**Computer engineering** is a branch of engineering that integrates several fields of computer science and electronic engineering required to develop computer hardware and software. Computer engineers usually have training in electronic engineering software design, and hardware-software integration instead of only software engineering or electronic engineering. Computer engineers are involved in many hardware and software aspects of computing, from the design of individual microcontrollers, microprocessor, personal computers, and super computers, to circuit design.

There are many specialty areas in the field of computer engineering.

**Coding, cryptography, and Information Protection** Computer engineers work in coding, cryptography, and information protection to develop new methods for protecting various information, such as digital images and music, fragmentation, copyright infringement and other forms of tampering. Examples include work on wireless communications, multi-antenna systems, optical transmission, and digital watermarking

**Communication and wireless Networks** Those focusing on communications and wireless networks, work advancements in telecommunications systems and networks (especially wireless networks), modulation and error-control coding, and information theory. High-speed network design, interference suppression and modulation, design, and analysis and storage and transmission schemes are all a part of this specialty.

**Compilers and operating systems** This specialty focuses on compilers and operating systems design and development. Engineers in this field develop new operating system architecture, program analysis techniques, and new techniques to assure quality. Examples of work in this field include post-link-time code transformation algorithm development and new operating system development