Computer Science (COMP) 435

Multimedia Technologies (Revision 1)

Status:	Replaced with new revision, see the **course listing** for the current revision
Delivery mode:	**Individualized study online**
Credits:	3
Area of study:	Science
Prerequisites:	**COMP 308** or equivalent (or professor approval).
Precluded:	None
Challenge:	COMP 435 is not available for challenge.
Faculty:	**Faculty of Science and Technology**
Notes:	Students who are concerned about not meeting the prerequisites for this course are encouraged to contact the **course coordinator** before registering

Overview

Multimedia Technologies is an indispensable part of modern computing environments. This course will explain the technologies underlying digital images, videos and audio contents, including various compression techniques and standards, and the issues to deliver multimedia content over the Internet.

The course is designed for:

1. Program students who want to broadening their knowledge by including multimedia studies.
2. Visiting program students looking for a foundation from which to pursue advanced topics in multimedia studies.
3. Professional developers who want a technical foundation for developing applications with distributed multimedia components.
4. Networks professionals who needs to manage multimedia delivery service.

Outline

COMP 435 consists of the following nine units:

- Unit 1: Software Installation and Preparation
- Unit 2: Introduction to Multimedia Studies
- Unit 3: Data Representation
- Unit 4: Basic Compression Techniques
- Unit 5: Video and Audio Data Compression Techniques
- Unit 6: Multimedia Networks and QoS Support
- Unit 7: Multimedia Wireless Networks, Heterogeneous Networks, and advanced QoS Support
- Unit 8: Multimedia Applications
- Unit 9: Topics in Multimedia Technologies

Learning outcomes

Upon successful completion of this course, you should be able to

- identify the essential features of graphics/image data types, file formats, and colour models in images and video.
- explain the technical details of multimedia data representations.
- perform a comparative analysis of the major methods and algorithms for multimedia data compression.
- explain the technical details of popular multimedia compression standards.
- write code and develop a multimedia application using JAI and JMF.
- explain the principles and technical details of several wired and wireless networking protocols.
- configure and manage multimedia content delivery platforms.
- identify the essential issues of quality of service in multimedia networking.
- explain technical aspects of popular multimedia web applications, including VoD and VoIP.

Evaluation

To **receive credit** for COMP 435, you must achieve a course composite grade of at least **D (50 percent)** , including an average grade of at least 50 percent on the assignments, and a grade of at least D (50 percent) on the final examination. The weighting of the composite grade is as follows:

Activity	**Weight**
Assignment 1	15%
Assignment 2	15%

Activity	Weight
Assignment 3	15%
Assignment 4	15%
Assignment 5	10%
Final Exam	30%
Total	**100%**

The **final examination** for this course must be requested in advance and written under the supervision of an AU-approved exam invigilator. Invigilators include either ProctorU or an approved in-person invigilation centre that can accommodate online exams. Students are responsible for payment of any invigilation fees. Information on exam request deadlines, invigilators, and other exam-related questions, can be found at the **Exams and grades** section of the Calendar.

To learn more about assignments and examinations, please refer to Athabasca University's **online Calendar** .

Materials

Li, Z.-N., & Drew, M. S. (2004). *Fundamentals of multimedia*. Pearson Education. *  (Print)

Li, Z.-N., Drew, M. S., & Liu, J. (2021). *Fundamentals of multimedia* (3rd ed.). Springer.  (eText)

***Note:** The print version of *Fundamentals of Multimedia* (2004) is no longer available. As of May 20, 2022, an eText replacement is being used in this course: *Fundamentals of Multimedia*, 3rd ed. (2021).

Other Materials

Distributed in Electronic Format

- *Computer Science 435 Study Guide*

Available from the Course Website

- A collection of journal articles and conference papers delivered through the library service of Athabasca University
- A course evaluation form
- Links to a variety of resources on the World Wide Web.

Additional supporting materials of interest to students may occasionally be made available electronically.

Special Instructional Features

COMP 435 is offered through Moodle, a Learning Management System that can be accessed through the Web. COMP 435 can be completed at the student's workplace or home. COMP 435 is an elective in all undergraduate programs offered by the **School of Computing and Information Systems.**

Important links

- **Academic advising**
- **Program planning**
- **Request assistance**
- **Support services**

Opened in Revision 1, October 7, 2009

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