SYLLABUS

Media Coding 7.5 credits S7004E

Mediekodning

Course syllabus admitted: Autumn 2011 Sp 2 - Autumn 2012 Sp 2

DECISION DATE
2011-10-07

Luleå University of Technology 971 87 Luleå, Sweden
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LULEÅ TEKNISKA UNIVERSITET

Media Coding 7.5 credits S7004E

Mediekodning

Second cycle, S7004E

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	G U 3 4 5	Signalbehandling	Computer Technology

Entry requirements

Courses of at least 90 credits at first cycle including the following knowledge/courses. S0001E Signal analysis and S7001E Stochastic signals or corresponding. Good knowledge of signals and systems, and random processes.
Alternative:
Alternative to completed courses can be corresponding knowledge acquired through work within the IT or electronics sector.

Selection

The selection is based on 30-285 credits

Examiner

Johan Carlson

Course Aim

The course aims to give fundamental knowledge of coding and compression of different types of media, e.g., text, audio, images, video (ZIP,MP3,JPEG/GIF,MPEG).

Contents

Basics in information theory, entropy, limits for data compression, sampling, quantization etc. Transform coding: Karhunen-Loeve transform, discrete cosine transform, subband coding, wavelets. Non-lossy coding/compression: Huffan coding, Lempel-Ziv-Welsh coding (ZIP/PNG), run-length coding. Different types of lossy coding/compressing for audio, images and video (MP3,JPEG,MPEG).

Realization

Each course occasion´s language and form is stated and appear on the course page on Luleå University of Technology's website.
Lectures, mandatory labs and homework assignments.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.
Written exam with differentiated grades.

Remarks

The course will not be given every year.

Overlap

The course S7004E is equal to SMS047

Literature. Valid from Autumn 2007 Sp 1

Khalid Sayood, \"Introduction to Data Compression,\" Morgan Kaufmann.

Course offered by

Department of Computer Science, Electrical and Space Engineering

Items/credits

Number	Type	Credits	Grade
0001	Written exam	6	G U 3 4 5
0002	Laboratory work	1.5	U G#

Last revised

by Jonny Johansson, huvudansvarig utbildningsledare, SRT 2011-10-07

Syllabus established

The syllabus was established by the Department of Computer Science and Electrical Engineering February 28, 2007 and is valid from Autumn semester 2007.