# Computer Systems Technology Diploma

## PLAR Candidate Guide
Prior Learning Assessment and Recognition (PLAR)

## Copyright

## Prior learning credit options at Saskatchewan Polytechnic

See Get Credit for What you Know for important information about all options to get credit for prior learning at Sask Polytech, including PLAR, transfer credit, Canadian Armed Forces credit, and equivalency credit.

## How to navigate this document

This document contains links to other document sections or webpages. To return to where you were from another section in this document, press the *ALT* key and *left arrow* key at the same time. To return to this webpage from another webpage, close the other webpage or click back on the browser tab for this document.

## Contents of this guide

This guide contains the following specific PLAR information and tools for this program

## A. PLAR fees

Fees for PLAR challenges are set to cover our costs for consultation, assessment, and related administrative tasks. PLAR fees are non-refundable and non-transferrable.

The PLAR fees policy is subject to change for each new academic year. Please see the **Cost** section on the PLAR webpage for current fee information.

## B. PLAR eligibility and options

To be eligible for PLAR for courses in this program, you must first apply for admission and be accepted into the program. You must also consult with the PLAR contact person and be approved for PLAR assessment.

### Course prerequisites and corequisites

Some courses have one or more other courses that must be completed first (prerequisite) or at the same time (corequisite). See course outlines in this guide to identify any pre- or co-requisites for each course. Discuss with your PLAR contact person how to deal with courses with corequisites.

### Block assessment

Some programs may assess a cluster of courses together in one block, which may save you time and effort. Ask the PLAR contact person whether there are any block assessment options in this program.

## C. Dates when PLAR assessment is available

PLAR assessment for this program is available from Sept 1 to June 15 in each academic year.

> **All PLAR assessments must be completed by June 15 of each academic year**.

## D. Special directions for this program

1. **Review** the PLAR process and FAQs and the information in this guide.

2. **Self-rate** your learning for each course using the Course Outlines in this guide.

3. **Consult** with the PLAR contact person for PLAR approval. Be prepared to provide your resume, course self-ratings (see section F), and a partially completed PLAR application. If you are approved for PLAR, the contact person will sign your PLAR application and explain next steps.

4. Apply for admission to the program. See directions for applying.

5. **Register** for PLAR at Registration/Enrolment Services once you have signed approval on your PLAR Application Form. The PLAR fee will be added to your student account.

6. **Finalize** an assessment plan with your assigned assessor.

7. **Complete** assessment before your PLAR registration expires.

## E. PLAR contact person

Contact one of the Program Heads below to arrange a consultation **after** you have read this guide and general PLAR information **and** rated yourself for each course (see next section). Consultation may be by phone, online, or in person. Be prepared to provide your resume, course self-ratings, and a partially completed PLAR application. If agreement is reached to go ahead with PLAR, the contact person will sign approval on your PLAR application and explain the next steps. Admission to the program is required before you can register for PLAR.

**Ron New, Program Head**
Saskatchewan Polytechnic, Saskatoon Campus
Phone: 306 – 659 - 4446
Email: new@saskpolytech.ca

## F. Self-rating course outlines

Clicking on a course code below opens a page where you can rate yourself on the knowledge and skills assessed for PLAR credit. For Arts & Sciences courses, clicking on the course code opens another PLAR guide. The PLAR contact person for this program will refer you to another person to discuss PLAR for courses delivered by Arts & Sciences or another program/department.

| COURSE CODE | COURSE NAME | Delivered by another department/program |
|---|---|---|
| **Semester 1** | | |
| ADMN 220 | Organizational Behaviour | Business Diploma |
| CNET 184 | Data Communications and Networking 1 | |
| COAP 173 | Data and Document Management | |
| COOS 181 | Operating Systems Fundamentals | |
| COSC 180 | Introduction to Programming | |
| CWEB 180 | Web Site Development | |
| TCOM 102 | Workplace Communication | Arts &Sciences |
| **Semester 2** | | |
| CDBM 190 | Introduction to Database Management | |
| COHS 190 | Hardware | |
| COOS 190 | Systems Administration 1 | |
| COSA 190 | Systems Analysis and Design | |

| COURSE CODE | COURSE NAME | Delivered by another department/program |
|---|---|---|
| COSC 190 | Intermediate Programming | |
| CWEB 190 | Internet Programming/Web Applications 1 | |
| TCOM 190 | Technical Communications | Arts &Sciences |
| **Semester 3** | | |
| COSA 195 | Systems Project | |
| COSC 195 | Mobile Application Programming | |
| CPMG 195 | Systems Project Management | |
| CWEB 195 | UX Fundamentals | |
| **Semester 4** | | |
| CDBM 280 | Database Management Systems | |
| COHS 280 | Enterprise Systems Support | |
| COSA 280 | IT Development Project 1 | |
| COSC 286 | Advanced Programming 1 | |
| CPMG 280 | IT Development Project Management 1 | |
| CSEC 280 | Security 1 | |
| CWEB 280 | Internet Programming /Web Applications 2 | |
| MATH 282 | Mathematics of Computation | |
| SEM 283 | Seminar | |
| **Semester 5** | | |
| COOS 291 | Advanced Operating Systems | |
| COOS 293 | Systems Administration 2 | |
| COOS 294 | Enterprise Server Administration | |
| COSA 290 | IT Development Project 2 | |
| COSC 295 | Advanced Mobile Application Programming | |

