

# Information Technology Program Guide

2017-2018



 **Prairie State College**

[prairiestate.edu/it](http://prairiestate.edu/it)

**Start near. Go far.**

# Table of Contents

Introduction .....	3
What is Information Technology?	
PSC Registration/Admissions Process	
Prerequisites Are Important	
Information Technology Fields of Study .....	4
IT Education and Functional Skills	
Opportunities for Everyone (Traditional & Non-traditional)	
Choosing an IT Major	
A Typical Day in the Life of IT Specialists	
• Programming	
• Networking	
• Applications	
• Web	
Build Your Roadmap .....	9
Where Do I Start?	
Orientation to IT Professions	
IT A.A.S. Degree	
PSC Certificates versus Industry Certifications?	
• PSC Certificate Worksheets	
• Industry Certifications	
A.A.S. Program At a Glance	
IT Course Schedule Offerings – Spring, Summer, or Fall.....	11
IT Capstone Courses .....	12
• Systems Analysis and Design (IT201)	
• Internships	
Graduation Considerations .....	13
Request a Petition to Graduate Sooner Than Later	
Next Steps?	

# Introduction

## **What is Information Technology?**

Information Technology (IT) refers to an entire industry involving the development, maintenance, and use of the Internet, networked computer systems, mobile devices, hardware, and software. The world has gone digital in how it processes data and distributes information. Electronic data and digitized information occurs in a multitude of forms (raw text, business data, voice, graphical images, video motion pictures, and multimedia presentations, just to name a few).

Prairie State College (PSC) offers four IT A.A.S. degree programs and a variety of certificates to prepare students for the job market or for moving on to a four-year institution.

## **PSC Admissions/Registration Process**

PSC has an open-door admissions policy. Here is the enrollment process:

<http://prairiestate.edu/apply-reg-pay/how-to-enroll/index.aspx>. Complete an enrollment application online at <https://secure.prairiestate.edu/form/application/application.php> or in person in Enrollment Services in room 1160. For questions about admissions, stop by Enrollment Services or call (708) 709-3517. New students can visit the Counseling and Advising Center in room 1190 and register for classes with an advisor. Returning students can register on WebAdvisor or meet with an advisor to discuss courses. For more information, visit [prairiestate.edu/future-students](http://prairiestate.edu/future-students) or [prairiestate.edu/assets/global/admissions/formfiles/admissionsfunnel.pdf](http://prairiestate.edu/assets/global/admissions/formfiles/admissionsfunnel.pdf).

## **Prerequisites Are Important**

PSC offers various courses that require prerequisites. A prerequisite is a specific course that you must complete before you can take another course at the next level.

Prerequisites are designed to prepare students to enter into advanced courses with some prior knowledge. Check the PSC catalog and WebAdvisor for the listing of academic courses. Prerequisites for each course are listed in the course description. Students are advised to take the Placement Test for correct placement into prerequisite courses. Contact the testing center for times at (708) 709-3558 / (708) 709-3507 or visit <http://prairiestate.edu/student-services/testing-services/>

# Information Technology Fields of Study

## IT Education and Functional Skills

Learning is a lifelong process which provides opportunities to acquire knowledge, ethical attitudes, technical skills, verbal skills, writing skills, and critical thinking skills. These skills facilitate a positive change in the behavior of the learner. Learning occurs when a problem, need, or desire causes an increase in learner motivation. With increased motivation, the learner seeks information that will solve the problem.

Employers want to hire IT applicants who can “think on their feet,” solve problems that arise daily in the workplace, and are self-motivated. They seek IT graduates who are interested in pursuing their own professional development to enhance their skillset and can apply their school-based knowledge in everyday settings. A broad range of interpersonal skills, in addition to the technical competence, is essential for a successful career in IT.

The following websites are useful career and educational tools providing resources related to the world of IT/Computer Science.

[www.computerscienceonline.org/](http://www.computerscienceonline.org/)

## Opportunities for Everyone (Traditional & Non-traditional)

IT has something to offer everyone. PSC embraces diversity regardless of gender, ethnicity, race, sexual orientation, physical and mental ability, age and socioeconomic status. We encourage all students who would like to consider a career in IT to apply to PSC.

## Choosing an IT Major

The following job descriptions are intended to provide some insight into what it is like to walk in the shoes of each of the four IT specialists. We have chosen a sample life scenario for each of our IT programs.

