DEGGENDORF INSTITUTE OF TECHNOLOGY

Module Handbook

Programme

Media Technology and Production
(Master)

Faculty

Faculty of Electrical Engineering, Media Technology and Computer Science

Examination Regulations

MT-M SS08

Module: Soft Skills for Media Technicians

Module No. 1
Responsible for Module Prof. Peter Schmieder
Course number/name
1 Soft Skills for Media Technicians
Lecturer Prof. Peter Schmieder
Semester 1
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/non-compulsory Compulsory
Degree Postgraduate
SWS 2.0
ECTS 3.0
Workload
Attendance: 23.0 hours
Self-study: 90.0 Hours
Total: 113.0 Hours
Language of Instruction German

Objectives of the module

Students first learn the basic objectives and content of the so-called Soft Skills. A deeper understanding of the value and benefits of direct professional experience is also acquired.

Students apply scientific models or tools, analyse its practical benefit and reflect on their own implementations. Students should recognise the direct relationships between professional success and the application of the presented skills.

The students evaluate, in plenary, the analysis of the individual content and thus generate a deep and relevant individual study of their own behaviour compared to a self-reflection.

Ultimately, it is the aim of this module to support employability at a postgraduate level.

In addition to facts and word knowledge (e.g. communication, NLP, presentation and public speaking), it's all about process-oriented knowledge, i.e. direct application in the course (e.g. briefings, self-presentation, negotiation). The analysis of the strengths and weaknesses of their personality and social understanding will help develop their employability.

It is all about expanding ones social and emotional horizons, especially in the area of how to support your future career success.

Recommended prerequisites

none

Content

1. What are Soft Skills?
1.1 History and Significance
1.2 Terminology and definition
1.3 Use and application

2. Selected key skills
2.1 communication
2.2 Self-reflection
2.3 Presentation skills and public speaking

3. Specific applications of soft skills
3.1 presentations
3.2 Skill analysis of media products
3.3 feedback exercises

Teaching and learning methods

Seminar lectures with in-and outdoor exercises, group and individual projects, presentations.

Other

No online lectures, film and advertising examples. If possible, guest lectures

Literature

1. Germaner Managerverband e.V.: Handbuch Soft Skills. Band 1-3, VDF Hochschulverlag, Zürich 2003, Band 2 und 3: Zürich 2004.

2. Vigenschow, Schneider: Soft Skills für Software-Entwickler. Fragetechniken, Konfliktmanagement, Kommunikationstypen und –modelle, Dpunkt Verlag, 1. Auflage, Heidelberg 2007.

3. Moritz, Rimbach: Soft Skills für Joung Professionals. Alles, was Sie für Ihre Karriere brauchen, Gabal Verlag, 2. Auflage, Offenbach 2008.

4. Jung, von Matt: Momentum – Die Kraft, die gute Werbung heute braucht, Lardon Verlag, 5. Auflage, Berlin 2007.

5. Gapski. Medienkompetenz messen? Verfahren und Reflexion zur Erfassung von Schlüsselkompetenzen, Kopaed Verlag,Marl 2006.

6. Schulz von Thun: Miteinander reden (Band 1-3), Rowohlt, 46. Auflage, Reinbek 2008.

7. Watzlawick: Wie wirklich ist die Wirklichkeit? – Wahn, Täuschung, Verstehen, Piper, 7. Auflage, München 2007.

8. Reynolds: ZEN oder die Kunst des Präsentierens, Addison-Wesley, München 2008.

9. Häusel: Think Limbic! Die Macht des Unbewussten verstehen und nutzen für Motivation, Marketing, Management, Haufe, 4. Auflage (Nachdruck), München 2005.

10. Aristoteles: Rhetorik, Reklam, bibliographisch ergänzte Ausgabe, Stuttgart 2007.

1 Soft Skills for Media Technicians

Type of examination

Final grade examination PStA

Module: Short-film

Module No. 10
Responsible for Module Prof. Ernst Jürgens
Major field of study Technology and application of audio-visual media
Course number/ name
10 studio production
Lecturer Dr. Elmar Hergenröder
Prof. Ernst Jürgens
Semester 2
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Compulsory
Degree Postgraduate
SWS 4.0
ECTS 5.0
Workload
Attendance: 46.0 Hours
Self-study: 104.0 Hours
Total: 150.0 Hours
Language of Instruction German

Objectives of the module

In Amberg:

The students should identify and differentiate dramaturgical and aesthetic principles, in a typical and complex studio production environment.

The acquired knowledge must be incorporated constructively in their own work, which is to be performed in the production of a television program. After setting a genre-related design, all television aesthetic laws must be implemented creatively.

The organizational, logistical (eg production release / shooting schedule) and economic (eg production costing) implications of a program idea or shipment concept (editors) need to be recognized in their contexts and analysed in relation to their aesthetic and technical production consequences.

The results of the analysis are to be related to what is intended with the production, the budget and the editorial recovery (time slot).

The acquired expertise should provide students with creative methods and examples for them to produce their own technical and to also develop a creative signature to their work.

Students will learn how to apply technical language, just like it is done between TV-technical relations in a studio production (camera, film editor, light setting, sound mixing, sound, video, blue-green box , stage elements, A / V server, graphics, etc.).

The procedural knowledge in theory and practice must take into account the technical production requirements (eg 16:9 HD TV production). Specialized techniques of audio-video and TV production are taught in theory and practice. The decisive factor here is the awareness of the far-reaching consequences of

the differences between carrier media (EB-posts, SD video, HD video, 5.1 sound, ...).

The students should be able to recognize their own creative developments and apply them to a multimedia context. Creative and technical strengths and weaknesses are accepted in the context of development and used appropriately throughout teamwork.