| COURSE CODE | COURSE NAME | Delivered by another department/program |
|---|---|---|
| CPMG 290 | IT Development Project Management 2 | |
| TCOM 291 | Career Path Search | Arts &Sciences |
| **Semester 6** | | |
| COET 295 | Emerging Technologies | |
| COOS 295 | Systems Administration 3 | |
| CSEC 295 | Security Topics | |

## ADMN 220 - Organizational Behaviour

You will study human behaviour in organizations and develop the skills needed to deal with people at work. Your studies include content on individual behaviour, values, interpersonal relationships and communications, groups and team dynamics, organizational culture, leadership, and change. You will study these aspects of human behavior within the context of diverse formal organizations.

| | |
|---|---|
| **Credit unit(s):** | 4.0 |
| **Prerequisites:** | none |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Describe organizational behavior. | | | |
| 2. Discuss diversity in organizations. | | | |
| 3. Explain how emotions shape our behavior. | | | |
| 4. Explain how personality and values influence behavior. | | | |
| 5. Discuss how perception influences the decision-making process. | | | |
| 6. Apply various motivational models to improve performance. | | | |
| 7. Demonstrate effective teambuilding skills. | | | |
| 8. Use the appropriate leadership style in a situation using leadership theory. | | | |
| 9. Explain how power and organizational politics relate to performance. | | | |
| 10. Explain conflict management. | | | |
| 11. Describe organizational culture. | | | |
| 12. Explain organizational change and strategies to overcome resistance to change. | | | |

**CNET 184 - Data Communications and Networking 1**

In this course you will describe the major networking technologies and systems of modern networks, and be able to configure, manage and troubleshoot modern networks. This course presents content required in the objectives of the CompTIA Network+ certification exam.

| | |
|---|---|
| **Credit unit(s):** | 4.0 |
| **Prerequisites:** | none |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:**  I can apply this outcome without direction or supervision.<br>**Learning:**  I am still learning skills and knowledge to apply this outcome.<br>**None:**  I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1.  Explain network models. | | | |
| 2.  Explain network properties. | | | |
| 3.  Describe network implementations. | | | |
| 4.  Configure the TCP/IP protocol. | | | |
| 5.  Describe major TCP/IP services. | | | |
| 6.  Monitor and troubleshoot networks. | | | |
| 7.  Describe network attacks and security mechanisms. | | | |
| 8.  Describe remote networking. | | | |
| 9.  Identify network policies and procedures. | | | |

**COAP 173 - Data and Document Management**

You will be introduced to a document management system used to create, retrieve, and process unstructured data in a quick and efficient manner. You will learn about the functionality and features of document management. You will be introduced to data management concepts using an industry standard electronic spreadsheet. Your studies will focus on the appropriate application of an electronic spreadsheet with a focus on information management, advanced data analysis and business intelligence.

| | |
|---|---|
| **Credit unit(s):** | 4.0 |
| **Prerequisites:** | none |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Use a personal information manager. | | | |
| 2. Create a spreadsheet. | | | |
| 3. Use application integration. | | | |
| 4. Manage spreadsheet data tables. | | | |
| 5. Generate charts. | | | |
| 6. Manage multiple worksheets and workbooks. | | | |
| 7. Automate tasks using Macros. | | | |
| 8. Create Dashboards to customize data management environments. | | | |
| 9. Use complex data analysis tools to problem solve. | | | |
| 10. Manage data in large scale (Big Data) environments. | | | |

**COOS 181 - Operating Systems Fundamentals**

You will be provided with the knowledge and skills required to install and configure desktop computers and other devices for use in a Windows business environment.

| | |
|---|---|
| **Credit unit(s):** | 4.0 |
| **Prerequisites:** | none |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Install an operating system. | | | |
| 2. Configure user access. | | | |
| 3. Configure networking. | | | |
| 4. Configure data access. | | | |
| 5. Manage the desktop environment. | | | |
| 6. Configure security settings. | | | |
| 7. Maintain an operating system. | | | |
| 8. Manage a Linux desktop operating system. | | | |
| 9. Manage an Apple desktop operating system. | | | |

**COSC 180 - Introduction to Programming**

You will learn concepts used in object-oriented programming. You will create programs that use variables, allow for user input and output, and provide opportunities for simple decision strategies. You will also learn how to work with different variable types and how to debug programs. In addition, you will create and use strategies that involve repetition (looping) in your programs. You will create methods and work with elementary data collections (arrays). You will learn how to create object templates (classes) and create and utilize object in your programming. You will develop an understanding of inheritance and polymorphism, and you will utilize these object-oriented techniques to solve problems.