## A Typical Day in the Life of IT Specialists

- Programming
- Networking
- Applications
- Web

- **A Typical Day in the Life of an IT Specialist  
Programming**

You probably have used software, such as word processing or spreadsheets, to prepare efficient and professional documents. Someone created these word processing or spreadsheet programs that we commonly use. Let's take a closer view of a programmer to see what it takes to make a lucrative living as a creator of software.

Learning to write programs is like learning how to cook by following a recipe. A software program is a set of step-by-step instructions that directs the computer to do the tasks you want it to do and produce the results you want. A set of rules that provides a way of telling a computer what operations to perform is called a programming language.

Computer programmers speak many different computer languages. They all share the same burning desire to take on new challenges with a never give up attitude. Computer programmers are creative, enjoy solving puzzles, think logically, are attentive to detail, are excellent problem-solvers, and often have backgrounds in math and music. Common job titles are programmer analyst, applications developer, or software engineer.

A college degree is required or highly recommended. Most often a two- or four-year degree in Computer Science, Information Technology, Computer Information Systems, or Management Information Systems will provide the necessary foundation. The requirements and salaries vary by the organization and the region. The person most likely to land a job and move up the career ladder is the one with technical skills along with excellent communication skills, both oral and written. These abilities support the principles that drive the critical thinking and problem-solving skills needed to build efficient software.

There are plenty of programming languages to choose from. The most successful programmers are those who demonstrate technical breadth as well as depth of these languages. Here's a quick sample:

- **C++:** C++ (pronounced see plus plus) is a general purpose programming language that is free-form and compiled.
- **Java:** Java is a programming language designed for use in the distributed environment of the Internet and was designed for handheld devices. Java can run on a single computer, a network, or used to build a small application module (applet) for use as part of a Web page.
- **Visual Basic:** Visual Basic (also referred to as "VB") is a programming language that is an extension of the BASIC programming language that combines BASIC functions and commands with visual controls. Visual Basic allows the developer to drag and drop objects into the program as well as manually write program code.
- **JavaScript:** JavaScript is a programming language commonly used to create interactive effects within web browsers. JavaScript is **not** Java. JavaScript adds interactivity to Web pages and brings them to life. JavaScript is **not** HTML. JavaScript is a separate scripting language and is placed within the HTML code. In order for JavaScript to work, it must be part of a Web page that is being displayed in a browser.
- **Microsoft .NET:** .NET Framework (pronounced dot net) is a software framework developed by Microsoft. It includes a large library and provides language interoperability across several programming languages. It provides a controlled programming environment where software can be developed, installed and executed on Windows-based operating systems.

Source: <http://www.course.com/careers/dayinthelife/default.cfm>

### **PSC AAS and Certificate Advising Guides**

- [IT: Programming Option](#) (AAS)
- [Game Design and Development](#) (Cert)
- [Programming](#) (Cert)

## **A Typical Day in the Life of an IT Specialist Networking**

Companies everywhere rely on computer networking to keep employees connected and commerce flowing. Networks are integral to the functioning of almost any business. Network complexity varies depending on the organization. Three common computer network job categories are network administrator, network engineer and network security specialist. Network engineers use information technology to design and build network systems for employees to use. Network administrators maintain smooth operation of the computer network and the systems connected to it. Network security specialists detect, prevent, and resolve security threats to computer networks.

Network specialists all have the additional duty of preserving the integrity and confidentiality of an organization's data. Data typically is the most valuable and irreplaceable component of a network. Maintaining a reliable backup and recovery plan for system data is probably the single most important daily task a network specialist will have. A regular backup of data is critical, and consequently prevents disaster. Nightly backups are routinely examined to determine if they completed successfully. New backups are scheduled each night. Data networks can include local area networks (LANs), wide area networks (WANs), intranets, and extranets.

The first goal of any network specialist is to become familiar with the computers and network systems for which they are responsible. The tools available for performing daily tasks and troubleshooting problems are indispensable. A tool may be as simple as the online knowledge base for the company producing your network operating system or key application, or complex as some network utilities. Good network specialists constantly seek out ways to perform daily tasks in a more productive way. Some tasks are performed periodically or on an as-needed basis, such as adding new printers or users, updating existing network information, and installing or upgrading applications.

Essential to a career in the networking field is a well-grounded understanding of computer hardware, operating systems, and application fundamentals. The network hardware and software is regularly reviewed for proper operation. Diagnostics on hardware can identify a current or potential problem. Monitoring software can be used to provide alerts of actual or potential issues with the network. Insuring the proper operation of the network will preempt many problems before employees notice them. As problems are addressed, the solutions are documented and employees are updated. Keeping an open dialogue is critical to efficiently resolving issues. Follow-up calls are usually made with recent or reoccurring problems.

