

Lecture 10: Working in the Enterprise: Systems, Certifications, and Careers

Information Technology Fundamentals
School of Information Technology
King Mongkut's Institute of Technology Ladkrabang

Objectives Overview

Identify the qualities of valuable information

Describe various information systems used in an enterprise

Identify the components of and steps in information literacy

Describe career opportunities available in various segments of the computer industry

Identify job titles and responsibilities for various technology jobs

Objectives Overview

Identify mobile app development strategies

Identify ways to prepare for certification

Describe the general areas of IT certification

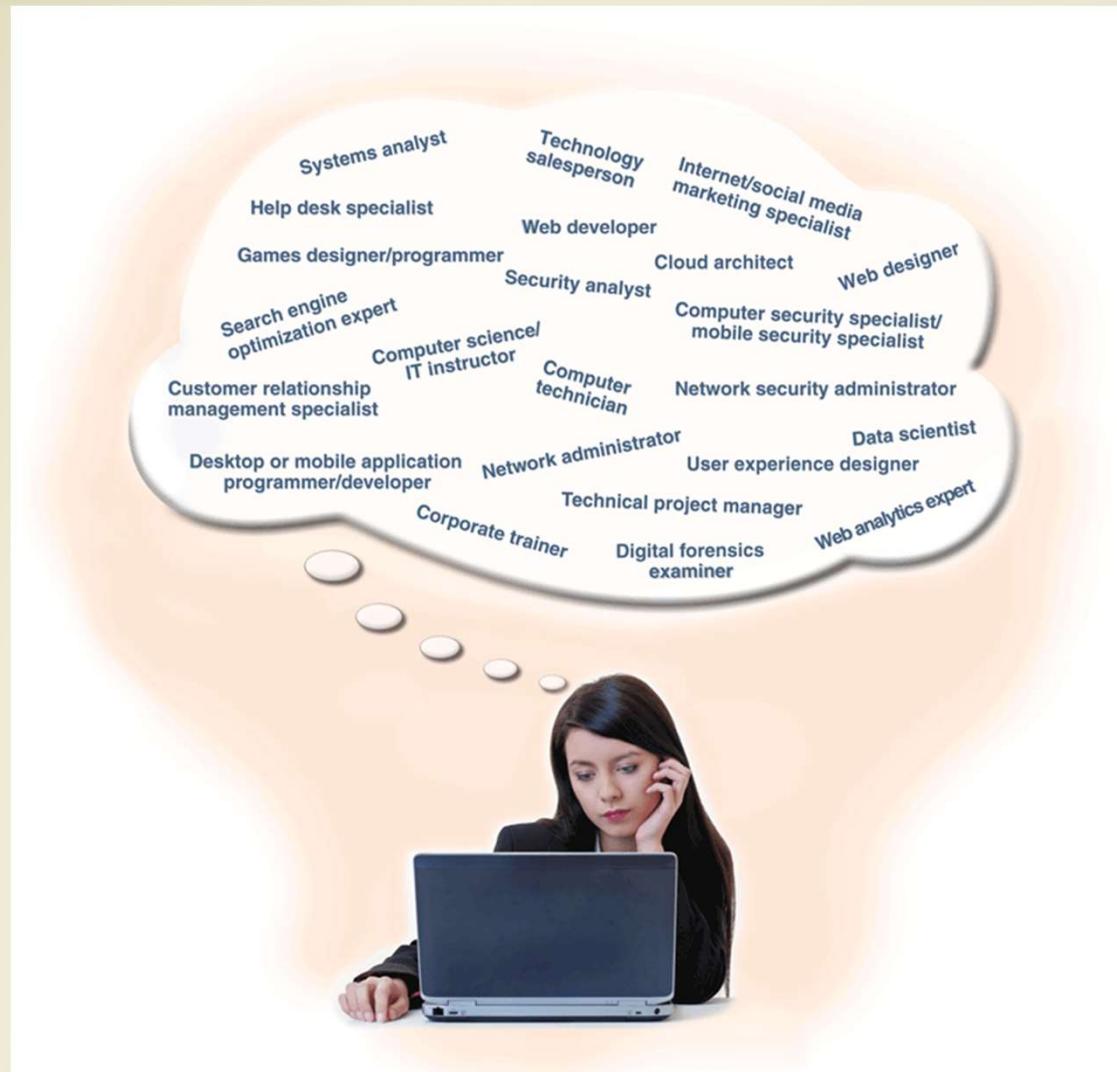
Identify ways to begin a job search

Explain how to create a professional online presence

The Technology Industry

- Nearly every job requires you to interact with technology to:
 - Complete projects
 - Exchange information with coworkers
 - Meet customers' needs
- As new technologies emerge, organizations look for potential employees who possess skills and a desire to learn and who are comfortable using all types of technology

