The Algorithms course introduces students to basic programming concepts and places particular emphasis on the presentation of the key algorithmic techniques and the use of different programming paradigms, languages and environments for building IT applications, while applying rigorous methodologies that endow students with best practices in software development.

SKILLS

Basic Skills
Students must have demonstrated knowledge and understanding in an area of study that is founded on general secondary education. Moreover, the area of study is typically at a level that includes certain aspects implying knowledge at the forefront of its field of study, albeit supported by advanced textbooks.

Students must be able to apply their knowledge to their work or vocation in a professional manner and possess skills that can typically be demonstrated by coming up with and sustaining arguments and solving problems within their field of study.

Students must have the ability to gather and interpret relevant data (usually within their field of study) in order to make judgments that include reflections on pertinent social, scientific or ethical issues.

Students must be able to convey information, ideas, problems and solutions to both an expert and non-expert audience.

Students must have developed the learning skills needed to undertake further study with a high degree of independence.

**General Skills**

Knowledge of the basic materials and technologies, giving rise to learning and the developing of new methods and technologies, and which also provide huge versatility to adapt to new contexts.

**Specific skills**

An ability to understand and use the basic concepts of discrete mathematics, logics, algorithms and computational complexity, and their application for solving engineering-specific problems.

Basic knowledge of the use and programming of computers, operating systems, databases and computer programmes with applications for engineering.

Knowledge of the structure, organisation, operation and interconnection of computer systems, programming foundations and their application to solving engineering-specific problems.

**DISTRIBUTION OF WORK TIME**

<table>
<thead>
<tr>
<th>CLASSROOM-BASED ACTIVITY</th>
<th>INDEPENDENT STUDY/OUT-OF-CLASSROOM ACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>68 hours</td>
<td>82 hours</td>
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