, recent high school graduates as well as working professionals seeking training to maintain current employment, promotion on the job, or the pursuit of new employment opportunities. The program will be of interest to unemployed and under-employed information technology professionals seeking new skills.

### Faculty Characteristics

- Any special requirements (degree status, training, etc.) for assignment of teaching for this degree/certificate.  
Faculty members teaching courses that align to third party industry certifications (Cisco Networking, Microsoft, CompTIA, etc.) will have attained certification prior to teaching the course(s).
- Estimated percentage of credit hours that will be assigned to full time faculty. Please use the term "full time faculty" (and not FTE) in your descriptions here.  
It is anticipated that full time faculty members will be assigned 60-70% of the Network Engineering required courses depending upon the semester offered.
- Expectations for professional activities, special student contact, teaching/learning innovation.

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In addition to the professional activities expected of all St. Louis Community College faculty members, the Network Engineering faculty will maintain relevant industry certifications.

#### Enrollment Projections

- Student FTE majoring in program by the end of five years.  
53
- Percent of full time and part time enrollment by the end of five years.  
Full time 30% Part time 70%

#### Student and Program Outcomes

- Number of graduates per annum at three and five years after implementation.  
20, 30
- Special skills specific to the program.  
Students will develop the skills and knowledge necessary to attain the IT industry certifications mapped to the proposed curriculum.
- Proportion of students who will achieve licensing, certification, or registration.  
80%
- Performance on national and/or local assessments, e.g., percent of students scoring above the 50th percentile on normed tests; percent of students achieving minimal cut-scores on criterion-referenced tests. Include expected results on assessments of general education and on exit assessments in a particular discipline as well as the name of any nationally recognized assessments used.  
The program is based on industry certifications and is part of a series of planned programs following a nested or stackable credential framework within the networking and cyber security specialties of the IT career cluster. All courses or course tracks prepare students to obtain recognized industry certifications, e.g. CompTIA A+, Security+; Microsoft Certified Technology Specialist; VMware VCP; LCIP-1. The target is a student success rate of 75% on certification exams.
- Placement rates in related fields, in other fields, unemployed.  
Of those graduates seeking employment following graduation the target is 75% employed in a related field, 25% employed in an unrelated field, and 0% unemployed. Of the 25% employed in an unrelated field, it is anticipated that the skills attained through the educational program will be fully utilized. In today's technology-driven workplace, IT skills are an essential component of many occupations that might not be considered "IT-related."
- Transfer rates, continuous study.

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It is estimated that 60% of program graduates will transfer to a university or pursue continuous study at the community college. St. Louis Community College is developing post-degree certificates for those IT professionals seeking opportunities to up-skill in specific technologies and/or specialized areas within the IT field, e.g. cyber security. Information technology skills are continually changing as employers implement and deploy new and emerging technologies. Many of the IT students at the community college are working professionals as well as community college and/or university graduates attending specific classes or pursuing additional educational credentials to demonstrate competency in an emerging technology.

#### Program Accreditation

- Institutional plans for accreditation, if applicable, including accrediting agency and timeline. If there are no plans to seek specialized accreditation, please provide reasons. The Information Systems Department, St. Louis Community College-Forest Park, has been home to a regional Cisco Networking Academy since 1997 and continues to participate in the Academy program. Microsoft IT and VMware Academies were added within the past five years. The Network Engineering program includes courses that prepare students for Cisco, Microsoft and VMware certification exams. The security focus courses were submitted to the federal Information Assurance Courseware Evaluation (IACE) program which systematically assesses the degree to which an institution's courseware satisfies the Committee on National Security Systems (CNSS) standards. This process certifies the institution as meeting all of the requirements of a specific CNSS standard within their courseware set of instruction. St. Louis Community College courses were certified as mapping 100% to the CNSS national standards 4011, Information Systems Security Professionals, and 4012, Senior Systems Managers.

#### Alumni and Employer Survey

- Expected satisfaction rates for alumni, including timing and method of surveys. Expected satisfaction rate of 90% for alumni. Graduates will be surveyed at 3 month and 12 month intervals following graduation.
- Expected satisfaction rates for employers, including timing and method of surveys. Expected satisfaction rate of 90% for employers. Employers will be surveyed at 3 month and 12 month intervals following graduation.