The Technology Industry



Information Systems in the Enterprise

- An **information system** is a set of hardware, software, data, people, and procedures that work together to produce information
- To assist with sound decision making, information must have value

Information Systems in the Enterprise

- For information to be valuable, it should be:

Accurate

Verifiable

Timely

Organized

Accessible

Useful

Cost
effective

- relevant
- useful for someone, some situations/cases

- categorize
- sort
- filter
- format (column, row, ...)

Information Systems in the Enterprise

- A typical enterprise consists of a wide variety of departments, centers, and divisions — collectively known as functional units

Human Resources (HR)

Engineering or Product Development

Manufacturing
೨೫೭೭೨೬

Marketing

Sales

Customer Service

Information Systems in the Enterprise

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ອົບນີ້ຫຼັງຈາກນີ້ໄດ້ ex. cement, semiconductor

- **Enterprise Resource Planning (ERP)** integrates MRP II with the information flow across an organization to manage and coordinate the ongoing activities of the enterprise

Product planning

Manufacturing
and distribution

Accounting and
finance

Sales

Human resources

Customer
support

↳ ຖໍ່ໄດ້ເບື້ອງຄ້າ satisfied
ທະການໃດໆ

ລົງຈຶນ package/module

Information Systems in the Enterprise



Information Systems in the Enterprise

Document Management System (DMS)

- Allows for storage and management of a company's documents
- Supports access control, security, version tracking, and search

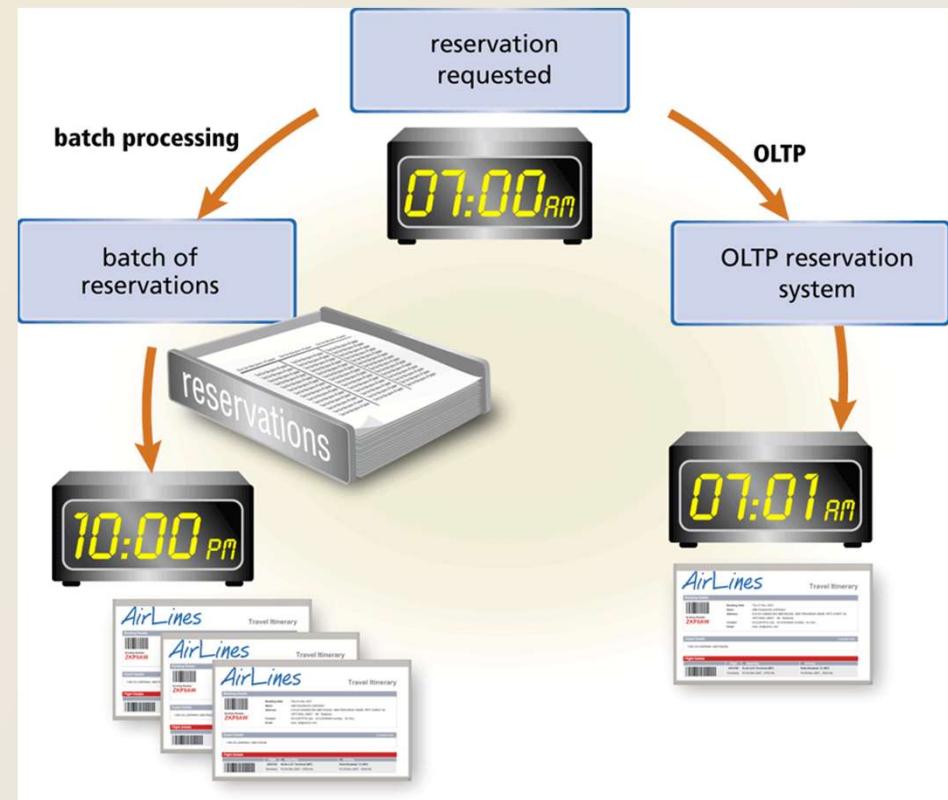
Content Management System (CMS)

- Enables and manages the publishing, modification, organization, and access of various forms of documents and other files
 - Provides security controls
 - Content added through a graphical user interface or webpage