A college degree is required or highly recommended. Most often a two- or four-year degree in Computer Science, Information Technology, Computer Information Systems, or Management Information Systems will provide the necessary foundation. Professional certifications, such as CompTIA A+, Network+, and Security+, are definitely advantageous. Requirements and salaries tend to vary by the organization and the region. The person most likely to land a job and move up the career ladder is the one with technical skills along with excellent communication skills, both oral and written. These abilities support the principles that drive the critical thinking, analytical, and problem-solving skills needed in the networking field.

Source: [http://www.course.com/careers/dayinthelife/networkadmin\\_jobdesc.cfm](http://www.course.com/careers/dayinthelife/networkadmin_jobdesc.cfm)

### **PSC AAS and Certificate Advising Guides**

- [IT: Networking Option](#) (AAS)
- Cisco Network Associate (Cert)
- [Computer Support Associate](#) (Cert)
- [Computer Technician](#) (Cert)
- [Network Security Specialist](#) (Cert)
- [Networking Specialist](#) (Cert)

## **A Typical Day in the Life of an IT Specialist Applications**

Our modern world runs on technology. Around the globe, a full range of software applications are used by large and small industries. Common software applications include word processing, spreadsheet, presentation, database, and desktop publishing. Companies depend on these applications to function in concert with email, accounting, bookkeeping, marketing, and other day-to-day operations. This technology has made it easier to communicate, increase productivity, and put a vast array of information at our fingertips. Whether you're vying for promotion, looking to switch jobs, or trying to land your first job, success dictates a good working knowledge of software applications to help you stand up to the competition.

Information technology is used in almost every field ranging from business to medical occupations. The paths can be varied for those interested in becoming an applications software expert. This depends on the specialization chosen. A person who creates a custom database system to capture customer information will call on a different set of skills than a person that uses desktop publishing software to design layouts for magazines. It is important to remember that employers want to hire people that are trained for the job.

Analyze your skill set. What are you good at? What do you enjoy? Where do you want to go with your career? Do you want to be a manager? Do you want to work in the administrative field? Would you like to specialize, such as working as an accountant using spreadsheets or working as a database administrator? Information technology applications experts are lifetime learners. You will regularly be required to learn new skills and upgrade old ones.

A college degree is required or highly recommended. Most often a two- or four-year degree in will provide the necessary foundation. The requirements and salaries vary by the organization and the region. The person most likely to land a job and move up the career ladder is the one with technical skills along with excellent communication skills, both oral and written. Customer service skills are critically important. Interpersonal (tact, diplomacy, negotiation) organization skills are also essential.

Look at certification programs. The Microsoft Office Specialist (MOS) and Microsoft Technology Associate (MTA) certification programs will verify what you can do (and your level of proficiency). The Certified Administrative Professional (CAP) exams will give you an excellent foundation in management and administrative skills. Certifications are a good supplement to degrees.

Hopefully, these suggestions point you in the direction of identifying your goals and provide the tools needed to identify if applications software is the program for you.

Source: <http://office.microsoft.com/en-us/powerpoint-help/stay-ahead-in-a-changing-workplace-HA001221704.aspx>

## **A Typical Day in the Life of an IT Specialist Web**

Most of us have been on the Internet and visited a website. Many individuals and businesses have a need to have their own website. Remarkably, there are website owners that don't have a detailed understanding of the technology behind their website. They may not be able to recognize and distinguish HTML code from JavaScript. This is where web experts come in. Common job categories for Web experts include Web technician, Web designer, Web developer and webmaster.

A Web technician is a junior level or entry level IT position that assists Web designers, Web developers, and/or webmasters. Web technicians work alongside with editors and graphic designers to create the front end of websites that are visually pleasing and easy to navigate.

Web designers create the look, layout, and features of a website. Web designers are expected to have an awareness of website usability and accessibility guidelines.

A Web developer creates websites, but is more focused on the way a website works than how it looks. Web developers are required to have strong programming and database administration skills for building websites that function well.

A webmaster builds, maintains, and monitors the performance of websites, assuring that it stays online with optimal speed. Networking and operating system knowledge is important for the role of tracking website traffic.

