INFORMATION TECHNOLOGY

Introduction

The information age has ushered in advances in computer and communication technology, advances that have sparked what has been termed the "information revolution." At the heart of this revolution is the exponential demand for access to, management of, and transformation of information. Information technology drives the dynamic information infrastructure that has become integrated on a global scale socially, culturally, and economically. Databases. Apps. Computer software. Websites. Mobile data. Servers. Voice networks. Each part of the larger, interconnected informational ecosystem.

Broadly, information technology can be defined as the use of computing via various components (e.g. hardware, services, software) to develop, manage, transform, share and store information in different forms.

Career Prospects:

Careers in information technology deal with the design, creation, management and maintenance of the varied components of the system, including software, hardware, networks, systems integration and multimedia. Broadly, information technology can be divided into four central pathways: network systems, information support and services, programming and software development, and Web and digital communication. Down each career avenue exist myriad occupational opportunities, ranging from database administrator to computer systems engineer, digital media specialist to systems analyst.

NETWORK SYSTEMS
Careers in this field are responsible for designing, analyzing, developing and implementing network systems.

INFORMATION SUPPORT AND SERVICES
Careers in this field are responsible for deploying and managing computer systems and software, providing technical support and maintaining information systems.

PROGRAMMING AND SOFTWARE DEVELOPMENT.
Careers in this field are responsible for planning, designing, updating and managing computer software and systems through software programming and development.

WEB & DIGITAL COMMUNICATIONS.
Careers in this field are responsible for the creation and production of interactive media, including digital and multimedia products.

Job options

Jobs directly related to your degree include:

- Actuarial analyst
- Application analyst
- Business analyst
- Data analyst
- Database administrator
- Information systems manager
- IT consultant
- IT technical support officer
- Multimedia programmer
- Network engineer
- Systems analyst
- Systems developer
- UX analyst

Jobs where your degree would be useful include:

- Applications developer
- Geographical information systems officer
- IT sales professional
- Management consultant
- Project manager
- SEO specialist
- Stockbroker
- UX designer

Skills for your CV

An information systems degree provides you with core transferable skills, including:

- ability to adapt to a changing environment;
- ability to contribute to a team objective;
- problem-solving and change management skills;
- commercial awareness and business acumen;
- ability to understand and respond to user/customer requirements;
- project management experience;
- planning and organisational skills;
- negotiation and influencing skills.

At a technical level, it also equips you with specific technical skills in:

- databases;
- data-mining;
- hardware, software and programming;
- SAP business software applications;
- SQL;
- Visual Basic, C++ and Java.
- Advertisement

Further study

Research areas for postgraduates are wide and varied but may include:

- ➢ 'design and build' projects;
- ➢ data analysis to provide interoperability between systems;
- ➢ website development and evaluation;
- ➢ web search evaluation.
- ➢ Relevant professional qualifications are also available in business and IT areas.

Artificial Intelligence

Artificial Intelligence is the science and engineering of making computer machines able to perform tasks which normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages. It is a branch of the Computer Science that aims to develop intelligent computer machines.

Scope of Artificial Intelligence:

The ultimate effort is to make computer programs that can solve problems and achieve goals in the world, as well as humans. There is a scope in developing the machines in game playing, speech recognition machine, language detection machine, computer vision, expert systems, robotics and many more.

What should you study before or while learning

Study mathematics, especially mathematical logic. The more you learn about sciences, e.g. physics or biology, the better. For the biological approaches to AI, study psychology and the physiology of the nervous system. Learn some programming languages--at least C, Lisp and Prolog. It is also a good idea to learn one basic machine language. Jobs are likely to depend on knowing the languages currently in fashion. In the late 1990s, these included C++ and Java.

Career Opportunities:

One can expect jobs at public and private sectors which are American Association for Artificial Intelligence, European Coordinating Committee for Artificial Intelligence and many more. Job roles: Game Programmer Robotic Scientist Computer Scientist Software Engineer.

Ethical Hacking

Ethical hacking, also known as penetration testing, intrusion testing or red teaming is used to find loopholes in an IT system and break into it. An ethical hacker is a computer and network expert who attacks a security system on behalf of its owners, seeking vulnerabilities that a malicious hacker could exploit. This work is ethical because it is performed to increase the safety of the computer systems, but only at the request of the company that owns the system and specifically to prevent others from attacking it. With the increasing use of the internet, it has become an essential part of IT security industry today.

Industry status

Last year ethical hacking was estimated to be a US$ 3.8 billion industry in the US alone. According to Nasscom, India will require at least 77,000 ethical hackers every year whereas we are producing only 15,000 in a year, currently. Ethical hacking is growing at a tremendous pace and offers a plethora of lucrative job opportunities.

Skillset required

First and foremost is the ability to write programmes in many programming languages like C, C++, Perl, Python, and Ruby. For those working with web applications, Microsoft .NET and PHP are vital. Knowledge of assembly language is also essential for those who want to analyse disassembled binaries. Knowledge of a variety of operating systems (Microsoft Windows, various versions of Linux, etc) is critical. Experience with various network devices, including switches, routers and firewalls is also important. An ethical hacker also should have a basic understanding of TCP/IP protocols such as SMTP, ICMP and HTTP. In addition to technical skills, an ethical hacker needs good soft skills. Perhaps the most important skill, however, is adaptability. When testing software and systems, ethical hackers never know what will come up, so the ability to be resourceful is vital.

Some of the most prevalent ethical hacking certifications in India are:

- Certified Ethical Hacker offered by of EC-Council

- Certified Hacking Forensic Investigator Certifications offered by of EC-Council

- GIAC Certified Penetration Tester (GPEN) offered by SAN (Security, Audit and Network)

- GIAC Certified Intrusion Analyst (GCIA)

- GIAC certified forensic analyst (GCFA)

Eligibility:

To be eligible for a course in ethical hacking you should have passed 10+2

Career Prospects:

- Network Security System Administrator/Manager

- Security Investigator

- Network Security Engineer

- Systems/Applications Security Executive

- Web security Administrator/Manager

- Security Auditor

- Ethical Hacker

- Data security specialist

- Chief Information Security Officer

- Computer Forensics Investigator

- IT Security Administrator/Consultant/ Manager

- Security Certified Programmer

- Forensics Investigator

- Security consultant