TEXAS STATE UNIVERSITY

The rising STAR *of Texas*

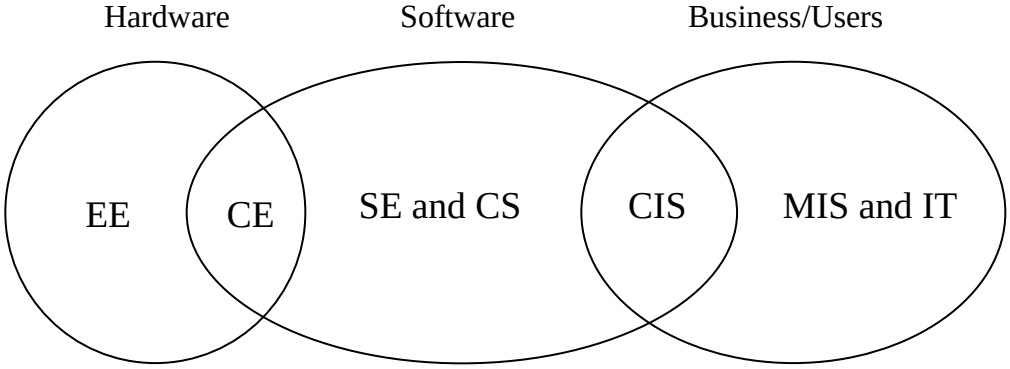
Technology Degrees - What is the difference?

The continued integration of technology into all our lives is undeniable. Desktop computers are giving way to laptops, e-readers, and netbooks. The iPad has taken the world by storm and with it unlocked innumerable new opportunities for technology development. Mobile phones are no longer devices that allow people to talk. In fact, there is a lot less talking and more texting, game playing, and other fun application activity. Technology is no longer tethered with a cord to a wall and is walking around and available anywhere anytime.

All this technology means that there has to be someone out there that is writing software, designing the databases, drawing the graphics, building the networks, designing the systems, and holding a host of other jobs to create and support all this technology. With all of these various job opportunities, if I want to work with computers, what degree should I get? What degrees are available? What degree is right for what I want to do?

What are the available degrees?

The short answer is that there are a variety of degrees offered depending on your interest and aptitude. From a hardware perspective there is electrical engineering (EE) and computer engineering (CE). From a software perspective there is computer engineering (CE), computer science (CS), software engineering (SE), and computer information systems (CIS). From a user of business standpoint there is computer information systems (CIS), management information systems (MIS), and information technology (IT). There are a host of other related degrees also such a computer graphics and informatics. And don't forget the specializations such as geographic information systems and health information systems. The number of degrees offered will continue to grow as computing technology continues to spread across every facet of our lives. That is good news for those interested in working in the area of computing.



McCoy College of Business Administration – Department of Computer Information Systems & Quantitative Methods

601 University Drive | San Marcos, Texas 78666-4616 | *phone:* 512.245.2291 | *fax:* 512.245.1452 | WWW.TXSTATE.EDU

How do these degrees differ from each other?

In general EE and CE focus on the design and manufacture of the hardware components of technology. This includes everything from the hard drive and computer chips to the mouse and flash drives. Those degrees that focus on software (CE, CS, SE and CIS), spend their time primarily writing software code and designing software implementation strategies. CIS, MIS and IT are responsible for identifying and designing the hardware and software devices and applications based on user requirements. In a sense CIS, MIS and IT act as the liaison between the end users and business professionals and the hardware and software experts.

The variety of degrees is a result of the complexity and broad range of opportunities that technology offers. For students with an aptitude for math and science the EE, CE, SE, CS, or CIS route may be the way to go. For those who like computers but don't want to be a hardcore engineer or programmer than the CIS, MIS or IT options may be more appropriate.

The difference between each of the degrees is a reflection of their emphasis on the specific technology areas they are associated with. For example EE and CE are higher in mathematics requirements and MIS and IT are much less mathematical. EE and CE are much more hardware intensive with CE having some software integration. SE and CS are almost entirely software related and emphasize software programming and associated software development activities. CIS can have a significant software component but also provides opportunities for business and end user development. MIS and IT are almost exclusively associated with business processes and end user support. What this implies is that a successful technology strategy needs all levels of these degrees and there are opportunities for students with all levels of interest in working with computers.

What is the right degree for you?

The answer to this question depends on a person's likes and dislikes, academic aptitudes, and long term goals. No single degree is better than another, they are just different. The best degree is the one that helps you get that job that you enjoy getting up every morning to do. Each of the specific degrees provides opportunities for working in the more targeted areas of technology including networking, database, systems and many others. The difference is the specific aspect as illustrated below.

If you like math, solving word problems, get good grades in science and math, and like to tinker with physical things then EE or CE may be the route for you. These degrees are very technical and require a high degree of detail. These jobs will focus on the physical aspects of the various technologies. For example they work on the physical components of a database server or network router.

If you like math and like to find ways for things to work faster or better, get good grades in math and science, and like to play with programming computers then CE, SE, CS or CIS might be for you. These degrees while not as technical as EE and CE are still very technical and detail oriented. These jobs focus on the software aspects of the various technologies. For example they work on writing the code that controls the network router, or the database application, or the software application that does your accounting, or even the game you play after school. Other activities may be the design of security software or other applications.

If you are ok at math, want to work with computers but don't want to just program, and like to work with people or business, the CIS, MIS or IT may be the route for you. These degrees are less technical and less detail oriented than the previous degrees and are more targeted on the end users and business needs. Most of these programs work in conjunction with the College of Business and have a significant business curriculum component. These jobs cover a wide variety of opportunities and include the design of networks or the design of databases to meet business needs. They can design and implement security systems and they may provide the technical support for all the computers to keep them running or to provide answers to the users with application questions.

Computer Information Systems at Texas State

As the Chair of the Department of CIS I want to encourage students to find that degree that best fits their career aspirations. That being said if you are not sure which degree is best for you consider the CIS degree at Texas State. Our CIS degree provides students with a wide array of flexible opportunities. Our program provides opportunities in the areas of programming including visual studio, JAVA and even COBOL, system development, database, networking, and application development. It provides those students who are not sure of what they want to do, but know they want to work with computers, to have exposure to the various areas and then specialize or not. Employers such as USAA and Exxon/Mobil come back year after year to hire our graduates because of the quality education we provide and the aptitude and ability of our students.

In addition to our academic quality we provide students with a wide variety of experiential activities that both students and employers desire. These include internships, leadership opportunities with student organizations, competitions to test your knowledge against peers at universities across the region and the nation, and participation at professional organization meetings.

We are also developing a mentoring program with local area professionals that should be up and running Fall 2011. Mentors from this program represent some of the most well known technology companies in the world including: IBM, Microsoft, CSC, Home Depot, Exxon/Mobil, Samsung, USAA, Whole Foods, and Walmart.

This and much more await that student who has an interest in working with computers. If you have any questions, comments, suggestions, or would like further information please feel free to contact me.

Dr. David Wierschem
Chair - Department of CIS & QMST
McCoy College of Business Administration
Texas State University
601 University Drive
San Marcos, Texas 78666
512-245-3223
512-245-1452 (fax)
dw50@txstate.edu
www.mccoy.txstate.edu