Updated 9/4/20

DEGREE PROGRAM LISTING

Associate of Science in Information Technology

Length of Program: 2 years

Program Description

This program is designed to prepare students for opportunities in information technology by introducing them to the unique language of IT and key concepts of the profession. Students will identify the technical abilities and practical skills to help organizations innovate practices, products and processes. The program is designed to empower individuals to become passionate, solution-minded information technology professionals by fostering innovation, research, leadership development, solving real-life problems. Students will work toward leadership roles in organizations, honoring ethical responsibilities to stakeholders and the community while pursuing innovation, creation, application, integration, and the administration of computing technologies. In addition, this program provides a foundation for further studies.

Program Outcomes

- Recognize how IT is integral to the effective management of a modern-day, competitive organization and the role an IT professional plays in organizational leadership
- Describe the installation and maintenance process for client and server operating systems, their associated network services, users, and file systems

- Configure secure network and computing applications while identifying the privacy concerns inherent in the IT profession

- Identify the responsibilities of a project manager and the skills required to plan, design and execute projects to provide effective business solutions.
- Identify the process of critical thinking and decision support tools in the way of math formulas, computer software and information systems to analyze or solve problems
- Communicate effectively via multiple channels of exchange including oral and written
- Demonstrate an ability to find and use reference tools/resources
- Identify one's social, ethical and legal responsibilities to stakeholders, the community and the environment

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Roadmap: Information Technology – Associate of Science

Lakewood University

Online learning

This roadmap is a recommended semester-by-semester plan of study for this major. A course with an "*" denotes its status as a general education course.

Course Code	Course subject and Title	Prerequisite	Credit Hours
	Semester One		
	Lakewood University Orientation		0
NETF100	Networking Fundamentals		3
COMM100	Interpersonal Communication*		3
PJMG100	Project Management		3
ALG100	College Algebra*		3
	Semester Two		
ENG101	Introduction to English *		3
GOVT100	American Government*		3
CSA100	Computer Systems Architecture		3
DATA200	Fundamentals of Database		3
	Semester Three		
PSY100	Introduction to Psychology *		3
BIO100	Principles of Biology*		3
CLDF200	Cloud Fundamentals		3
ACCT100	Principles of Accounting		3
	Semester Four		
ENVS100	Environmental Science		3
STAT100	Statistics I*		3
PHL101	Introduction to Philosophy*		3
	Major Elective		3
	Semester Five		
CSF200	Computer Security Fundamentals		3
SOCI100	Introduction to Sociology*		3
CALC200	Calculus I*		3
	Major Elective		3
		Total:	60

GE = 36

Major Electives:

1. Network Administration
    a. Routing and Switching
    b. Wireless and Mobile Communication
    c. Network Security Management
    d. Enterprise Networking
    e. Specialized Network Administration
    f. Directory Services and Infrastructure

2. Software analysis and Development
    a. Software Quality Control and Testing
    b. E-commerce Development
    c. Object-Oriented Application Development I
    d. Object-Oriented Application Development II
    e. System Analysis and Design
    f. Software Development for Mobile Devices

3. Business and Project Management
    a. Advanced Database Management
    b. Information Systems Project Management
    c. Enterprise Resource Management
    d. Advanced Internet Security and Threats
    e. E-Business Infrastructure Management
    f. IT management Strategy

4. Website Design
    a. Web development
    b. Advanced Java Programming
    c. Management Information System

ASSOCIATE DEGREE COURSE DESCRIPTIONS

Advanced Database Management 3 Credit Hours

This course will provide students with an advanced understanding of what they learned about SQL in the fundamental course and introduce different advanced topics, including query optimization, concurrency, data warehouses, object-oriented extensions, and XML.

Advanced Internet Security and Threats 3 Credit Hours

The course will cover the advanced topics in Internet and Network security to help students understand complex attack paths and countermeasures specific system with different hardware/software components and architecture.

Advanced Java Programming 3 Credit Hours

The advanced course in Java programming will focus on advanced features. Topics will include Object Oriented Analysis and Design, automatic documentation generation using JAVADOC, Graphical User Interface development, database programming using Java Database Connectivity, network programming using sockets and Remote Method Invocation, N-tier programming using Common Request Broker Architecture, object serialization and remote objects, and collections

American Government 3 Credit Hours

The course provides a survey of the organization of American government, which includes an overview of the historical significance and provisions of the Constitution, the Bill of Rights, Congress, the Supreme Court, the Presidency; political parties, and interest groups. The objective of the course is to lay the proper foundation for informed citizenship and more specialized study in political science.

management, personnel management, and the role of character and virtues in effective leadership.

