THE INTERNATIONAL SEMESTERS
Have you ever wondered how it is possible to put a two-hour movie and five channels of sound on a single DVD? And what about your favourite 50Mb track of music taking up only 3-4Mb on the mp3-player? All modern handling of digital audio and video is based on coding by compression. Raw data is processed in a way so that only the important pieces are left for storage and/or transmission. Clever algorithms taking the human sensory system (hearing and vision) into account are designed to accomplish the data reduction.

This course is about real-time compression and coding of music, and we take a starting point in the actual techniques used in DVD encoding. Understanding the fundamentals of the human hearing and setting up algorithms capable of removing all redundant information from a music signal. Step one is to build a software framework realising a fully functional music encoder, and step two is to implement the framework in digital signal processor hardware to enable real-time processing of a music wave file.

In the end we can make experiments using subjective listening tests showing the encoding compromise between perceived quality and signal bit rate. How far can we go in removing information from the signal before it becomes audible? And how much can be removed before we don’t like to listen to the music anymore?

Most of the courses are also intended for Danish students, but all curriculum activities are conducted in English and are dealt with in an international perspective. The latest know-how and state-of-the-art HW/SW are available and a practical engineering approach to the complex systems is in strong focus.

ADMISSION REQUIREMENTS
The semesters are intended for international and Danish students in the final year of their Bachelor studies or at a similar educational level of a digital electronics/signal processing programme. More specifically, basic electronics skills, basic signal processing skills and basic programming skills (e.g. C or C++) are considered a prerequisite for attending this study. Proficiency in English is required (TOEFL-test, score 550, or equivalent).

COURSES ON OFFER INCLUDE
Autumn Semester, mid August (30 ECTS)
• Cooperation, Learning and Project Work (2.5 ECTS)
• Cross-Cultural Understanding (2.5 ECTS)
• Embedded Computer Architecture (5 ECTS)
• User Interfaces for Embedded Systems (5 ECTS)
• Embedded Signal Processing (5 ECTS)
• Multidisciplinary Project to Train the Application of Theory from the DSP Courses (10 ECTS)

It is possible to take only the autumn semester. Exams after the first semester must be passed with satisfactory results in order to be able to take the second semester.

Spring Semester, end of January (30 ECTS)
• Digital Image Processing (5 ECTS)
• Applied Micro-Controller Systems (5 ECTS)
• Bachelor’s Project (20 ECTS)

STUDY PERIOD AND APPLICATION
Study period is from mid August to end of June. Deadline for application is 1 May. A maximum of 20 international students is accommodated.

FIND OUT MORE
Visit our website at www.ase.au.dk or contact the International Officer Ms. Merete Christensen. E-mail: mc@iha.dk

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EMBEDDED DIGITAL SIGNAL PROCESSING

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