Information Systems in the Enterprise

- A transaction processing system (TPS) is an information system that captures and processes data from day-to-day business activities
 - Online transaction processing (OLTP)

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Information Systems in the Enterprise

- A **management information system (MIS)** is an Information system that generates accurate, timely, and organized information, so that managers and other users can make decisions, solve problems, supervise activities, and track progress

Information Systems in the Enterprise

Detailed Flight Report for Flight #328				
Passenger Name	Gender	Birthdate	Seat	Premier Club
Adams, Latisha	F	4/25/92	3C	Y
Brewer, Milton	M	10/14/45	22F	N
Cam, Lin	F	12/16/91	2A	Y
Canaan, Lana	F	4/12/90	21A	N
Cole, Kristina	F	5/10/79	16C	N
Drake, Louella	F	3/4/81	4A	Y
Galens, Lynette	F	11/2/75	2C	N
Gilbert, Laura	F	2/20/78	4F	N
Henreich, Max	M	3/10/85	17C	Y
Hidalgo, Ronald	M	10/15/44	3F	Y
Marsh, Constance	F	11/5/82	2C	N
McGill, Teresa	F	2/27/73	16F	Y
Moretti, Leo	M	9/22/90	17A	Y
Nitz, Dawn	F	7/12/65	3F	N
Ruiz, Albert	M	2/13/93	10D	Y
Stein, Michelle	F	8/16/50	3A	N
Tu, Benjamin	M	1/16/77	22C	N
Van Wijk, Fred	M	6/9/89	10A	Y
Warner, Betty	F	7/1/58	16A	N

Summary Flight Report for March 30			
Flight #	Origin/Destination	Passengers	Premier Club Members
1048	ORD – RSW	108	33
543	ORD – BMI	24	12
715	ORD – LAX	160	62
701	ORD – JFK	26	10

Exception Flight Report for March 30				
Flight #	Class	Origin/Destination	Premier Club Members	Premier Club Member Goal
1048	A	ORD – RSW	1	4
701	C	ORD – JFK	3	5

Information Systems in the Enterprise

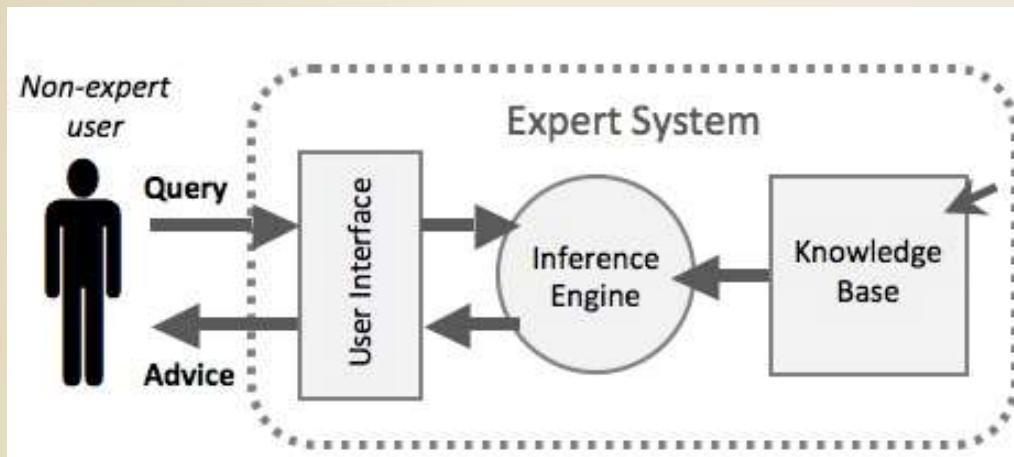
Festival, War, Weather → ດອກຈະກຳລາຍ Flight 208

- A **decision support system** (DSS) helps users analyze information and make decisions
 - Online analytical processing (OLAP)
- A DSS uses data from internal and external sources.
- Data from external sources could include interest rates, population trends, or raw material pricing.



