

# DEPARTMENT OF INFORMATION TECHNOLOGY

[www.olg.edu/local\\_links/it](http://www.olg.edu/local_links/it)

James Dudek, M.A., Chairperson  
William Elliott, M.B.A.  
Steven Potter, M.B.A.  
Joanne (Suzie) White Thunder, M.S.

## STATEMENT OF VISION

Information Technology Department graduates will demonstrate mastery of information technology and network administration using technologies and best practices that are foundational and applied industry wide.

## STUDENT LEARNING OUTCOMES AND OBJECTIVES

The Information Technology Department is committed to the attainment of our vision. Assessment of student learning outcomes and skills is mission critical. We currently evaluate the student learning outcomes in our baccalaureate degree and our service to OLC General Education.

Bachelor of Science in Information Technology student learning outcomes include computer systems maintenance; LAN & WAN design, protocols, administration and security; and operating systems.

General Education training to entering students with Windows, word processing, spreadsheet, electronic slides, Internet research, E-mail and on-line course content.

We assess student learning through classroom assignments, hands-on labs, student projects and guided internships. Additional information concerning assessment may be obtained by contacting the Department Chairman or the IT Web Site.

## DEGREES OFFERED

The **Bachelor of Science in Information Technology** offers the opportunity for personal and career advancement in the IT field. This field has experienced a shortage of IT professionals over that past several years and the Pine Ridge Reservation is no exception. Our goal is to recruit and train students from the Pine Ridge Indian Reservation for these careers. The Bachelors Degree in Information Technology will give students the necessary background and experience to become a successful IT Systems Engineer.

**Associate of Arts in Information Technology** is a two-year degree designed to provide the necessary knowledge and skills to become a successful IT technical professional. This degree provides the opportunity to choose one of two options:

Information Technology Option  
Management Information Systems Option.

The AA in Information Technology will transfer into our four-year Bachelor of Science Degree in Information Technology, transfer to an IT degree at another four-year institution, or to advance employment opportunities.

**Associate of Applied Science in Business Computers** is a vocational training program designed to provide the student a variety of hands-on learning labs and the necessary skills to achieve in a business or government career. This degree is a terminal program and is not designed to transfer credits toward a higher degree. A **One-Year Certificate in Business Computers** is also offered.

## INFORMATION TECHNOLOGY DEPARTMENT

### Bachelor of Science in Information Technology

			Where
			Taken      Date      Grade
<b>Core Requirements: (28 Credit Hours)</b>			
CoSu	103*	College Success	3 _____
Engl	103	Freshman English I	3 _____
Sci	113*	Technical Writing	3 _____
SpCm	103	Speech Communications	3 _____
Math	154*	College Algebra (or above)	4 _____
Natural Science Elective			3 _____
Literature Electives			3 _____
Psy	103	General Psychology	3 _____
Humanities Electives			3 _____
<b>Lakota Studies Requirements: (15 Credit Hours)</b>			
Lak	103	Lakota Language I	3 _____
Lak	233*	Lakota Language II	3 _____
LSoc	103	Lakota Culture (or LHist 203 Lakota History I)	3 _____
Lakota Studies Elective			3 _____
Lakota Studies Elective			3 _____
<b>IT Professional Requirements (59 Credit Hours)</b>			
IT	103	Theory of Computational Devices	3 _____
IT	134*	A+ Certification	4 _____
IT	153*	Survey of Operating Systems	3 _____
IT	203*	Programming	3 _____
IT	224*	PC Design and Assembly	4 _____
IT	243*	Introduction to Networks	3 _____
IT	253*	Supporting Workstations	3 _____
Math	263*	Discrete Structures	3 _____
IT	273*	Business Information Systems Management	3 _____
IT	290a	Internship in Information Technology	1 _____
IT	290b	Internship in Information Technology	1 _____
IT	323*	Command Line Interface	3 _____
IT	333*	Network Administration	3 _____
IT	343*	Application Software TnT	3 _____
IT	363*	Implementing and Administrating Web Servers	3 _____
IT	404*	Network Protocols	4 _____
IT	423*	Supporting Network Operating Systems	3 _____

