CIVIL-711  Information Science in Engineering  
Senatore Gennaro, Smith Ian F. C.

**Cursus**  
Génie civil & environnement

<table>
<thead>
<tr>
<th>Sem.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Obl.</td>
</tr>
</tbody>
</table>

**Language**  English  
**Credits**  4  
**Session**  Multiple  
**Exam**  
**Workload**  120h  
**Hours**  56  
**Lecture**  14  
**Exercises**  28  
**Practical work**  14  

**Frequency**  
Every year

**Remarque**  
Variable / Next time: Spring 2020

**Summary**  
An introduction to engineering-relevant computer-science concepts that are hardware and software independent. Outcomes include knowledge of the limits of computing, improved ability to understand the true value of new developments and capabilities to effectively select good computing methodologies.

**Content**  
The course is divided into two parts. The first part deals with concepts such as complexity, task analysis as well as strategies for representation and reasoning using engineering knowledge (1 week). The second part (1 week 1 month later) is devoted to seminars by Doctoral candidates on selected topics complemented by a "critique" and supplementary theoretical background by the teacher.

**Keywords**  
logic, complexity, search and optimisation, machine learning, data-base design

**Learning Prerequisites**  
Recommended courses

**Learning Outcomes**  
By the end of the course, the student must be able to:
- Develop an efficient software system
- Assess / Evaluate the complexity of an algorithm
- Choose the most appropriate optimisation strategy
- Propose good machine learning strategies

**Resources**  
Bibliography

Ressources en bibliothèque
- Engineering Informatics: Fundamentals in Computer-Aided Engineering

Websites