Information Systems in the Enterprise

- An **expert system** is an information system that captures and stores the knowledge of human experts and then **imitates** human reasoning and decision making



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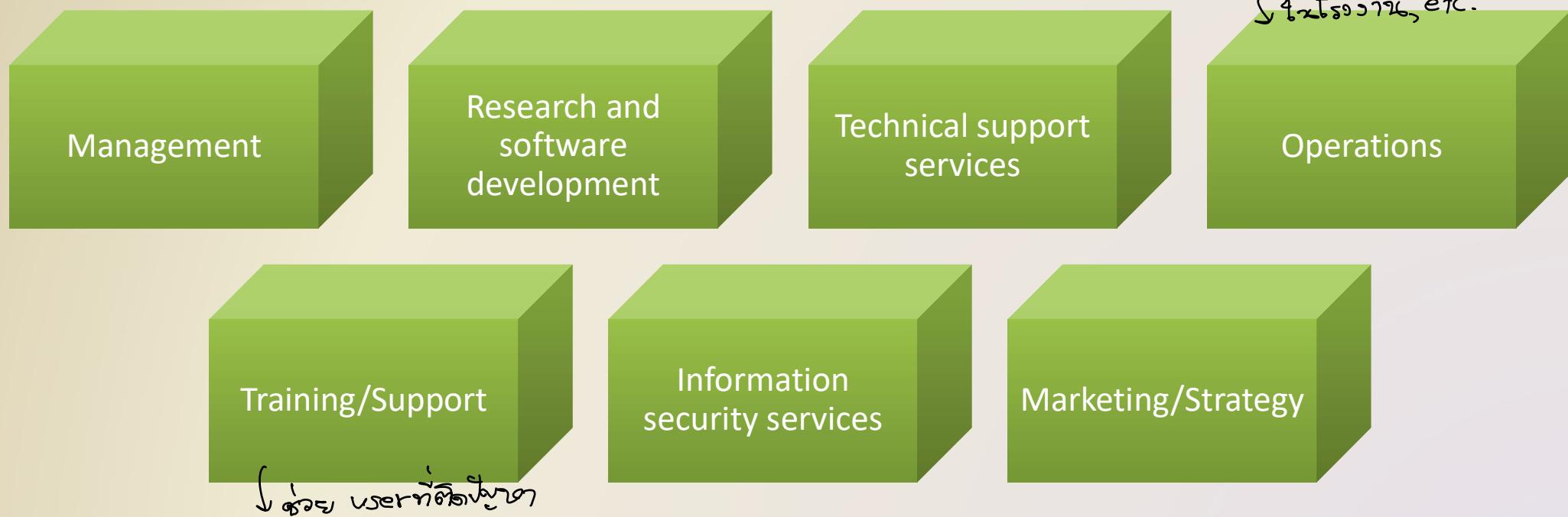


Technology Careers

- Business and government organizations of all sizes use a variety of computers, mobile devices, and other technology
- Larger organizations use computers and other technology to answer and route phone calls, process orders, update inventory, and manage accounts receivable, accounts payable, billing, and payroll activities

Technology Careers

- IT jobs usually are divided into the following areas:



Technology Careers

- The technology equipment field consists of manufacturers and distributors of computers, mobile devices, and other hardware, such as magnetic and optical drives, monitors, printers, and communications and networking devices
- The software and apps field consists of companies that develop, manufacture, and support a wide range of software and apps for computers, the web, and mobile devices



Technology Careers

- The technology service and repair field provides **preventive maintenance, component installation, and repair services to customers**

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sales ຈາກນິ້ນຕະຫຼາມ ພົບເລື່ອ

↳ Dev ຈະ ເຊື້ອົ້າຕະຫຼາມ
ໂພຣກະກຳໄກສູດ



ທັງນຸ້ນຈະໄດ້ຮັບໃຈ

Technology Careers

- Technology salespeople must possess a general understanding of technology and a specific knowledge of the product they are selling



Technology Careers

- Schools, colleges, universities, and private companies all need qualified educators to provide technology-related education and training
- Corporate trainers teach employees how to use software and apps, design and develop systems, write programs, integrate and sync data from apps used on multiple devices, and perform other technology-related activities



Technology Careers

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- A **help desk specialist** answers hardware, software, and networking questions in person, over the phone, or electronically via email or a chat room
- An **IT consultant**, typically hired based on expertise, provides technology services to his or her clients