IT	453*	Network Security	3	_____
IT	474*	Network Analysis	4	_____
IT	490a	Internship in Information Technology	1	_____
IT	490b	Internship in Information Technology	1	_____

**IT Electives (21 Credit Hours)**

EnS	333	Introduction to Geographic Information Systems	3	_____
Math	194*	Calculus I	4	_____
IT	303*	Introduction to UNIX	3	_____
IT	313*	UNIX Shell Programming	3	_____
IT	353*	Internet Technologies	3	_____
IT	383*	Current Topics in Information Technology	3	_____
IT	414*	Advanced NT	4	_____
IT	433*	Supporting Windows NT Workstation	3	_____
IT	443*	Advanced UNIX	3	_____
IT	502*	MSCE Certification Core Test #1	2	_____
IT	512*	MSCE Certification Core Test #2	2	_____
IT	522*	MSCE Certification Core Test #3	2	_____
IT	532*	MSCE Certification Elective Test #1	2	_____
IT	542*	MSCE Certification Elective Test #2	2	_____

**122 Credit Hours Total**



**INFORMATION TECHNOLOGY DEPARTMENT  
E-Certificate in Distance Learning**

Requirements:			Where Taken	Date	Grade
ET	403	Fundamentals of Distance Education	3	_____	_____
ET	413	Information Technologies in Distance Education	3	_____	_____
ET	423	Course Development and Instructional Design in Distance Education	3	_____	_____
ET	433	Web-Based Learning and Teaching in the Virtual Classroom	3	_____	_____



**INFORMATION TECHNOLOGY DEPARTMENT**  
**Associate of Arts in Information Technology**

			Where
			Taken      Date      Grade
<b>Core Requirements: (25 Credit Hours)</b>			
CoSu	103	College Success	3 _____
Engl	103	Freshman English I	3 _____
Sci	113*	Technical Writing	3 _____
SpCm	103	Speech Communications	3 _____
Math	154*	College Algebra (or above)	4 _____
Science Elective			3 _____
Humanities Electives			3 _____
Psy	103	Psychology	3 _____
<b>Lakota Studies Requirements: (9 Credit Hours)</b>			
Lak	103	Lak. Language I	3 _____
LSoc	103	Lakota Culture (or LHist 203 Lakota History I)	3 _____
Lakota Studies Elective			3 _____
<b>IT Professional Requirements (24 Credit Hours)</b>			
IT	103	Theory of Computational Devices	3 _____
IT	153*	Survey of Operating Systems	3 _____
IT	203*	Programming	3 _____
IT	224*	PC Design and Assembly	4 _____
IT	243*	Introduction to Networks	3 _____
Math	263*	Discrete Structures	3 _____
IT	273*	Business Information Systems Management	3 _____
IT	290a	Internship in Information Technology	1 _____
IT	290b	Internship in Information Technology	1 _____
Choose One of the Following Options:			
<b>Option One - Information Technology</b>			
IT	134*	A+ Certification	4 _____
IT	253*	Supporting Workstations	3 _____
<b>Option Two - Management Information Systems</b>			
MIS	143	Introduction to Spreadsheets	3 _____
MIS	213	Concepts of Database Management	3 _____
			<b>64 Credit Hours Total</b>

**INFORMATION TECHNOLOGY DEPARTMENT**  
**Associate of Applied Science in Business Computers**  
**(Vocational Training Degree)**

		Where Taken	Date	Grade
<b>CORE REQUIREMENTS (18 credits)</b>				
CoSu 103*	College Success	3	_____	_____
Engl 103*	Freshman English I	3	_____	_____
Engl 113*	Freshman English II	3	_____	_____
SpCm 103	Speech Communication	3	_____	_____
Math 103*	Elementary Algebra (or higher)	3	_____	_____
Econ 203*	Principles of Micro-economics or Econ 113 Res. Econ.	3	_____	_____