| | |
|---|---|
| **Credit unit(s):** | 6.0 |
| **Prerequisites:** | none |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Explain programming terminology. | | | |
| 2. Create a program using tools and styling conventions. | | | |
| 3. Perform elementary programming. | | | |
| 4. Use a debugging tool. | | | |
| 5. Write programs that utilize strings and mathematical library routines. | | | |
| 6. Create programs using operators and decision statements. | | | |
| 7. Create a program using repetition structures. | | | |
| 8. Create a program using methods. | | | |
| 9. Use arrays to manage collections of primitive values or object references. | | | |
| 10. Create a program using objects and object-oriented techniques. | | | |
| 11. Design reusable classes using inheritance, polymorphism, and interfaces. | | | |

**CWEB 180 - Web Site Development**

You will learn how to use HyperText Markup Language (HTML) to develop Web pages for delivery over the World Wide Web. You will also learn how to plan and develop HTML documents to build a Web site based on W3 standards and enhance HTML documents using current techniques such as Cascading Style Sheets (CSS) site management using current software.

| | |
|---|---|
| **Credit unit(s):** | 4.0 |
| **Prerequisites:** | none |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Create hypertext documents. | | | |
| 2. Design web pages using fonts and colours. | | | |
| 3. Design web page layouts. | | | |
| 4. Design web sites using backgrounds and other effects. | | | |
| 5. Design device-independent websites. | | | |
| 6. Design web pages using tables and columns. | | | |
| 7. Create web page forms. | | | |
| 8. Design web pages using multimedia resources. | | | |
| 9. Create XML documents. | | | |

**TCOM 102 - Workplace Communication**

You will examine the employability skills required in the workplace. You will discuss the communication process, and practice effective interpersonal communication techniques and conflict resolution. You will use workplace writing and job search skills.

**Credit unit(s):**          3.0
**Prerequisites:**          none
**Corequisites:**          none
**Equivalent course(s):**          none

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:**   I can apply this outcome without direction or supervision.<br>**Learning:**   I am still learning skills and knowledge to apply this outcome.<br>**None:**   I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Examine fundamentals of workplace communication. | | | |
| 2. Discuss conflict resolution techniques. | | | |
| 3. Apply job-related interpersonal and oral communication strategies. | | | |
| 4. Apply workplace writing skills. | | | |
| 5. Use job search skills. | | | |

**CDBM 190 - Introduction to Database Management**

You will receive instruction and practice in using an industry standard database management application program. You will learn how to design queries, forms and reports to manage an underlying database. You will also create functions and procedures to add advanced functionality to the database management system.

| | |
|---|---|
| **Credit unit(s):** | 5.0 |
| **Prerequisites:** | COSC 180 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Use database tools with an existing database. | | | |
| 2. Create databases and tables. | | | |
| 3. Apply data relationships to maintain data integrity. | | | |
| 4. Create queries that select data from tables. | | | |
| 5. Compose queries that manipulate data. | | | |
| 6. Design forms to create a user interface. | | | |
| 7. Manage data using forms. | | | |
| 8. Create reports to summarize and consolidate data. | | | |
| 9. Code procedures and functions for database management systems. | | | |
| 10. Apply advanced functionality to forms and reports. | | | |

**COHS 190 - Hardware**

You will be introduced to various computer hardware components. Your studies will cover the terminology associated with computer systems and peripherals. Additionally your studies will provide you with the opportunity to install components, connect peripherals, and configure computer systems. Your studies will include operational and safety procedures.

| | |
|---|---|
| **Credit unit(s):** | 4.0 |
| **Prerequisites:** | none |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Discuss operational and safety procedures. | | | |
| 2. Identify computer components. | | | |
| 3. Install and configure components and peripherals. | | | |
| 4. Recommend computer components. | | | |
| 5. Practice the maintenance of hardware. | | | |
| 6. Demonstrate professionalism. | | | |

**COOS 190 - Systems Administration 1**

In this course you will install and configure Microsoft Server 2016 for use as a network operating system. On the completion of this course, you will have covered the learning objectives required in the Microsoft 70-740 certification exam. The Computer Systems Technology program does not provide exams for Microsoft certification.

| | |
|---|---|
| **Credit unit(s):** | 4.0 |
| **Prerequisites:** | COOS 181 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Identify/Describe Server 2016 features. | | | |
| 2. Install Network Software. | | | |
| 3. Manage Network Storage Services. | | | |
| 4. Manage network Images. | | | |
| 5. Manage Server Virtualization. | | | |
| 6. Manage high availability services. | | | |
| 7. Manage advanced file and storage services. | | | |
| 8. Maintain servers. | | | |

**COSA 190 - Systems Analysis and Design**

You will explore and apply the concepts required to analyze, design, create, install and document a systems project. You will be exposed to key project management concepts and practices. You will be introduced to an industry standard modeling graphical language.

| | |
|---|---|
| **Credit unit(s):** | 4.0 |
| **Prerequisites:** | COSC 180 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 9. Describe the software life cycle. | | | |
| 10. Explain project management concepts. | | | |
| 11. Analyze methods for initiating a project. | | | |
| 12. Prepare project analysis. | | | |
| 13. Prepare project plans. | | | |
| 14. Prepare unified modeling language (UML) models for software design. | | | |
| 15. Design software using object-oriented best practices. | | | |
| 16. Prepare project tests. | | | |
| 17. Prepare a software project for deployment. | | | |

**COSC 190 - Intermediate Programming**

You will receive instruction in working with data structures and creating recursive methods. You will utilize standard file input/output techniques. You will learn about the basic tenants of Functional programming. You will become familiar with and be able to manipulate such advanced data structures as stacks and queues. The course content includes introductory GUI development, thread-based programming, and builds towards an introduction of Network programming techniques (sockets and Database access).