Calculus I 3 Credit Hours

This primary course on Calculus is designed for students intending to continue to advanced courses in calculus, and mathematics in general. Topics include a detailed study of differential calculus and its applications and are introduced to antiderivatives.

Cloud Fundamentals 3 Credit Hours

Upon completion of this course students will be able to understand the cloud, enable Microsoft Cloud Services, administer Office 365 and Microsoft Intune and use and configure Microsoft cloud service, configure Exchange Online, SharePoint Online, including OneDrive, Skype for Business Online.

College Algebra 3 Credit Hours

College Algebra is the introductory course in algebra. The course is designed to familiarize learners with fundamental mathematical concepts such as inequalities, polynomials, linear and quadratic equations, and logarithmic and exponential functions.

Computer Security Fundamentals 3 Credit Hours

This course provides students with a core foundation of technical knowledge necessary to design and build secure computing systems, to detect unauthorized use, and to protect those systems, their resources, and the data that they store or access.

Computer Systems Architecture 3 Credit Hours

This course will help students discover the concepts and essential skills necessary to administer operating systems, networks, software, file systems, file servers, web systems, database systems, system documentation, policies, and procedures.

Directory Services and Infrastructure 3 Credit Hours

This course will prepare students to install, configure, secure and maintain services in the Windows Active Directory environment. Topics included but not limited to group policies, directory configuration, security strategies and certificate services.

E-Business Infrastructure Management 3 Credit Hours

This course will help students explore the process of running a business on the internet and common course topics included but not limited to internet marketing, database management, and web design. This course will help students manage the strategic development of e-business based organizations and appropriate e-business technologies.

E-commerce Development 3 Credit Hours

This course will provide students the basic understanding of the activities, issues, and concerns related to launching a new online business.

Introduction to English 3 Credit Hours

This course is designed to develop your ability to write clearly. Emphasis is on effective writing and revising techniques including purpose, organization, and mechanics. Various modes and strategies of descriptive, narrative and illustrative essays are covered. The culminating assignment is a research paper.

Enterprise Networking 3 Credit Hours

Students will be given the basic (design, implementation and management) concepts related to data communications and networking. Topics included but not limited to network topology, protocols, transmission media, switching techniques, access control and addressing for wired and wireless networks, network security and network management principles.

Enterprise Resource Management 3 Credit Hours

This course provides an overview of Enterprise Resource Planning, which will cover planning, manufacturing, sales, finance, and accounting. Students will be provided the basic understanding of methodology and practice of ERP using industry-leading software packages to explore the interaction among the different business processes.

Environmental Science 3 Credit Hours

Environmental science is the study of patterns and processes in the natural world and their modification by human activity. This course will give you the skills necessary to address the environmental issues we are facing today by examining scientific principles and the application of those principles to natural systems. This course will survey some of the many environmental science topics at an introductory level, ultimately considering the sustainability of human activities on the planet.

Financial Accounting 3 Credit Hours

This course introduces business decision making accounting information systems. Emphasis is on analyzing, summarizing, reporting, and interpreting financial information. Upon completion, students should be able to prepare financial statements, understand the role of financial information in decision-making and address ethical considerations.

Fundamentals of Database 3 Credit Hours

This course will help students learn validate fundamental technology knowledge. Database Administration Fundamentals by covering introductory knowledge and skills including relational databases; core database concepts; relational database concepts; security requirements for databases and the data stored in them.

Information Systems Project Management 3 Credit Hours

The course provides students having current information technology skills with an advanced understanding of project management through an integrated view of the concepts, skills, digital tools, and techniques.

Interpersonal Communication 3 Credit Hours

This course teaches the basics of communication principles and concepts. Topics include: Intercultural issues, conflict management, and communicating in groups and in public.

Introduction to Sociology 3 Credit Hours

This course focuses on the importance of business ethics in today's workplace and the overarching concept of social responsibility. The course provides the student with a conceptual framework with which to analyze ethical decision making from the standpoint of the organization as well as from the perspective of the individual. The course describes management practices that organizations can utilize in order to create and maintain ethical organizational cultures. Finally, the course describes the unique issues and challenges of business ethics in an emerging global economy.