Web experts have the skills to focus on the underlying code that makes up the website. This code determines where page objects are positioned, font styles, and files that are integrated into the design. Many variables come into play, such as plugins and scripts that affect the look of the Web page. You can use these skills to create a wide range of Internet applications. The applications may be anything from a shopping cart for an online store or a website search tool to a sophisticated online catalog that keeps track of hundreds of company products. A Web expert should be aware of which technologies fit the specific needs of each project and be willing to stay on top of the latest Web technologies. It is important to create Web pages that look good and perform well in any Web browser.

To be successful in a Web career, you need a solid knowledge base in Internet technologies and programming. While HTML is a requirement, you also need good knowledge of other software tools such as Dreamweaver, Photoshop, Perl, PHP, XML, SQL, Java, JavaScript, ASP, or Cold Fusion – preferably a combination of these.

A college degree is required or highly recommended. Most often a two- or four-year degree in Computer Science, Information Technology, Computer Information Systems, or Management Information Systems will provide the necessary foundation. The requirements and salaries vary by the organization and the region. The person most likely to land a job and move up the career ladder is the one with technical skills along with excellent communication skills, both oral and written. These abilities support the principles that drive the creative, critical thinking, and problem-solving skills needed to build/monitor efficient web sites.

Source: [http://www.course.com/careers/dayinthelife/webdev\\_jobdesc.cfm](http://www.course.com/careers/dayinthelife/webdev_jobdesc.cfm)

### **PSC AAS and Certificate Advising Guides**

- [IT: Web Option](#) (AAS)
- Web (Cert) coming soon



# Build Your Roadmap

## Where Do I Start?

All IT students should consider our IT core courses:

- IT Orientation (IT 101),
- Introduction to Computers (ITAPP101), and
- Introduction to Operating Systems (IT140)

Both courses are foundational and prerequisites to the next level of courses.

## Orientation to IT Professions

We offer an IT Orientation class (IT101) specifically geared for those involved in our IT programs, certificates, or individual classes for industry retooling. This IT Orientation class is set up to be available as an ongoing tool that can be continually accessed by each of our IT students. We encourage you to make IT101 one of the first IT classes that you register for.

## IT A.A.S. Degree Worksheets

Once you have decided on the [IT A.A.S.](#) and/or [IT certificate](#), we have worksheets available that list the course requirements for your specialty, and provides a convenient checklist as you progress through each semester.

## PSC Certificates versus Industry Certifications?

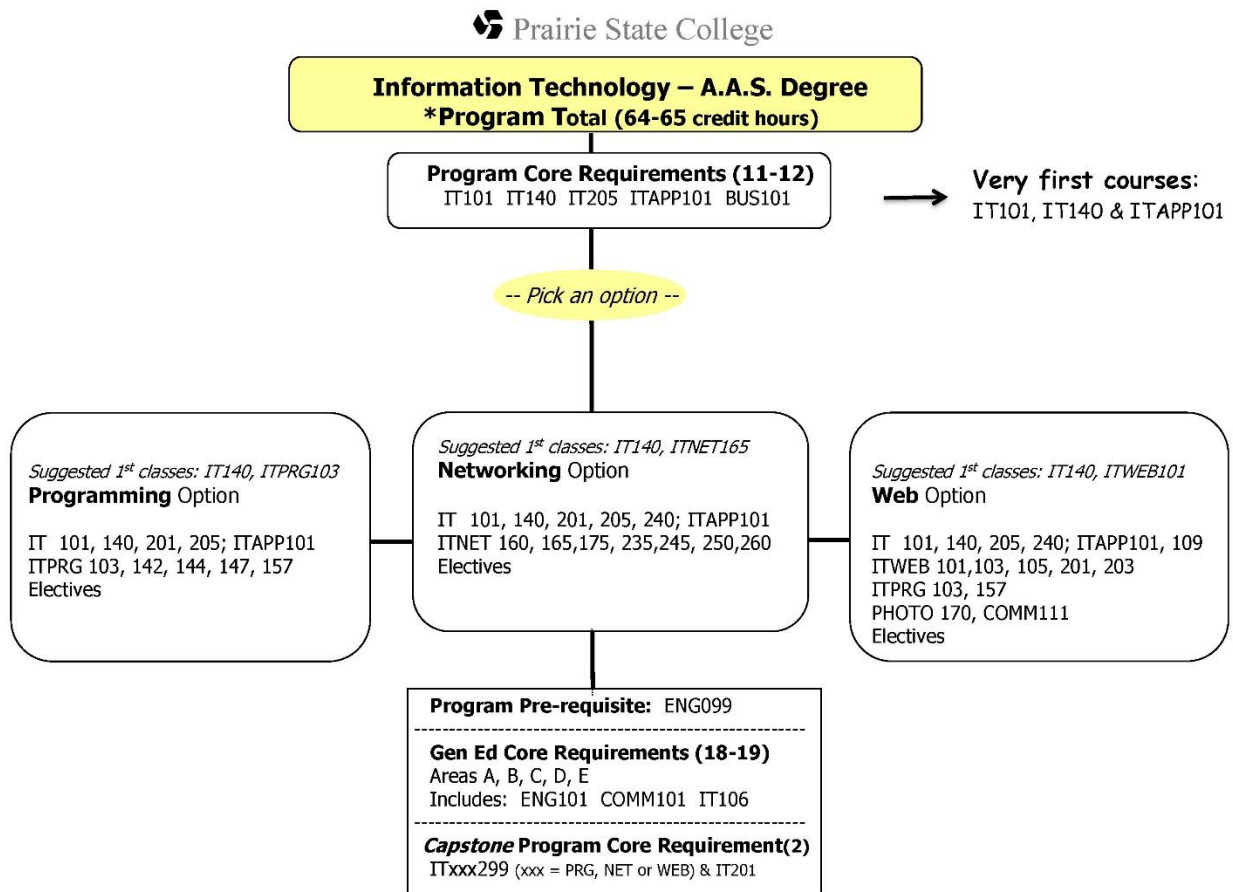
PSC offers associate degrees that prepare students for moving on to a four-year college or university and offers PSC certificates to begin a career immediately. The Associate in Applied Science (A.A.S.) degree represents completion of a minimum of 60 credit hours in a technical or career program. Certificates are awarded after completion of up to 50 credits that focus on specific occupational or technical areas of study. PSC certificates reflect completion of a broad range of college-level courses. PSC certificates can be earned in as little as one semester or span a few semesters.

