**The specialisation in Critical Systems enables you to:**

* formally model, design and implement correct complex process-aware distributed systems
* specify compliance rules (e.g. for security policies) formally using temporal logic and graphical formalisms
* explain the principles of formal verification (model-checking) and apply model-checking tools
* explain the principles of behavioural types and their application for robust implementation of complex distributed systems.

This specialisation aims to prepare you to take software developer and software architect jobs in software houses and consultancies taking part in development of distributed, service-oriented and process-aware information systems for which correctness and security plays a critical role (such as electronic patient records and other healthcare software, financial software, e-voting, aministrative systems, embedded software in safety-critical devices such transportation etc), as well as it serves as a potential entry point to research in model-based design, process-aware information systems, formal methods, programming, logic and semantics.

 **Prerequisites**The are no formal requirements for the specialisation, but students are expected to know:

* Discrete Mathematics
* Distributed Systems (only for the Critical Systems Seminar and Project)
* Java (only for the Critical Systems Seminar and Project)

If you do not have knowledge within these areas before starting the specialisation, you can choose [Mobile and Distributed Systems](https://mit.itu.dk/ucs/cb/course.sml?course_id=1921935&mode=search&goto=1494226494.000) for your elective on the first or second semester.

 **Project supervisors**The following members of faculty have teaching or research experience that relate to the specialisation. You can contact them if you want to pursue the specialisation's topic area in a project or in your thesis.

* [Thomas Hildebrandt](http://www.itu.dk/~hilde/)
* [Carsten Schürmann](https://pure.itu.dk/portal/en/persons/carsten-schurmann%281313519f-2074-41d6-8b79-589648e37211%29.html)
* [Marco Carbone](http://www.itu.dk/people/maca/)
* [Søren Debois](https://pure.itu.dk/portal/en/persons/soeren-debois%28d3b41838-e2bf-4735-b1cd-03f60b49c7e5%29.html)
* [Andrzej Wasowski](http://www.itu.dk/~wasowski/)
* [Alessandro Bruni](https://pure.itu.dk/portal/en/persons/alessandro-bruni%285c50bbc9-ed3d-417f-ba4d-e484eaf536b3%29.html)

**Specialisation contact person**[Thomas Hildebrandt](http://itu.dk/people/hilde).

Contact Thomas if you want to know more about the specialisation contents or its prerequisites.