



CM0533 Multimedia Time-based Assets – Module Guide

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Module Team

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Module aims

The aim of the module is to extend your theoretical understanding and practical skills in generating time-based audio-visual assets for multimedia. It will also look at current developments in multimedia from the point of view of both technological changes and potential new uses (such as safety-critical systems, access for special needs users or virtual environments).

Specifically, the module aims:

1. To develop your ability to originate, synchronise and integrate time-based materials for use within a multimedia computer environment.
2. To provide you with an understanding of cross-media issues.
3. To provide you with a critical understanding of design techniques and technological issues relating to time-based assets.
4. To give you an appreciation of the potential of time-based assets as communicative and access tools.

Learning Outcomes

Upon completion of this module you should be able to:

1. Originate time-based assets using computer technologies.
2. Integrate and synchronise time-based assets within a computer-controlled multimedia setting.
3. Make informed and effective use of time-based assets as a means of communication in a specific context.
4. Define and discuss cross-media issues and issues relating to the design and implementation of time-based assets.
5. Justify your design and technology decisions in the context of those issues and of issues of communication and access.

This module contributes to the learning outcomes of the Multimedia Computing degree shown in Table 1:

Teaching and Learning Methods

Teaching will involve lectures and discussion covering theoretical aspects. Practical aspects will be covered in lab sessions. You will also need to study additional materials as directed and complete practical exercises.

Assessment

The assessment comprises two assignments each of which comprises:

- a practical project testing learning outcomes 1, 2 & 3 and
- a written report testing learning outcomes 4 & 5.

You are strongly advised to start work on the assignment as soon as you can. You can get advice and formative feedback on practical work during labs. Full details will be included in the assignment brief. Make a note of the hand-in deadlines. On that date we must receive either your assessment work or a signed extension form to cover an extension previously agreed by the module team with your year tutor.

Table 1: Programme learning outcomes covered by CM0533

A3	: Technical, professional and business issues surrounding the development, operation and maintenance of multimedia computing systems;
A4	: Techniques and tools for the specification of requirements, analysis, design and implementation of multimedia systems;
A5	: Supporting and current techniques and technologies such as: video, sound, multimedia storage and retrieval;
B2	: Discuss and critically evaluate available development tools, methods, and technologies and associated user and professional issues;
B3	: Identify a problem and select and apply effective methods and tools for its solution;
C3	: Design and build high quality multimedia computing applications with appropriate multimedia components, networking and database support;
C4	: Use appropriate techniques and tools to support effective management of the development and operation of multimedia software systems;
D1	: Communicate information, ideas, problems and their solution, in both written and oral form;
D2	: Manage time and resources efficiently;
D3	: Work effectively both individually and as a member of a team;
D4	: Exercise initiative and personal responsibility;
D5	: Learn independently using a diverse range of resources;
D6	: Evaluate and criticise the learning experience.

Recommended reading

Books

1. Kramer, G., ed. (1994) Auditory Display, Addison-Wesley: Reading, MA.
2. Alesso, Peter H., (2000) e-Video: producing Internet video as Broadband Technologies, Addison Wesley
3. Crowcroft, J., (1999) Internetworking Multimedia, Morgan Kaufmann
4. Pohlman, K., (2000) Principles of Digital Audio, McGraw-Hill
5. Tekalp (latest ed.) Digital Video Processing, Prentice Hall
6. Walkinson, J., (2000) The Art of Digital Video, Focal
7. Elsom-Cook, M., (2000) Principles of Interactive Multimedia, McGraw-Hill
8. Wishart, T., (1994) Audible Design, Orpheus the Pantomime

Articles

1. Vickers, P. and Alty, J.L., Using Music to Communicate Computing Information. *Interacting with Computers*, 2002. 14(5): p. 435-456.
2. Vickers, P. and Alty, J.L., Musical Program Auralisation: A Structured Approach to Motif Design. *Interacting with Computers*, 2002. 14(5): p. 457-485.
3. Vickers, P. and Alty, J.L., When Bugs Sing. *Interacting with Computers*, 2002. 14(6): p. 793-819.

Additional Resources

1. Riley, R., *Audio Editing With Cool Edit*. PC Pub 2002

Registered students can access copies of handouts and other information on the module through at <http://www.paulvickers.com/cm533>. You should find the following web sites useful:

- www.icad.org — the International Community for Auditory Display
- www.composerscientist.com — Bob Sturm's sonification work.
- www.dcs.gla.ac.uk/~stephen — Prof. Steve Brewster's auditory interaction work

Also, there's a good podcast on hearing & listening called "Wake up and hear the roses" which is available through iTunes, PodcastAlley.com and Podcast.net.

iTunes: To subscribe, open iTunes, pull down the "Advanced" menu, choose "Subscribe to Podcast" and paste in the following URL: <http://www.25thavenue.com/Public/podcast.xml>. Your iTunes Library will now have a list of the episodes in the Podcasts category. Click on the "Get" button next to the name of each episode to download it. You will automatically receive future episodes as they are available each time you open iTunes.

Or,

Go to the iTunes Music Store, select Podcasts, and type the name (Wake Up and Hear the Roses) in the search form. When it appears, click on the name up by the image and the list of episodes will appear. You can download individual episodes with the "Get Episode" button to the far right, or you can hear the beginning of any episode by clicking on the name.

PodcastAlley.com: Type in the name (Wake Up and Hear the Roses) in the search form. When it appears, click on the title, then click on See Details. A list of episodes will appear. You can subscribe or download individual episodes. To hear an episode without downloading it, click on the title of the episode.

Podcast.net: Type in the name (Wake Up and Hear the Roses) in the search form. Several different podcasts will probably appear. Click on the name and a list of episodes will appear. You can listen to any of them without downloading.

Draft schedule

Please note, this schedule should not be treated as definitive and is subject to change.

Week	Lecture	Assessment
SEMESTER 1		
1	Introduction to time-based assets Sound & vision	Assignment 1 hand-out
2	Introduction to sound theory Basic principles of sound physics	
3	Perception & Psycho-acoustics	
4	Perception & psycho-acoustics cont. (auditory illusions)	
5	Musical Instrument Digital Interface (MIDI)	
6	Combining MIDI and audio	
7	Sound language	
8	Sound as a communication/interaction medium	
9	Sonification/auditory display	
10	Aesthetics and sound	
11	Compression & streaming	
12	Surgery session	Assignment 1 hand-in
SEMESTER 2		
1-11	Video topics	Assignment 2 hand-out
12		Assignment 2 hand-in