Introduction to Philosophy 3 Credit Hours

An introductory survey course of philosophy, introducing learners to the fields of ethics, epistemology, meta- physics, logic, the history of philosophy, and philosophical writing. Learners will also read works by Plato and Descartes among other philosophers.

Introduction to Psychology 3 Credit Hours

This course presents the theories and principles of modern psychology. Students will cover various aspects of psychology and understand the practical application of psychological tenets to functional behavior.

IT Management Strategy 3 Credit Hours

This course focus on organizational issues related to information technology solve the issues strategically using different types of tools. Topics included but not limited to IT strategy formulation and business

alignment; IT organization, structure, and governance, implementation and change management, organizational learning and knowledge management, and evaluation of IT impact on the organization.

Management Information System 3 Credit Hours

This course will provide fundamentals of how information and communication technology can be used and utilized in the context of Management and business problem solution.

Network Security Management 3 Credit Hours

This course focuses on security and risk management. Topics covered but not limited to Contemporary security issues, Security management processes, Architecture and models, Risk analysis and management, Security planning, and Analysis and safeguards.

Networking Fundamentals 3 Credit Hours

This course will help student discover the fundamentals of networking technology. Topics included but not limited to data communications, telecommunications, infrastructure security, inter/internetworking and the application of networking to multimedia, information storage, and distribution.

Object-Oriented Application Development I 3 Credit Hours

This course provides students with the knowledge of object-oriented programming concepts and application programming interfaces. Topic included but not limited to multi-threading, data structure collections, stream I/O and client interfaces.

Object-Oriented Application Development II 3 Credit Hours

This course covers the object-oriented paradigm associated with programming in a network environment. Topics included but not limited to developing object-oriented applications for the Internet, Intranets, and World Wide Web. The Java programming language will be used to do software development for network environments.

Principles of Accounting I 3 Credit Hours

Managerial accounting is primarily concerned with generating financial and non-financial information for use by managers for decision making. This course will enable students to compare and contrast managerial accounting with financial accounting, identify ethical issues in accounting and describe various costing processes within the organization. Throughout the course, a managerial viewpoint is stressed.

Principles of Biology 3 Credit Hours

This course introduces the student to the unifying principles to all levels of biological organization. Emphasis is at the cellular, organism, and population levels with inquiry into the nature of scientific investigation.

Project Management 3 Credit Hours

Project Management explores the fundamental knowledge, terminology and processes of effective project management. Topics include project integration management, project scope, time and cost management, human resource management, communication, ethics, and risks involved in managing a project.

Routing and Switching 3 Credit Hours

This major course will prepare students with the knowledge of foundational technologies. This course will also provide students with the ability to perform tasks related to VLSM, routing protocols, switching concepts and configuration, STP, VLANs, and VTP.

Software Development for Mobile Devices 3 Credit Hours

This course covers generic principles in design and development for mobile devices which will include practical work doing design and development for one or more contemporary platforms.

Software Quality Control and Testing 3 Credit Hours

In this course, students will be given a basic understanding of a variety of programming techniques and technologies for software quality assurance, such as Quality Tools in Software Development, Software Testing Metrics and Models, and Software Test Document.

Specialized Network Administration 3 Credit Hours

This course will provide students with the knowledge global Internet technology. This course is designed in a way to provide students with the understanding of architectural network designs, network topology requirements, configuration management, fault management, performance management, monitoring resources, Quality of Service (QoS), and security policies.

Statistics I 3 Credit Hours

This course will introduce you to business statistics, or the application of statistics in the workplace. Statistics is a course in the methods for gathering, analyzing, and interpreting data for decision making and predicting future outcome. You will get the basic understanding of descriptive and inferential statistics including the base of Mean and probability distribution.

System Analysis and Design 3 Credit Hours

This course deals with planning the development of information systems by explaining and specifying in detail what a system should do and how the components of the system should be implemented.

Web Development 3 Credit Hours

This elective course will provide the student with the knowledge of Web development tools and several types of development language. This course will particularly focus on PHP enabling students to create diverse types of the web application or to do system automation.

Wireless and Mobile Communication 3 Credit Hours

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This course will help students develop an understanding of the basic and advanced principles of Wireless Communications and Mobile Networks. The issues of wireless communications and mobile networks in physical, link and network layers, the wireless channels, Multi-user communication systems, Mobile networks modeling, design and optimization will be covered in this course.