Course plan for:

**Organic Electronics 2, 6 ECTS credits.**

Prel. scheduled hours: 37  
Rec. self-study hours: 123  
Area of education: Technology

**Aim:**  
After finishing the course, the students should be able to:
- Explain the fundamental principles underlying the material properties of organic materials, such as optical properties and conductivity, and describe how they are connected  
- Specify and describe appropriate methods and processes for manufacturing various components in organic electronics  
- Identify and explain different concepts and principles that have applications in organic electronics, such as thermoelectricity, ferroelectricity, and bioelectronics  
- Describe the structure and functional principles of organic electronic components, such as light-emitting components and energy-storage systems  
- Explain how organic and inorganic components can be used together in hybrid systems, and discuss advantages and disadvantages of such systems  
- Gather information about, present, and reflect on current research in organic electronics

**Prerequisites:** (valid for students admitted to programmes within which the course is offered)  
Molecular Physics and Organic Electronics 1 (or equivalent)

**Note:**  
Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

**Organisation:**  
Teaching will consist of lectures, a laboratory exercise, and student-led seminars.

**Course contents:**  
Optical properties and charge transport in organic materials; manufacturing (material deposition, patterning, etc.); iontronics (applications based on ion transport, diodes and transistors); sustainable and renewable electronic materials; organic bioelectronics (cell signalling and electronic plants); organic ferroelectricity; energy storage (organic batteries and supercapacitors); flexible (bendable and stretchable) electronics; organic/inorganic hybrid components and circuits; current research in organic electronics. In addition to lectures and seminars, a laboratory exercise may be offered in the department’s research lab.

**Course literature:**  
Lecture notes, scientific papers

**Examination:**  
TEN1, Written examination (U,3,4,5), 5 ECTS  
PRO1, Seminar (U,G), 1 ECTS

**Course language:** English  
**Department offering the course:** ITN  
**Director of Studies:** Adriana Serban  
**Examiner:** Magnus Jonsson