Technology Careers

Job Responsibilities

Table 12-2 System Development Jobs

Job Title	Job Description
Cloud Architect	Identifies business requirements, strategies, and solutions for cloud storage and services that meet a company's goals or needs
Database Designer	Specifies the structure, interface, and requirements of a large-scale database; determines security and permissions for users
Program and App Developer	Specifies, designs, implements, tests, and documents programs and apps in a variety of fields, including robotics, operating systems, animation, and applications
Systems Analyst	Works closely with users to analyze their requirements, designs and develops new information systems, and incorporates new technologies
Systems Programmer	Installs and maintains operating system software and provides technical support to the programming staff
Web Designer	Designs the layout, navigation, and overall appearance of a website with a focus on user experience; specifies a website's appearance using HTML5, JavaScript, CSS, media, and other web design technologies
Web Developer	Analyzes, develops, and supports the functionality of a website, including applications that often interact with databases or other online resources

Technology Careers

Table 12-3 Technology Operations Jobs

Job Title	Job Description
Computer Technician	Installs, maintains, and repairs hardware and servers; installs, upgrades, and configures software; troubleshoots hardware problems
Help Desk Specialist/ Help Desk Technician	Answers technology-related questions in person, on the phone, or via email or an online chat room
Network Administrator/ Engineer	Installs, configures, and maintains LANs, WANs, wireless networks, intranets, Internet systems, and network software; identifies and resolves connectivity issues
Technical Project Manager	Guides design, development, and maintenance tasks; serves as interface between programmers/developers and management

Technology Careers

Table 12-4 Web Marketing and Social Media Jobs

Job Title	Job Description
Customer Relationship Management (CRM) Specialist	Integrates apps and data related to customer inquiries, purchases, support requests, and behaviors in order to provide a complete application that manages a company's relationships with its customers
Internet/Social Media Marketing Specialist	Directs and implements an organization's use of Internet and social media marketing, including Facebook pages, Twitter feeds, blogs, and online advertisements
Search Engine Optimization (SEO) Expert	Writes and develops web content and website layouts so that they will appear at the beginning of search results when users search for content
User Experience (UX) Designer	Plans and designs software and apps that consider a user's reaction to a program and its interface, including its efficiency, its effectiveness, and its ease of use

Technology Careers

Table 12-5 Data Storage, Retrieval, and Analysis Jobs

Job Title	Job Description
Data Scientist	Uses analytics and other Big Data tools to compile statistics on data that an organization can use to plan product development or create strategies for marketing
Database Analyst	Uses data modeling techniques and tools to analyze and specify data usage
Database Administrator	Creates and maintains the data dictionary; monitors database performance
Digital Forensics Examiner	Collects and analyzes evidence found on computers, networks, mobile devices, and databases
Web Analytics Expert	Collects and measures Internet data, such as website traffic patterns and advertising, and develops reports that recommend strategies to maximize an organization's web presence

Technology Careers

Table 12-6 Information and Systems Security Jobs

Job Title	Job Description
Computer Security Specialist/ Mobile Security Specialist	Responsible for the security of data and information stored on computers and mobile devices within an organization
Network Security Administrator	Configures routers and firewalls; specifies web protocols and enterprise technologies
Security Analyst	Implements security procedures and methods, looks for flaws in security of a company's devices and networks, works with and trains employees at all levels, and assigns permissions and network settings
Security System Project Manager	Develops and maintains programs and tools designed to provide security to a network
Digital Forensics Analyst	Inspects electronic data to recover documents and files from data storage devices that may have been damaged or deleted, in order to use them as evidence in a crime investigation

Technology Careers

Table 12-7 App Development and Mobile Technologies Jobs

Job Title	Job Description
Desktop or Mobile Application Programmer/Developer	Converts the system design into the appropriate application development language, such as Visual Basic, Java, C#, and Objective C, and toolkits for various platforms
Games Designer/Programmer	Designs games and translates designs into a program or app using an appropriate application development language
Mobile Strategist	Integrates and expands the company's initiatives for mobile users
Mobile Technology Expert	Develops and directs an organization's mobile strategy, including marketing and app development

Technology Certifications

- A certification demonstrates your knowledge in a specific area to employers or potential employers
- Obtaining a certification requires time and money