**LAKOTASTUDIES REQUIREMENTS (6 credits)**

Lak 103	Lakota Language I	3	_____	_____
	Lakota Studies Elective	3	_____	_____

**PROFESSIONAL REQUIREMENTS (30 credits)**

BMath 153*	Business Math	3	_____	_____
OEd 103	Keyboarding	3	_____	_____
OEd 123*	Word Processing I	3	_____	_____
MIS 113	Applied Information Processing	3	_____	_____
IT 203*	Programming	3	_____	_____
MIS 243*	Data Base Applications and Design	3	_____	_____
IT 153	Survey of Operating Systems	3	_____	_____
MIS 143*	Introduction to Spreadsheets	3	_____	_____
IT 273*	Business Information Systems Management	3	_____	_____
IT 290a*	Internship in Computer Science	1	_____	_____
IT 290b*	Internship in Computer Science	1	_____	_____

**PROFESSIONAL ELECTIVES (6 credits)**

OEd 243*	Office Mgt., Security & Safety <b>or</b>			
Acct 203*	Principles of Accounting I <b>or</b>			
BAd 133	Introduction to Business <b>or</b>			
BAd 243	Business Law <b>or</b>	3	_____	_____
BAd 103	Principles of Management	3	_____	_____

**59 Credit Hours Total**

**2006-2007 Catalog**

**INFORMATION TECHNOLOGY DEPARTMENT**  
**One-Year Certificate in Business Computers**  
**(Vocational Training Degree)**

		Where
		Taken    Date    Grade
<b>CORE REQUIREMENTS (9 credits)</b>		
CoSu 103*	College Success	3 _____
Engl 103*	Freshman English I	3 _____
Math 103*	Elementary Algebra (or higher)	3 _____

<b>LAKOTA STUDIES REQUIREMENTS (6 credits)</b>		
Lak 103	Lakota Language I	3 _____
LSoc 103	Lakota Culture	3 _____

<b>PROFESSIONAL REQUIREMENTS (12 credits)</b>		
OEd 103	Keyboarding	3 _____
MIS 113	Applied Information Processing	3 _____
OEd 123*	Word Processing I	3 _____
IT 203*	Programming	3 _____

<b>PROFESSIONAL ELECTIVES (3 credits)</b>		
BMath 153*	Business Math	
BAd 243	Business Law	
BAd 253*	Principles of Management	
MIS 243*	Data Basic Applications & Design	
MIS 253*	Introduction to Spreadsheets	
IT 273*	Business Information Systems Management	
IT 153*	Computer Operating System	
OEd 243*	Office Management, Safety, & Security	
Acct 103*	Principles of Accounting I	3 _____

**30 Credit Hours Total**



**2006-2007 Catalog**

## **COURSES DESCRIPTIONS**

### **Information Technology**

#### SCI 113 Technical Writing

You will learn the essentials of writing clear, concise proposals, reports, technical manuals, letters, memos, bid specifications, and other technical documents. (This course DOES NOT satisfy the Engl 113 requirement for non – Science, Math and Technology programs.) 3 Credit Hours

Prerequisite: Engl 103.

#### IT 103 Theory of Computational Devices

You will have a close look inside today's personal computers. You will see what makes computers "tick" from transistor basics up to accessing the Internet. Detail will be given on all the essential components within a PC and how they interact. This class also addresses the latest aspects of computer technology (e.g., DVD) and how they affect computer use and operation. Presentations of actual hardware (VLSI integrated circuits, modems, etc.) are included so that you can visually appreciate the complexity of the circuitry involved. Copyright issues and ethics involved with computer operations will be discussed.

3 Credit Hours

#### IT 134 A+ Certification

This course will prepare you to pass the A+ certification exams as required to become a computer service technician. You are prepared for the A+ exam in areas like assembly and disassembly of PCs, diagnosing and troubleshooting, basic networking, Windows and DOS. (3,2) 4 Credit Hours

Prerequisite: IT 103, permission of instructor.

#### IT 153 Survey of Operating Systems

You will explore the differences between popular operating systems offered in today's marketplace. Operating Systems include, but not limited to Windows and UNIX. (2,2) 3 Credit Hours

Prerequisite: IT 103, permission of instructor.