**Credit unit(s):**           6.0
**Prerequisites:**            COSC 180
**Corequisites:**             none
**Equivalent course(s):**     none

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1.  Analyze common arrays algorithms for searching. | | | |
| 2.  Create recursive methods. | | | |
| 3.  Design robust programs using appropriate exception handling. | | | |
| 4.  Use dynamic data structures. | | | |
| 5.  Use Functional Programming Techniques. | | | |
| 6.  Design programs that present information through a Graphical User Interface (GUI). | | | |
| 7.  Design programs for data storage and retrieval from files. | | | |
| 8.  Create programs that use multithreading. | | | |
| 9.  Create programs that use networking techniques. | | | |
| 10. Create programs that access remote databases. | | | |

**CWEB 190 - Internet Programming/Web Applications 1**

You will receive instruction and practice in the development of client-side Web applications. You will use JavaScript to improve Web page design, validate forms, detect browsers, create cookies, and detect and respond to user actions.

**Credit unit(s):** 4.0
**Prerequisites:** COSC 180
**Corequisites:** none
**Equivalent course(s):** none

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Identify how JavaScript functions with web pages. | | | |
| 2. Use JavaScript language constructs. | | | |
| 3. Construct custom JavaScript objects. | | | |
| 4. Use the Browser Object Model. | | | |
| 5. Manage form data with JavaScript. | | | |
| 6. Create Dynamic HTML (DHTML) web pages. | | | |
| 7. Manage state information and security. | | | |
| 8. Create dynamically updated web pages with Ajax. | | | |

**TCOM 190 - Technical Communications**

You will be introduced to the basic principles of effective technical writing in the computer industry. The necessity of following company standards for documentation will be emphasized. You will review grammar and style, and learn technical formats and report design. The production of technical documentation for a variety of user groups will also be emphasized.

| | |
|---|---|
| **Credit unit(s):** | 3.0 |
| **Prerequisites:** | TCOM 102 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Identify documentation types required in the workplace. | | | |
| 2. Conduct situational analyses. | | | |
| 3. Plan documentation. | | | |
| 4. Draft technical documentation. | | | |
| 5. Perform revisions and editing of documentation. | | | |
| 6. Design technical documentation and reports. | | | |

**COSA 195 - Systems Project**

You will gain experience in small systems analysis, design and implementation. You will be assigned to groups and given the specifications for a software system. You will work together as a team to develop a working system for the client. Emphasis is on the software development process.

**Credit unit(s):**          4.0
**Prerequisites:**          CDBM 190, COSA 190, COSC 190
**Corequisites:**          CPMG 195
**Equivalent course(s):**          none

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1.  Apply project processes in a team environment. | | | |
| 2.  Prepare project requirements document. | | | |
| 3.  Generate acceptance test results. | | | |
| 4.  Generate analysis models. | | | |
| 5.  Generate design models. | | | |
| 6.  Create a software implementation of a project design. | | | |
| 7.  Generate unit test results. | | | |
| 8.  Use software version control. | | | |
| 9.  Prepare user manual and installation manual for systems project. | | | |

**COSC 195 - Mobile Application Programming**

You will develop mobile application programs. Your studies will focus on the Android mobile environment and include an understanding of the mobile application development environment. You will develop simple and advanced mobile applications as well as understand mobile environment limitations and security issues with mobile applications. You will have an opportunity to publish mobile applications.

| | |
|---|---|
| **Credit unit(s):** | 3.0 |
| **Prerequisites:** | COSC 190 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Use mobile application development tools. | | | |
| 2. Create a mobile application that uses basic user interface concepts. | | | |
| 3. Create a mobile application that uses advanced user interface concepts. | | | |
| 4. Create a mobile application that interacts with other Applications. | | | |
| 5. Create a mobile application that stores and accesses data on a device. | | | |
| 6. Create a mobile application that uses mobile device features. | | | |
| 7. Create a mobile application for deployment on a mobile device. | | | |
| 8. Create a mobile application incorporating advanced Android development concepts. | | | |

**CPMG 195 - Systems Project Management**

You will practice project management, documentation, meeting, and presentation skills. As a contributor to a computer system development project, you will prepare for and participate in project meetings, prepare project management documentation, manage progress using project management techniques, maintain storage of project documentation and deliver a presentation on the project to the client.

