

## Computer Science vs Software Engineering

With the **School of Computer Science**, you can do a **Major in Computer Science** OR a Major in **Software Engineering** as a *Bachelor of Science* (or a *Bachelor of Arts*).

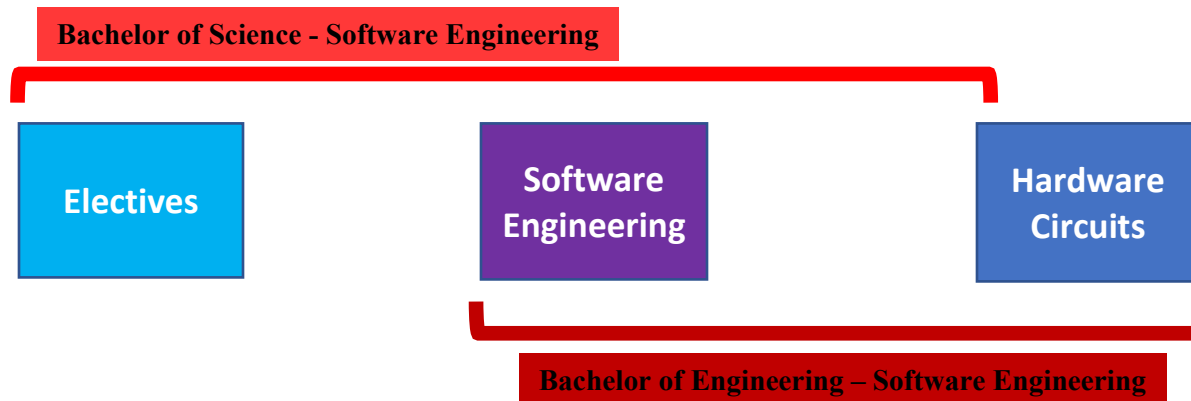
CS and SE share common core courses providing the foundations of computer science.  
How are the programs different?

<b>Major in Software Engineering</b>	<b>Major in Computer Science</b>
<ul style="list-style-type: none"><li>• Focus on principled design and the development of software – how software systems are built</li><li>• More required courses specific to software</li></ul>	<ul style="list-style-type: none"><li>• How computers work – from a more mathematical and theoretical perspective</li><li>• Allows specialization in Artificial Intelligence, Machine Learning, Graphics, Robotics, Operating Systems, etc.</li></ul>

**Software Engineering** is also offered by the **Faculty of Engineering** as a *Bachelor of Engineering*.  
 What is the difference between the *Bachelor of Science(or Arts)* SE program and the *Bachelor of Engineering* SE program?

The *B.Sc./B.A* and *B.Eng.* Software Engineering programs **\*both\*** take **many of the same core courses** related to software.

<b>B.Sc./B.A. Software Engineering</b>	<b>B.Eng. Software Engineering</b>
<ul style="list-style-type: none"> <li>• Core required courses on fundamentals of software and computer science + more Math required courses</li> <li>• More <b>flexibility</b> for choosing courses</li> <li>• Options to take more software courses, including those offered by the Faculty of Engineering</li> <li>• Options to take computer science courses, allowing specialization in AI, Machine Learning, Graphics etc.</li> <li>• 7-8 elective courses                             <ul style="list-style-type: none"> <li>○ Can be used for more high-level software or computer science courses, or for a <b>Minor program</b> (anything within the Faculties of Science, Arts, or Management)</li> </ul> </li> </ul> <p><i>50% SE + 25% Math + 25% Specialization in complementary area of CS or another discipline</i></p> <p><i>*Students coming from CEGEP: the program is 90 credits, and can be completed in 3 years.</i></p>	<ul style="list-style-type: none"> <li>• Very <b>structured program curriculum, with more required credits</b></li> <li>• Less flexibility to take more software courses and/or electives</li> <li>• More courses related to hardware</li> <li>• Common core Engineering courses                             <ul style="list-style-type: none"> <li>○ Exposure to other Engineering disciplines – Electrical Engineering, Computer Engineering, etc.</li> </ul> </li> <li>• Graduate as an <b>accredited engineer</b></li> </ul> <p><i>50% SE + 25% Math + 25% low-level hardware</i></p> <p><i>*Students coming from CEGEP: the program is 115-119 credits, so takes at least 3 1/2 years to complete.</i></p>



The **Faculty of Engineering** also offers a degree in **Computer Engineering**

**Computer Engineering** is **\*NOT\*** the same thing as **Computer Science or Software Engineering**

<b>B.Sc./B.A. Computer Science / Software Engineering</b>	<b>B.Eng. Computer Engineering</b>
<ul style="list-style-type: none"><li>• Foundations and applications of computer science, and the development of software</li><li>• <b>Coding, programming, running, and designing computational tasks</b></li><li>• Flexibility to combine studies with math, statistics, physics, biology, any other program in Science, Arts, or Management</li></ul>	<ul style="list-style-type: none"><li>• Computer <b>hardware</b> (less software)</li><li>• <b>Building the physical computer</b>, not focused on how to code and run algorithms</li><li>• Very structured program curriculum</li><li>• Core Engineering courses and exposure to other Engineering disciplines</li></ul>