#### IT 203 Programming

You will be exposed to the fundamental concepts of problem solving and developing program logic using tools and techniques of programming. Topics include algorithm development, diagramming and program documentation and incorporating a programming language for hands-on application of programming concepts. C++ will be from UNIX. (2,2) 3 Credit Hours

Prerequisite: IT 103, Math 154, permission of instructor.

#### IT 224 PC Design and Assembly

Participants will be able to identify essential components of a typical PC system and how they interact with each other. By the end of the semester, participants will be able to construct a working PC system complete with operating system. (2,4) 4 Credit Hours

Prerequisite: IT 134, permission of instructor.

#### IT 243 Introduction to Networks

Physical and logical network topologies; transmission media and network access will be examined. Hardware and software network configurations, operations and requirements will be discussed. Topics include communication codes, transmission media, encoding methods, the OSI model, network standards and protocols. Copyright issues and ethics involved with computer operations will be discussed. 3 Credit Hours

Prerequisites: IT 103, permission of instructor.

### IT 253 Supporting Workstations

Focuses on the skills necessary to install and manage a GUI workstation environment. The basic areas you will cover include installation and configuration, architectural overview, user interface, memory management, file I/O, network administration, communications and printing, disk utilities, troubleshooting, and multimedia. Linux and Windows XX systems will be used. (2,2) 3 Credit Hours

Prerequisite: IT 134, permission of instructor.

### IT 273 Business Informations Systems Management

A study of the Systems Development Life Cycle including problem investigation, determination of systems requirements, selection of solutions, feasibility studies, cost projections and proposal writing for existing or new systems. 3 Credit Hours

Prerequisite: SCI 113, permission of instructor.

### IT 290a, IT 290b, Internship in Information Technology

This course will be offered each semester. It is designed to introduce you to the rigors of being an Information Technology professional. You are expected to work 40 hours during the semester for each hour of credit. 1 Credit Hour — up to 2 credits can be earned per semester.

Prerequisite: permission of instructor.

### IT 303 Introduction to UNIX

You will be given an introduction to UNIX operating system with specific reference to UNIX commands, the Unix file structure, editors, and shell programming. Includes an introduction to system administration and security. (2,2) 3 Credit Hours

Prerequisite: IT 103, IT 223, permission of instructor.

### IT 313 Unix Shell Programming

UNIX is a versatile multi-user, multitasking operating system. UNIX has a structural software tool design philosophy that is essential for producing reliable, maintainable, and portable programs. You will cover the essential aspects of UNIX Shell programming such as the Bourne shell and shell scripts. In this class you will learn to manage UNIX files and directories using the UNIX shell commands, work with shell variables, metacharacters and regular expressions, use shell commands to redirect input, output and error messages, and archive files in the background and write different types of shell scripts. (2,2) 3 Credit Hours

Prerequisite: IT 103, permission of instructor.

### IT 323 Command Line Interface

Command line concepts and syntax to perform directory hierarchy maintenance, I/O redirection, pipes, and device and system maintenance using variables and switches are topics of the command line interface course. The Disk Operating System (DOS) and UNIX dialects will be studied. 3 Credit Hours

### IT 333 Network Administration

This course will acquaint you to a network environment and to provide basic entry-level skills in network administration. Hands-on exercises will allow you to become familiar with popular network operating system's management utilities including printing services, storage devices and setup of networking protocols. (2,2) 3 Credit Hours

Prerequisite: IT 253, permission of instructor.

### IT 343 Application Software TnT

This course will help you to develop problem-solving tactics to help end users overcome difficulties with their application program. Training aspects and how you can take a proactive approach for training end users on application programs will be investigated. 3 Credit Hours

Prerequisite: SCI 113, IT 253, permission of instructor.

### IT 353 Internet Technologies

This course is aimed at giving you a comprehensive overview of Internet technologies. You will learn about the history of the Internet, how to use a wide array of Internet technologies, Internet trends and current issues relating to the Internet. Students will also learn the key skills required to create attractive, well-designed, secure WEB sites that meet the goals of a business organization. (2,2) 3 Credit Hours

Prerequisite: IT 253, permission of instructor.