**Credit unit(s):**          1.0
**Prerequisites:**          COSA 190, TCOM 190
**Corequisites:**          COSA 195
**Equivalent course(s):**          none

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:**    I can apply this outcome without direction or supervision.<br>**Learning:**    I am still learning skills and knowledge to apply this outcome.<br>**None:**    I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1.  Use project management skills to manage systems project. |  |  |  |
| 2.  Prepare project plan for systems project. |  |  |  |
| 3.  Use client meetings to facilitate the progress of the systems project. |  |  |  |
| 4.  Use a documentation management system. |  |  |  |
| 5.  Prepare release plans for systems project. |  |  |  |
| 6.  Present a systems project. |  |  |  |

**CWEB 195 - UX Fundamentals**

You will study the concepts of user experience (UX). You will learn about user experience research techniques and how to present their findings. You will learn about user experience design techniques. You will plan and create a small website following user experience research and design strategies. You will evaluate the usability of websites.

| | |
|---|---|
| **Credit unit(s):** | 2.0 |
| **Prerequisites:** | CWEB 190 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1.  Examine user-centered design (UCD) practices. | | | |
| 2.  Explain user experience research (UXR) techniques and their results. | | | |
| 3.  Explain user experience design (UXD) techniques and their results. | | | |
| 4.  Create a prototype of a web page. | | | |
| 5.  Implement the prototype of a web page. | | | |
| 6.  Evaluate the usability of a website. | | | |

**CDBM 280 - Database Management Systems**

You will receive instruction and practice in planning, designing, and accessing data in a relational database. You will study the theory behind relational databases, relational database nomenclature and optimizing database design through normalization. You will create queries and manipulate a relational database using standard SQL statements (including using SQL in a procedural environment to create procedures, functions, and triggers).

| | |
|---|---|
| **Credit unit(s):** | 5.0 |
| **Prerequisites:** | CDBM 190 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Describe the components and function of database management systems. | | | |
| 2. Model users' data requirements using conceptual modeling techniques. | | | |
| 3. Transform data models into normalized database designs. | | | |
| 4. Maintain entity and referential integrity through constraints. | | | |
| 5. Implement relational database designs. | | | |
| 6. Design SQL statements to modify data. | | | |
| 7. Design SQL statements to retrieve data from multiple tables. | | | |
| 8. Design Views. | | | |
| 9. Embed non-procedural queries in a procedural language. | | | |
| 10. Discuss query optimization techniques. | | | |

**COHS 280 - Enterprise Systems Support**

You will gain valuable expertise in assessing, documenting, and responding to an assortment of help desk situations. You will acquire knowledge regarding computer deployment in an enterprise environment. You will also deploy antivirus software, monitor software license compliancy, and perform network resource inventory in an enterprise environment.

| | |
|---|---|
| **Credit unit(s):** | 3.0 |
| **Prerequisites:** | COHS 190 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Demonstrate Appropriate Responses to Help Desk Situations. | | | |
| 2. Describe Systems Management Software. | | | |
| 3. Use Software to Discover and Organize Network Resources. | | | |
| 4. Manage Inventory in A Large Organization. | | | |
| 5. Create Queries and Reports in Systems Management Software. | | | |
| 6. Demonstrate Software Deployment. | | | |
| 7. Use Endpoint Protection to Protect Client Computers. | | | |
| 8. Manage Software License Compliancy. | | | |
| 9. Use Enterprise Level Hardware. | | | |

**COSA 280 - IT Development Project 1**

You will study and employ the practical and theoretical concepts obtained in first year systems analysis and design courses by building an IT system. You will work as part of a development team on an IT problem for an external industry client. Your project will include the production and demonstration of functioning components of the system each release within deadlines set out in your project management documentation.

Credit unit(s):           3.0
Prerequisites:            CDBM 280, CWEB 280, COSA 195, CPMG 195
Corequisites:             CPMG 280
Equivalent course(s):     none

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Adopt project processes in a team environment for IT development project for an external client. | | | |
| 2. Formulate project requirements for IT development project for an external client. | | | |
| 3. Generate requirements document for IT development project for an external client. | | | |
| 4. Generate acceptance test results for IT development project for an external client. | | | |
| 5. Generate analysis and design models for IT development project for an external client. | | | |
| 6. Create design models and analysis models to changing requirements for IT development project for an external client. | | | |
| 7. Create a software implementation of a project design for IT development project for an external client. | | | |
| 8. Generate unit test results for IT development project for an external client. | | | |
| 9. Use software version control. | | | |
| 10. Create user manual and installation manual for IT development project for an external client. | | | |

**COSC 286 - Advanced Programming 1**

You will study the use of predefined abstract data types and user defined abstract data types to improve program modularity. Your studies will include the design and implementation of abstract data types using object-oriented data structures. Topics will include alternative implementations of data structures and sorting techniques using interfaces, collections, and iterators.