The difference between a PSC certificate and an industry certification is that industry certifications in computer technology are non-degree awards made to those that have achieved a specific performance standard or qualifying grade on an examination. Colleges and universities are typically not the awarding body for industry certifications. These certifications may be vendor-neutral, vendor specific, or geared towards specific products or technologies. CompTIA, Cisco, Microsoft, Adobe, and CIW are common examples of IT industry recognized certifications. Both PSC certificates and industry certifications can improve your career potential. These are excellent tools to maximize your career progression (1) for seeking out an entry-level position in IT, (2) for making a midstream career move to a different company, or (3) for working toward a promotion up the career ladder. Like college degrees, industry certifications tend to increase

earning potential. They provide documented mastery of skills and technologies, indicating that you possess qualifications to perform essential functions on the job, and serve as a bridge for those lacking job experience.

### A.A.S. Program at a Glance

A picture is worth a thousand words. This chart provides a graphical view summarizing the IT A.A.S. requirements. It does not replace the PSC catalog or worksheets. It is simply a high-level, big picture view of our IT A.A.S. degree program(s).



\* Program Total (64-65) = Program Option (34-35) + Program Core Requirements (11-12) + Gen Ed Core Requirements (18-19)

# IT Course Schedule Offerings – Spring, Summer, or Fall

## INFORMATION TECHNOLOGY COURSES BY SEMESTER

<b>IT 101</b>	Information Technology Orientation .....	All semesters
<b>IT 106</b>	Mathematics for Computers .....	Spring semester
<b>IT 140</b>	Introduction to Operating Systems .....	All semesters
<b>IT 201</b>	Systems Design and Development .....	Spring semester
<b>IT 205</b>	Ethics in Information Technology .....	Fall and summer semesters
<b>IT 240</b>	Linux Operating System .....	Fall semester
<b>IT 295</b>	Portfolio Seminar .....	Fall and spring semesters
<b>ITAPP 101</b>	Introduction to Computers .....	All semesters
<b>ITAPP 109</b>	Introduction to the Internet .....	Fall semester
<b>ITAPP 121</b>	Word Processing Applications – Level 1 .....	Fall and spring semesters
<b>ITAPP 125</b>	Spreadsheets Applications – Level 1 .....	Fall and spring semesters
<b>ITAPP 128</b>	Data Base Applications – Level 1 .....	Fall and spring semesters
<b>ITAPP 133</b>	Business Presentations .....	Spring semester
<b>ITNET 160</b>	Computer Repair .....	Fall semester
<b>ITNET 165</b>	Introduction to Networking .....	Fall semester
<b>ITNET 175</b>	Introduction to Networking II .....	Fall semester
<b>ITNET 235</b>	CCNA LAN Design.....	Spring semester
<b>ITNET 245</b>	CCNA WAN Design .....	Spring semester
<b>ITNET 250</b>	Introduction to LAN Administration .....	Spring semester
<b>ITNET 260</b>	Security Fundamentals .....	Fall semester
<b>ITNET 280</b>	Ethical Hacking .....	Spring semester
<b>ITNET 299</b>	Internship .....	Fall and spring semester
<b>ITPRG 103</b>	Introduction to Programming .....	Fall and spring semesters
<b>ITPRG 142</b>	Introduction to Visual Basic Programming .....	Fall semester
<b>ITPRG 144</b>	Introduction to C++ Programming .....	Fall semester
<b>ITPRG 147</b>	Introduction to JAVA Programming .....	Spring semester
<b>ITPRG 154</b>	C#.Net Programming .....	Summer semester
<b>ITPRG 157</b>	JavaScript Programming .....	Summer semester
<b>ITPRG 171</b>	Game Design I .....	Fall semester
<b>ITPRG 173</b>	Digital Storytelling .....	Spring semester
<b>ITPRG 242</b>	Advanced Visual Basic Programming .....	Spring semester
<b>ITPRG 244</b>	Advanced C++ Programming .....	Spring semester
<b>ITPRG 247</b>	Advanced JAVA Programming .....	Fall semester