The screenshot shows the CISSP® - Certified Information Systems Security Professional page. At the top, there's a navigation bar with a search field and a dropdown menu labeled "I am interested in: select below". Below this is a sidebar with links for "Certifications", "Our Credentialing Process", "Computer Based Testing (CBT)", "Associate of (ISC)²", "SSCP", "CAP", "CSSLP", "CISSP" (with sub-links for "Why Certify?", "How To Certify", "CISSP Training", "CISSP Domains", "Exam Outline", and "CISSP Snapshot"), and "CISSP Concentrations". The main content area features the title "CISSP® - Certified Information Systems Security Professional" and a sub-section "For the Next Generation of Information Security Leaders". It describes the CISSP certification as a globally recognized standard of achievement. Below this is a section titled "Confirming One's Knowledge and Experience" which details the exam requirements. A list of job functions for CISSPs follows, including Security Consultant, Security Manager, IT Director/Manager, Security Auditor, Security Analyst, Security Systems Engineer, Chief Information Security Officer, and Director of Security. On the right side, there's a green "Get Started Today!" sidebar with links to download the exam outline, watch domain webcasts, buy the textbook, attend a training seminar, register for the exam, earn CPE credits, and review member benefits. There's also a "Get More Information" link and a video thumbnail titled "A Day in the Life of a CISSP" featuring a man speaking.

Technology Certifications

- Application Software Certifications

Corporate trainers

Help desk
specialists

Office
managers/workers

Technology sales
representatives

Technology
teachers

Technology Certifications

- Data Analysis and Database Certifications

Data scientist

Database
administrators

Database
analysts

Digital
forensics
examiners

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ជាជាតុលប្រវត្តិវឌន៍របស់ខ្លួន
នូវការផ្តល់ជូន

Technology Certifications

- Hardware Certifications

Cable
installation
technicians

Computer
repair
technicians

Corporate
trainers

Help desk
specialists

IT consultants

System
engineers and
administrators

Technology Certifications

- Networking Certifications

Hardware
service
technicians

IT consultants

Network
managers

Network
engineers

System
administrators

Technology Certifications

- Operating System Certifications

Hardware
technicians

Help desk
specialists

Network
administrators

IT consultants

System
administrators

Technology Certifications

- Program/Developer Certifications

Game developers

IT consultants

Mobile application developers

Project leaders/managers

Systems analyst

Web developers

Technology Certifications

- Security Certifications



Job Searching and Career Planning

လုပ်ခန္ဓာကြောင်း၊ ၆၀% → လုပ်နည်ဗျာမျိုး (စာအုပ်စီမံခွင့်)

- Many job opportunities may exist in your industry, so it is important to narrow down the available jobs to ones for which you are qualified and in which you are interested
- Tools at your disposal include the career service department at your school, career planning websites, and online social networks
- Whether you are seeking a new job or currently are employed, you may find a career planning website useful

Job Searching and Career Planning

The screenshot shows the homepage of the Illinois State University Career Center. At the top, there's a navigation bar with links to IllinoisState.edu, Admissions, Maps, Events, Employment, and Search/A-Z. On the right side of the header is a "My" button with a dropdown arrow. Below the header, the Illinois State University seal is on the left, followed by "CAREER CENTER" and "Illinois State University". A search bar with the placeholder "Search Career Center..." and a magnifying glass icon is on the right. The main content area features a banner for "Walk-in Hours" showing two people in a professional setting. The banner text includes "Career Center Walk-in Hours" and a bulleted list: "• Career advice", "• Resume reviews", and "• Mock interviews". Below this, a call-to-action says "Get career help today! Join us during our Walk-in Hours for helpful career advice and assistance without an appointment." To the right, a "Partner Spotlight" section highlights "college pro". It includes a brief description: "With College Pro, you'll learn business skills you can take with you into any future career. The real life business experience you acquire with your hard work will set the foundation for many future successes. Learn more about [College Pro](#)." There are also "News" and "Events" sections at the bottom.

IllinoisState.edu | Admissions | Maps | Events | Employment | Search/A-Z

CAREER CENTER
Illinois State University

Hire-A-Redbird Students Events Faculty and Staff Employers Alumni About Us

Search Career Center...

 Career Center
Walk-in Hours

- Career advice
- Resume reviews
- Mock interviews

Get career help today!
Join us during our Walk-in Hours for helpful career advice and assistance without an appointment.

 **News**


Save the date for spring career fairs
Illinois State student and alums seeking employment opportunities or those interested in hiring a Redbird are invited to attend the Career Center's career fairs this spring. ...

 **Events**

Are You LinkedIn?
Fri, November 14, 1:00 PM - 2:00 PM
Student Services Building (SSB), 110P

Social Sciences Internship/Career Fair
Wed, January 21, 1:00 PM - 4:00 PM

Creating a Professional Online Presence

- An understanding of the web, digital media, and online social networks, such as LinkedIn, is beneficial in creating your online presence.
- LinkedIn is an online social network where professionals, such as Reid Hoffman, founder of LinkedIn, can create profiles and connect with coworkers and industry colleagues.
- LinkedIn uses the term, contacts, to describe the individuals in your professional network and also stores your relationship with each contact in your network.