| | |
|---|---|
| **Credit unit(s):** | 5.0 |
| **Prerequisites:** | COSC 190 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1.  Combine appropriate programming constructs to implement advanced algorithms. | | | |
| 2.  Describe an abstract data type. | | | |
| 3.  Create linked list data structure using abstract data types. | | | |
| 4.  Generate a class from the abstract data type – Binary Tree. | | | |
| 5.  Generate a class from the abstract data type – Balanced Binary Tree. | | | |
| 6.  Generate a class from the abstract data type – Hash Table. | | | |
| 7.  Generate a class from the abstract data type – Graph. | | | |
| 8.  Implement graph algorithms to solve common problems. | | | |
| 9.  Implement advanced sorting algorithms. | | | |
| 10. Develop a solution to a problem using collections. | | | |

**CPMG 280 - IT Development Project Management 1**

You will practice project management, documentation, meeting and presentation skills. As a contributor to a computer system development project, you will prepare for and participate in project meetings, prepare project management documentation, adapt project management processes as required, manage progress using project management techniques and manage storage of project documentation.

| | |
|---|---|
| **Credit unit(s):** | 1.0 |
| **Prerequisites:** | COSA 195, CPMG 195 |
| **Corequisites:** | COSA 280 |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Use project management skills to manage an IT development project for an external client. | | | |
| 2. Use client meetings to facilitate the progress of an IT development project for an external client. | | | |
| 3. Use a content management system for documentation. | | | |
| 4. Prepare release plans for an IT development project for an external client. | | | |

**CSEC 280 - Security 1**

You will learn the fundamentals of computer security. You will learn to recognize several areas of security attacks, examine current security measures, and evaluate techniques to enhance existing measures. You will examine methods to maintain the integrity of an organizations network infrastructure and the day-to-day operations.

| | |
|---|---|
| **Credit unit(s):** | 4.0 |
| **Prerequisites:** | CNET 184 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Discuss Security Fundamentals. | | | |
| 2. Identify Security Threats and Vulnerabilities. | | | |
| 3. Examine Data, Application and Host Security. | | | |
| 4. Evaluate Network Security. | | | |
| 5. Understand Access Control, Authentication and Account Management. | | | |
| 6. Evaluate the Use of Certificates. | | | |
| 7. Describe Compliance and Operational Security. | | | |
| 8. Understand Risk Management. | | | |
| 9. Discuss Troubleshooting and managing Security Incidents. | | | |
| 10. Describe Planning Business Continuity and Disaster Recovery. | | | |

**CWEB 280 - Internet Programming/Web Applications 2**

You will receive instruction and practice in the development of server-side Web applications. You will learn how to write scripts that allow remote users to interface with databases existing on a World Wide Web server. You will become familiar with server-side programming to display website content dynamically as required.

| | |
|---|---|
| **Credit unit(s):** | 5.0 |
| **Prerequisites:** | CDBM 280, COSC 190, CWEB 195 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Construct Web pages using basic server side language features. | | | |
| 2. Construct secure Web pages using server side objects. | | | |
| 3. Apply server side state management features. | | | |
| 4. Manage database tables. | | | |
| 5. Create objects to connect to a database server. | | | |
| 6. Design web pages that retrieve and modify data stored in a database. | | | |
| 7. Use modern client/server communication methods to retrieve and modify Web page data. | | | |
| 8. Develop a secure Web site using all the elements covered in this course. | | | |

**MATH 282 - Mathematics of Computation**

You will investigate the characteristics of discrete and continuous systems from a programming perspective and compare and contrast programming techniques required for dealing with discrete system data (Boolean values, integer numbers, and character data) with those for continuous system data (floating point numbers). You will also investigate the nature and propagation of error as a result of programming. You will explore number systems and programming techniques for solving simultaneous equations, integrating functions, finding roots, compressing data and encrypting data.

| | |
|---|---|
| **Credit unit(s):** | 3.0 |
| **Prerequisites:** | COSC 190 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Describe the sources of computational error. | | | |
| 2. Write programs to calculate numeric quantities. | | | |
| 3. Write programs to solve problems involving simultaneous linear equations. | | | |
| 4. Write programs for computing integrals of functions. | | | |
| 5. Write programs to use matrix arithmetic to work with graphic objects. | | | |
| 6. Use complexity to evaluate algorithms. | | | |
| 7. Implement data encryption algorithms. | | | |
| 8. Implement data compression algorithms. | | | |

**SEM 283 - Seminar**

You will learn about topics of interest in the computer technology field from speakers representing various companies in industry.

| | |
|---|---|
| **Credit unit(s):** | 1.0 |
| **Prerequisites:** | none |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Recommend topics of interest in the computer technology field. | | | |
| 2. Participate in making public presentations. | | | |
| 3. Discuss presentations. | | | |

**COOS 291 - Advanced Operating Systems**

You will learn to work with both the command line and graphical interfaces of the Linux operating system. In addition you will learn about the file system, shell programming, system and network administration. Special emphasis will be placed on learning about Linux networks and telecommunications studies.

