

T-111.350 Multimedia Technology



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Agenda

- Topic
- Staff
- General
- Requirements
- Book
- Lecture hours
- Lectures
- Laboratory exercises

Topic

- The topic of the course is
 - + digital audio and video
 - + hardware and software
 - + interchange formats
 - + communications and video conference
 - + multimedia systems
- The objective is to give basic knowledge about multimedia technology and its effects on communication and computer technology

Staff

- lecturer: prof. Petri Vuorimaa
 - + tel. 451 4794
 - + email Petri.Vuorimaa@hut.fi
- main assistant: Jussi Teirikangas
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General

- News group:
 - + `opinnot.tik.mmtkn`
- www page:
 - + `http://www.tml.hut.fi/Studies/T-111.350/`

Requirements

- The requirements include accepted exam and laboratory exercise
- Exam is based on lecture material
- Laboratory exercise is done as group work
- It is possible to get $\frac{1}{2}$ (1,5 points) or 1 (3 points) raise from the laboratory exercise to exam result
+ one must have at least grade 1 from the exam, though

Book

- Course book is Chan-Hwa Wu and J. David Irvin, Emerging Multimedia Computer Communication Technologies, Prentice Hall, 1998
- Book is available at university book shop (?)
- Chapters 1-3 and 7-10 covered at lectures
- Only most important topics are covered from chapters 4-6

Lecture hours

- Lectures in English are given on Fridays at 9 - 11 in seminar room B130 of computer science building
- Weekly laboratory exercises are not held

Lectures

- Arrangements
- Introduction
- Hardware
- Software
- Audio and video I
- Audio and video II
- Interchange formats
- Development tools
- Communications
- Multicast
- Video conference
- Access networks

Lectures

- Arrangements

- + topic
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- + lecture hours
- + lectures
- + laboratory exercises

- Introduction

- + What is multimedia
- + Multimedia systems
- + Quality of service
- + Synchronization & orchestration
- + Standards
- + Applications
- + Convergence
- + Value chain

Lectures

- **Hardware**
 - + Multimedia computers
 - + Video and graphics
 - + Audio
 - + Telephone, video conference, and networks
 - + CD and DVD
 - + USB and FireWire
 - + Processors
 - + Video for Windows, DirectX, and ActiveMovie
- **Software**
 - + Introduction
 - + Browser based software architecture
 - + Distributed software
 - + Servers
 - + Network
 - + Terminals

Lectures

- Audio and video I
 - + Introduction
 - + Digital audio
 - + Psycho acoustics
 - + Digital presentation of sound
 - + Digital images
 - + JPEG
- Audio and video II
 - + Video signal
 - + Camera sensors
 - + Colors
 - + Color television
 - + Equipment
 - + Compression systems
 - + Basics of video compression
 - + Methods
 - + Algorithms

Lectures

- Interchange formats
 - + Introduction
 - + Application areas
 - + Requirements
 - + Track and object model
 - + Real-time transfer
 - + Different transfer formats
 - + Comparison
- Development tools
 - + Introduction
 - + Production process
 - + Tools
 - + Barriers
 - + Development areas

Lectures

- **Communications**

- + QoS
- + ATM
- + QoS implementations
- + Integrated Services
- + Differentiated Services

- **Multicast**

- + Introduction
- + Group control
- + Routing
- + Real-time transfer and control protocols
- + Resource reservation
- + Session control
- + MBone

Lectures

- Video conference
 - + Introduction
 - + Standards
 - + Products
 - + Internet telephony
 - + CTI (Computer Telephony Integration)
- Access networks
 - + Introduction
 - + Cable television
 - + Digital subscriber lines
 - + UMTS
 - + Digital television
 - + Conclusions