Summary

Information systems in an enterprise

Various technology career fields and specific technology jobs

Technology certifications

How to begin a job search and create a professional online presence

Top 15 IT Certifications in Demand for 2022

1. Certified Data Professional (CDP)
2. Certified Information Systems Security Professional (CISSP)
3. Cisco Certified Internetwork Expert (CCIE)
4. Cisco Certified Network Associate (CCNA)
5. Cisco Certified Network Professional (CCNP)
6. Certified Information Systems Auditor (CISA) – ISACA
7. CompTIA A+
8. Microsoft Technology Associate (MTA)
9. Project Management Professional (PMP) – PMI
10. Oracle Certified Professional
11. Salesforce Development Lifecycle and Deployment
12. Certified Scrum Master (CSM)
13. AWS Certified Solutions Architect
14. Certified Ethical Hacker (CEH)
15. Global Information Assurance Certification (GIAC)

Certified Data Professional (CDP)

- Data Professionals may specialize and certify in many of the following areas. Choose the specialization suited to your experience and career goals;
- The following Job Roles and specialty credentials are catered for within this credential
 - Business Analytics, (CDP-BA)
 - Data Analytics & Design, (CDP-DAD)
 - Data Governance, (CDP-DG; DGSP)
 - Data Integration and Interoperability), (CDP-DII)
 - Data Management, (CDP-DM)
 - Data & Information Quality, (CDP-DIQ)
 - Data Stewardship, (CDP-DS)
 - Data Warehousing, (CDP-DW)
 - Enterprise Data Architecture (Zachman), (CDP-EDA)
 - Information Systems or IT Management, (CDP-Mgmt)
 - Public Sector Data Governance (CDP-PSDG; PSDGP)

Cisco Certified Network Associate (CCNA)

- CCNA exam covers networking fundamentals, IP services, security fundamentals, automation and programmability.
- Designed for agility and versatility, CCNA validates that you have the skills required to manage and optimize today's most advanced networks.

CompTIA A+

- CompTIA A+ certified professionals are proven problem solvers. They support today's core technologies from security to networking to virtualization and more. CompTIA A+ is the industry standard for launching IT careers into today's digital world.
- CompTIA A+ is the only industry recognized credential with performance testing to prove pros can think on their feet to perform critical IT support tasks. It is trusted by employers around the world to identify the go-to person in end point management & technical support roles. CompTIA A+ appears in more tech support job listings than any other IT credential.

CISSP

- The CISSP is ideal for experienced security practitioners, managers and executives interested in proving their knowledge across a wide array of security practices and principles, including those in the following positions:
 - Chief Information Security Officer (CISO)
 - Chief Information Officer (CIO)
 - Director of Security
 - IT Director/Manager
 - Security Systems Engineer
 - Security Analyst
 - Security Manager
 - Security Auditor
 - Security Architect
 - Security Consultant
 - Network Architect

Certified Ethical Hacker (CEH)

- Our exclusive Learn | Certify | Engage | Compete framework covers not only a comprehensive training program to prepare you for the certification exam, but also the industry's most robust, in-depth, hands-on lab experience of any cybersecurity program available.
- C|EH v12 will teach you the latest commercial-grade hacking tools, techniques, and methodologies used by hackers and information security professionals to lawfully hack an organizations.

Cyber Careers

- Cyber Defense Specialist
- Cyber Defense Infrastructure Engineer
- Cyber Security Engineer
- Cyber Security Analyst
- Cyber Security Expert
- Cyber Security Consultant
- Cybersecurity and Privacy Consultant
- Cyber Security Manager
- Cyber Security Officer
- Manager, SOC & Cyber Security
- Cyber Security: Vulnerability Analyst & Pen-Tester
- Threat Intelligence and Vulnerability Analyst (TIVA)



Recommended Qualifications

- Analytical and problem-solving skills
- Have a passion in cybersecurity, IT Security / willing to learn new things -Writing Email
- Good English communication, including conducting presentations and creating reports
- Excellent report writing skills in both English and Thai
- Project management and communication skill
- To be certified for Network, Infrastructure, Security related certification would be advantageous - ពួកគោលនៃការងារសេវាទីផ្លូវការនៅក្នុងទំនើប