### IT 363 Implementing and Administrating Web Servers

In this course you will learn the fundamentals of designing, installing, configuring, maintaining and upgrading your web site. Protocols that will be covered include SNMP, SMTP, Certificate, Index, FTP, HTTP, SSL, CGI, SHTML, SML, and Streaming Media. Management of users and groups as they pertain to Web Servers will also be covered. (2,2) 3 Credit Hours

Prerequisite: IT 243, permission of instructor.

### IT 373 Web Design Fundamentals

This course will explore aspects of the design and creation of web sites including the initial planning, design, implementation and publishing. With an emphasis on design, we will use web design tools such as HTML, Dreamweaver, Fireworks, and Photoshop Elements for the web will be covered. Copyright issues will also be covered. Students will design and publish a personal web page as part of the course. There will be a course web site with relevant URLs for that day's topic. 3 Credit Hours

Prerequisite: IT 103, Permission of the instructor.

### IT 383 Current Topics in Information Technology

Offers current topics from the area of Information Technology systems. 3 Credit Hours

Prerequisite: permission of instructor.

### IT 404 Network Protocols

Focuses on TCP/IP using Microsoft Windows NT and UNIX. Topics include UNIX and Microsoft TCP/IP addressing, subnet addressing, implementing IP routing, dynamic host configuration protocol, IP, IPX/SPX, ATM address resolution, Net BIOS name resolution, Windows Internet name service, host name resolution, connectivity, and troubleshooting. (3,2) 4 Credit Hours

Prerequisite: IT 243, permission of instructor.

### IT 414 Advanced NT

You will learn the installation and configuration of Windows NT Server and Workstation with an emphasis on the management and administration of user hardware and software resources. Hands on application of network administration principles on an operational NT Network is provided. (2,4) 4 Credit Hours

Prerequisite: IT 153, IT 253, permission of instructor.

### IT 423 Supporting Network Operating Systems

Advanced network commands and utilities will be demonstrated to you to further supplement the skills required by a network administrator. Directory structures, security, printing and network administration will be covered. Troubleshooting methods and procedures will be discussed for workstations, servers and related hardware, and printing systems. Hardware and software to aid with problem identification and resolution will be discussed and demonstrated where possible. Network optimization and disaster recovery will be covered as well as copyright issues and ethics involved with computer operations. (2,2) 3 Credit Hours

Prerequisite: IT 153, IT 253, permission of instructor.

#### IT 433 Supporting Windows NT Workstation

Provides you with a foundation on the Windows NT workstation and fundamentals. Topics include the Windows NT environment, workstation, printing, remote access, troubleshooting, configuration, installation, managing accounts and user rights, securing directory and file resources, securing the system, networking environment and communication, networking browsing and booting Windows NT, and supporting applications. (2,2) 3 Credit Hours

Prerequisite: permission of instructor.

#### IT 443 Advanced Unix

This course is for users interested in becoming UNIX administrators. In this course we will identify the hardware requirements for a UNIX system, the features of job control, the guidelines for managing disk space usage, the benefits of networking, the features of Transmission Control Protocol/Internet Protocol (TCP/IP), the requirements for remote access, the features of Network Information Services (NIS) and the features of Lightweight Directory Access Protocol (LDAP). (2,2) 3 Credit Hours

Prerequisite: permission of instructor.

#### IT 453 Network Security

Provides you with the essential concepts and methods for the network security. Topics covered include physical/logical security and different methods of implementation, data encryption/decryption. There will be discussions of commercial and open source products for firewall, proxy, cache and NAT. (2,2) 3 Credit Hours

Prerequisite: permission of instructor.

#### IT 474 Network Analysis

Provides you with the theory and methodologies for designing and analyzing network systems. Topics that you will cover include techniques used by computer professionals to determine, document, and analyze the network requirements; assessing the hardware/software needs of an organization. Emphasis will be on problem solving and cost-analysis in a networking environment. (2,3) 4 Credit Hours

Prerequisite: permission of instructor.

#### IT 490a, IT 490b, Internship in Information Technology

This course will be offered each semester. It is designed to introduce you to the rigors of being an Information Technology professional. You are expected to work 40 hours during the semester for each hour of credit. 1 Credit Hour — up to 2 credits can be earned per semester.