| | |
|---|---|
| **Credit unit(s):** | 5.0 |
| **Prerequisites:** | COOS 181 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Demonstrate competency in using Linux in both command Line and Graphical User Interface (GUI) mode. | | | |
| 2. Describe the Linux File System. | | | |
| 3. Perform administrative tasks with a scripting language. | | | |
| 4. Perform system administration. | | | |
| 5. Perform network administration. | | | |
| 6. Manage a network. | | | |
| 7. Manage Web content servers. | | | |
| 8. Perform socket-based communications. | | | |
| 9. Configure interoperability between Linux and Windows networks. | | | |

**COOS 293 - Systems Administration 2**

You will study advanced network administration skills by managing network servers and services. You will develop the skills and knowledge to implement IP and network addressing services, manage name resolution services and remote access capability, and configure network policy infrastructure. You will be able to oversee a complex network environment and configure numerous network services with a variety of administrative tools. On completion of COOS293, you will have covered the learning objectives specified as preparation for the Microsoft 70-741 certification exam. The Computer Systems Technology program does not provide exams for Microsoft certification.

| | |
|---|---|
| **Credit unit(s):** | 4.0 |
| **Prerequisites:** | COOS 190, CNET 190 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Implement IP addressing. | | | |
| 2. Manage name resolution services. | | | |
| 3. Manage network addressing services. | | | |
| 4. Implement IP address management. | | | |
| 5. Manage remote access. | | | |
| 6. Configure a network policy server (NPS) infrastructure. | | | |
| 7. Manage file services. | | | |
| 8. Implement network connectivity. | | | |

**COOS 294 - Enterprise Server Administration**

You will study administration skills for specialized enterprise level servers. You will then learn how to perform ongoing configuration and management of the servers.

**Credit unit(s):**          4.0
**Prerequisites:**          COOS 190, CNET 190
**Corequisites:**          none
**Equivalent course(s):**          none

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1.  Describe enterprise computing architectures. | | | |
| 2.  Describe enterprise computing models. | | | |
| 3.  Plan enterprise computing solutions. | | | |
| 4.  Plan enterprise network solutions. | | | |
| 5.  Plan enterprise computing storage solutions. | | | |
| 6.  Plan enterprise computing services solutions. | | | |
| 7.  Plan enterprise computing security solutions. | | | |
| 8.  Manage enterprise computing solutions. | | | |

**COSA 290 - IT Development Project 2**

You will continue your work as part of a development team on an IT problem for an external industry client that was started in COSA 280. Your project will include the production and demonstration of functioning components of the system each released within deadlines set out in your project management documentation. You will present the final product to the client.

| | |
|---|---|
| **Credit unit(s):** | 6.0 |
| **Prerequisites:** | COSA 280, CDBM 280, CPMG 280 |
| **Corequisites:** | CPMG 290 |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Adapt project processes in a team environment. | | | |
| 2. Update project requirements for IT development project for an external client. | | | |
| 3. Generate acceptance test results for IT development project for an external client. | | | |
| 4. Adapt design models and analysis models to changing requirements for IT development project for an external client. | | | |
| 5. Develop additional software for expanding product functionality for IT development project for an external client. | | | |
| 6. Generate unit test results for IT development project for an external client. | | | |
| 7. Use software version control. | | | |
| 8. Revise user manual and installation manual for IT development project for an external client. | | | |

**COSC 295 - Advanced Mobile Application Programming**

You will study basic iOS application development for Apple mobile devices and cross platform development that works on Android and Apple devices. Your studies will include an introduction to a programming language required to create applications for iOS mobile devices. Also, you will utilize a cross platform development tool to create a mobile application that can run on multiple platforms.

| | |
|---|---|
| **Credit unit(s):** | 4.0 |
| **Prerequisites:** | COSC 195 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Discuss application development for iOS mobile devices. | | | |
| 2. Explain basic programming constructs necessary for an iOS application. | | | |
| 3. Develop software that can run on an iOS device using decisions and repetitions. | | | |
| 4. Develop software that can run on an iOS device using object oriented concepts. | | | |
| 5. Develop software that can run on an iOS device using advanced concepts. | | | |
| 6. Explain the rational for using a cross platform development tool to create applications. | | | |
| 7. Develop a mobile application using a cross platform development tool that can run on multiple device platforms. | | | |
| 8. Develop a mobile application using a cross platform development tool that interacts with other applications on the device. | | | |
| 9. Develop a mobile application using a cross platform development tool that interacts with device hardware. | | | |

**COSC 292 - Advanced Programming 2**

You will study structured programming techniques, a procedural language, functions, pointers, file input/output, records and dynamic memory management to create applications.

| | |
|---|---|
| **Credit unit(s):** | 4.0 |
| **Prerequisites:** | COSC 286 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:**  I can apply this outcome without direction or supervision.<br>**Learning:**  I am still learning skills and knowledge to apply this outcome.<br>**None:**  I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Design a solution to a problem using structured programming techniques. | | | |
| 2. Create a procedural language application from a structured programming design. | | | |
| 3. Use language libraries and functions when developing a procedural program. | | | |
| 4. Develop function libraries in a procedural language. | | | |
| 5. Develop code to reference and manipulate static memory with pointers. | | | |
| 6. Develop code to reference and manipulate dynamic memory with pointers. | | | |
| 7. Design records for the storage of non-homogeneous data. | | | |
| 8. Develop code to create, manipulate, and store records. | | | |