<b>ITPRG 299</b>	Internship .....	
<b>ITWEB 101</b>	Web Page Fundamentals .....	Fall and summer semesters
<b>ITWEB 103</b>	Web Site Design – Level I .....	Spring semester
<b>ITWEB 105</b>	Multimedia Writing .....	Spring semester
<b>ITWEB 201</b>	Technology of E-Commerce .....	Spring semester
<b>ITWEB 203</b>	Web Site Design – Level 2 .....	Summer semester
<b>ITWEB 299</b>	Internship .....	Fall and spring semester

Check WebAdvisor for current courses offerings.

# IT Capstone Courses

## **Why Systems Analysis and Design (IT201)**

IT201 Systems Analysis and Design is a course that is taken toward the end of your sequence of IT classes. While many of the IT courses offer the opportunity to learn specific technical skills, this course provides a broader perspective. IT specialists need to develop analytical, technical, managerial, and interpersonal skills in order to succeed. This course provides what it takes to work with others to create information systems at the professional organizational level.

## **Internships**

ITNET299, ITPRG299, and ITWEB299 are internship courses that give you the opportunity to apply what you have learned in a job setting. The internship is generally the last course that you take before graduation. There are a minimum number of hours that students must spend at the job-site. The job-site supervisor submits documentation and a grade to reflect the student's performance. Although these internships are unpaid, occasionally they lead to employment. Instructor consent is required from the IT coordinator to enroll in these courses.

The Portfolio Seminar – IT 295 has been added as an alternative to the internship course.

## Graduation Considerations

### Request a Petition to Graduate Sooner Than Later

You may have noticed that some classes are not offered every semester and may be offered once a year. Planning ahead reduces stress at the end. If you are you planning your last two semesters, it may be time to request a petition for graduation.

To earn a degree or certificate, you must complete the academic requirements shown in the catalog for the year in which you entered PSC. Students planning to receive a degree and/or certificate at PSC must request an official evaluation of their credits in Enrollment Services by completing the "[Transcript Evaluation Request Form](#)" *at least one or two semesters prior* to degree and/or certificate completion in order to ensure correct course selections.

When submitting a graduation petition, you will be asked to identify the year of the catalog from which you are graduating. Students must submit a graduation petition to Enrollment Services by the following deadlines to be eligible for graduation:

- October 1 for December graduation
- March 1 for May graduation or August graduates participating in May ceremony
- July 1 for August graduation

December, May, and August candidates may choose to participate in the annual May Commencement ceremony.

### Next Steps?

- The PSC office of Career Development Services (room 1202) provides a variety of employment related services to students, employers and community members.
- College Central Network Services (PSC online job posting and résumé database system) <http://www.collegecentral.com/prairiestate/>
- Look closely at the requirements for the program or university that you may be transferring to.
- Spruce up your résumé. Research and prepare a list of employers you are considering.
- Clean up your social media. Employers look for the history of who you are and how you communicate or behave online.
- Remember that your PSC IT degree and/or certificate(s) will keep you on the road to success. You have started near. Now it is time to go far.

For more information, contact

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