Prerequisite: permission of instructor.

#### IT 502 Microsoft Certified Systems Engineer Certification Core Test #1

This class will help you study for the Microsoft Certified Systems Engineer Core Test #1.

(1,2) 2 Credit Hours

Prerequisite: Senior status, permission of instructor.

#### IT 512 Microsoft Certified Systems Engineer Certification Core Test #2

This class will help you study for the Microsoft Certified Systems Engineer Certification Core Test #2.

(1,2) 2 Credit Hours

Prerequisite: Senior status, permission of instructor.

#### IT 522 Microsoft Certified Systems Engineer Certification Core Test #3

This class will help you study for the Microsoft Certified Systems Engineer Certification Core Test #3.

(1,2) 2 Credit Hours

Prerequisite: Senior status, permission of instructor.

#### IT 532 Microsoft Certified Systems Engineer Certification Elective Test #1

This class will help you study for the Microsoft Certified Systems Engineer Certification Core Test #1.

(1,2) 2 Credit Hours

Prerequisite: Senior status, permission of instructor.

#### IT 542 Microsoft Certified Systems Engineer Certification Elective Test #2

This class will help you study for the Microsoft Certified Systems Engineer Certification Core Test #2.

(1,2) 2 Credit Hours

Prerequisite: Senior status, permission of instructor.

Management Information Systems

#### MIS 113 Applied Information Processing

Applied Information Processing is a class designed to meet the needs of today's college students across the disciplines. The application of basic programs of word-processing, spreadsheet, and database, as well as, essential computer systems are topics of this class. 3 Credit Hours

#### MIS 143 Introduction to Spreadsheets

This is a continuation of the study of spreadsheets emphasizing the advanced features of functions, macros and business graphics. 3 Credit Hours

Prerequisite: MIS 113.

#### MIS 213 Concepts of Database Management

An introduction to Data Base Management Systems (DBMS). Topics include but not limited to: relational models, keys, functions, queries, reports and management of database systems. 3 Credit Hours

Prerequisite: MIS 113.

#### MIS 243 Data Based Applications and Design

A continuation of the study of database emphasizing data base concepts, design and management techniques. 3 Credit Hours

Prerequisite: MIS 113.

E-Certificate in Distance Learning

#### ET 403 Fundamentals of Distance Education

This course will provide the student with a foundation of knowledge, skills and attitudes that are required by a competent practitioner of distance education. Students will explore the critical concepts and issues identified in distance education literature and critically examine the history and theories of the field.

3 Credit Hours

#### ET 413 Information Technologies in Distance Education

This course explores the role that technology plays in the design, development and delivery of distance education courses. Various uses of technology are explored in the areas of course development; asynchronous and synchronous distance course delivery methods, and management/administration. The relationship of information technology and distance education is explored as special emphasis is placed on computer-based technologies. Students will gain an understanding of how technologies can be blended together to form a learner friendly distance education course. By the end of this course, the student will be familiar with the basic technology as it pertains to distance education with Microsoft Word, Excel and Power point, and Macromedia Flash and Dreamweaver.

3 Credit Hours

### ET 423 Course Development and Instructional Design in Distance Education

This course examines the process of instructional design and development in a distance education context. Students critically evaluate the relationship between instructional design and technology. Various models of instructional and course development are considered. Students apply the instructional development process by developing a small instructional unit. Special emphasis is given to web-based instructional design and delivery. Course topics include learning beliefs, design tools, analysis, designing instruction, and evaluation.  
3 Credit Hours

### ET 433 Web-Based Learning and Teaching in the Virtual Classroom

The Virtual Classroom is a new concept that has recently evolved because of the emergence of the World Wide Web as a means of delivering education. This course covers the brief history, definitions, and implementations of the concept of the Virtual Classroom. The rapidly evolving literature of web-based learning is explored, with special emphasis placed on web-based pedagogy/andragogy, student learning styles, and special considerations for course design. The impact of web-based technologies will be discussed. Students will begin developing web-based learning environments and will use web-based communication tools.

3 Credit Hours