**CPMG 290 - IT Development Project Management 2**

You will continue your project management work from CPMG 280. You will continue to improve your project management, documentation, meeting, and presentation skills. As well, you will make use of project monitoring techniques. As a contributor to a computer system development project, you will prepare for and participate in project meetings, prepare project management documentation, adapt project management processes as required, manage progress using project management techniques, manage storage of project documentation and deliver a presentation on a project.

| | |
|---|---|
| **Credit unit(s):** | 2.0 |
| **Prerequisites:** | COSA 280, CPMG 280 |
| **Corequisites:** | COSA 290 |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Improve project management skills to manage an IT development project for an external client. | | | |
| 2. Plan client meetings to efficiently facilitate the progress of an IT development project for an external client. | | | |
| 3. Organize project documentation in a content management system. | | | |
| 4. Create release plans for an IT development project for an external client. | | | |
| 5. Apply project monitoring techniques for an IT development project for an external client. | | | |
| 6. Present an IT development project. | | | |

**TCOM 291 - Career Path Search**

You will prepare a career path portfolio based on your accumulated skills, qualifications and accomplishments. You will prepare your resume and cover letter to target an IT job posting. In a simulated job interview, you will answer behavioural questions and demonstrate the use of a career path portfolio.

| | |
|---|---|
| **Credit unit(s):** | 1.0 |
| **Prerequisites:** | none |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Develop a portfolio. | | | |
| 2. Prepare a resume and cover letter. | | | |
| 3. Demonstrate interview skills. | | | |

**COET 295 - Emerging Technologies**

You will study the subject of new/emerging technologies, and you will examine how these technologies can change existing markets and development environments. You will gain experience in working with software and/or hardware that can be classified as part of the emerging technology paradigm.

| | |
|---|---|
| **Credit unit(s):** | 3.0 |
| **Prerequisites:** | COHS 280, COOS 293, COSC 292, COSC 295, CWEB 280 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Explain the dynamics of emerging technologies. | | | |
| 2. Identify emerging technologies that are changing the marketplace. | | | |
| 3. Identify the processes required to implement emerging technologies. | | | |
| 4. Develop a plan for introducing a new technology in a simulated workplace setting. | | | |
| 5. Implement the new technology in a simulated workplace setting. | | | |

**COOS 295 - Systems Administration 3**

You will learn how to deploy and configure Active Directory Domain Services (AD DS) in a distributed environment. You will learn how to implement Group Policy, perform backup and restore, as well as monitor and troubleshoot AD-related issues with Windows Server. You will deploy other AD server roles such as Active Directory Federation Services (AD FS) and Active Directory Certificate Services (AD CS). You will use Microsoft Official Academic Course (MOAC) curriculum and training materials. On completion of COOS 295, you will have covered the learning objectives required in the Microsoft 70-742 certification exam. The Computer Systems Technology program does not provide exams for Microsoft certification.

| | |
|---|---|
| **Credit unit(s):** | 3.0 |
| **Prerequisites:** | COOS 293, CNET 293 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Install Domain Controllers. | | | |
| 2. Manage Active Directory Objects. | | | |
| 3. Configure Domain security settings. | | | |
| 4. Maintain Active Directory. | | | |
| 5. Configure Active Directory for complex environments. | | | |
| 6. Configure Group Policies. | | | |
| 7. Configure Digital Certificate Infrastructure. | | | |
| 8. Integrate Complex Services into Active Directory. | | | |

**CSEC 295 - Security Topics**

You will learn various attack and defense methodologies. While exploring current and emerging security topics you will learn how computer security affects businesses and business data. You will be introduced to the protection of an organizations assets, intellectual property and employees as well as methods for maintaining business continuity.

| | |
|---|---|
| **Credit unit(s):** | 3.0 |
| **Prerequisites:** | COHS 280, COOS 293, COSC 292, COSC 295 |
| **Corequisites:** | none |
| **Equivalent course(s):** | none |

| Use a checkmark (✓) to rate yourself as follows for each learning outcome<br><br>**Competent:** I can apply this outcome without direction or supervision.<br>**Learning:** I am still learning skills and knowledge to apply this outcome.<br>**None:** I have no knowledge or experience related to this outcome. | Competent | Learning | None |
|---|---|---|---|
| 1. Evaluate Ethical Hacking. | | | |
| 2. Apply the techniques of Information Gathering. | | | |
| 3. Analyze attack and defense methodologies. | | | |
| 4. Demonstrate mobile and wireless security. | | | |
| 5. Demonstrate Internet of Things security. | | | |
| 6. Discuss Cloud security. | | | |
| 7. Investigate Social Engineering. | | | |
| 8. Examine Cyber Warfare and advanced topics. | | | |