In Deggendorf:

The participants should be able to identify and differentiate dramatic and film aesthetic principles of a short film.

The acquired knowledge has to be illustrated in their own cinematic work, with theoretical and practical significance. Historic artefacts of film are also learned, which is classified and discussed with relevance to aesthetic perspective.

After setting a genre-related design, all television aesthetic laws must be implemented creatively.

The organizational (production / shooting schedule) and economic (film costing) implications of a movie idea or a script (editors) need to be recognized in their context and analyzed in regards to aesthetic and technical production consequences.

The results of the analysis are to be related to what is intended with the production, the budget and the editorial recovery (time slot).

The acquired expertise should provide students with creative methods and examples for them to produce their own technical and creative signature to their work.

Students will learn how to apply technical language, just like it is done between TV-technical relations in a studio production (camera, film editor, light setting, sound mixing, sound, video, blue-green box , stage elements, A / V server, graphics, etc.).

The procedural knowledge in theory and practice must take into account the technical production requirements (eg 16:9 HD TV production). Specialized techniques of audio-video and TV production are taught in theory and practice. The decisive factor here is the awareness of the far-reaching consequences of the differences between the carrier media (EB-posts, SD video, HD video, 5.1 sound, ...).

The students should be able to recognize their own creative developments and apply them in a multimedia context. Creative and technical strengths and weaknesses are accepted in the context of development and used appropriately throughout teamwork.

Recommended Prerequisites

BA completion

Content

Amberg:

1. TV - Production
1.1 Television production as team work
1.2 Interaction of participating faculties

1.3 Creative Audio-/Video-Elements on TV
1.4 Technical and design quality in television.
1.5 Picture and Sound linkage
1.6 Making a real broadcast news program
1.6.1 expertise
1.6.2 social skills
1.6.3 artistic skills
1.6.4 methodological skills
1.6.5 personal skills

2. Speeches
2.1 Various topics related to overall TV - Production

Deggendorf:

1. Clarification and discussion of the concept of genre (interview)
1.1. The concept of AG Short Film - analyze and discuss Germany's short films
1.2. Analysis of the artistic film: "Überraschende Begegnung der kurzen Art" (Dokumentation, ZDF/ARTE 2005)
1.3. Discussion of historical films
2. Aspects and methods of film analysis (lecture)
2.1 Analyze and discuss short films from the Academy of Media, Cologne Arts
2.2 short film special program ARTE: analyze and discuss sample movies
3. Idea, report, treatment and script (Lecture)
3.1 From ideas to Expose - own practical experiments and discussion
3.2. Script and storyboard (well)
3.3. Screenplay - practical tests with discussion
3.4. Storyboard - practical experiments and discussion
4 Aspects of film director (lecture with examples)
4.1. camera work
4.2. Working with actors
4.3. Deepening the example of the short film series "German Short Films 2009" and "Germany 2008 Cannes Shorts"; analysis and discussion
5 The documentary short film (lecture with examples)
5.1. Planning and production of a short film (general work process)
5.1.1 Analysis of the screenplay under technical production standpoint
5.1.2. (Pattern) Calculation
5.1.3. Recording technique and team
5.1.4. (Pattern) rotation plan
5.2. Analysis of the script of film-design aspects
5.2.1. Director (storyboard) and occupation
5.2.2. Design, props, etc.
6 rotation
6.1. Presentation and discussion of the filmed material

7 Editing / post production

7.1. Presentation and discussion of the rough cut

8 Final presentation - for example before the jury of Deggendorf, Short Film Festival, and in the student TV magazine "rapture of the deep" (DonauTV)

Teaching and learning methods

Lecture (cross-curricular); project work in groups (film crews for final film), use of film media to include also historical short films; encounter with external film artists (Talk)

Other

The lecture takes place with the interdisciplinary lecture on "storyboard" of colleagues Reinhardt.

Public presentation: "Deggendorf's Short Film Award" (external jury).

Literature

Amberg:

A.Vogel, P.Effenberg (Medienbildungsgesellschaft Babelsberg, Hrsgb.): Handbuch HD-Produktion. 2.Auflage, 2010, Schiele & Schön Fachverlag GmbH, Berlin. ISBN: 978-3-7949-0815-8;

Diverse: Original-Handbücher zu den jeweils verwendete Geräten und Programmen (als PDF-Sammlung im Amberger-Multimedialabor verfügbar);

K.Grüger: Labor-Dokumentation. Loseblatt-Sammlung, jeweils aktuellste Fassung (als Powerpoint-Datei im Amberger Multimedialabor verfügbar, wird auch vom Lecturer als Datei verteilt);

Deggendorf:

Short Report. Kurzfilmmagazin. Alle Ausgaben ab 2005. Herausgeber AG Kurzfilm Bundesverband Germaner Kurzfilm;

German Short Film. Alle Ausgaben ab 2004. Herausgeber German Short Film Association. Überraschende Begegnung der kurzen Art. Gespräche über den Kurzfilm;

Peter Kremski, Schnitt der Filmverlag 2005. In Zusammenarbeit mit den Internationalen Kurzfilmtagen Oberhausen;

European Medie Art Festival – Kurzfilmedition 2005/06 Teil 1 und 2: Hrsg. EMAF Osnabrück Festivalleitung;

Next Generation 2003 und 2007. A Selection of Short Films by Students of German Film Schools;

Das Handbuch zum Drehbuch, Übungen und Anleitungen zu einem guten Drehbuch, Syd Field, Frankfurt 1991;

Das Drehbuchschreiben als Handwerk, 3. Auflage, Holger Ellermann, Coppengrave 1997;

Norbert Grob: Regie in: Thomas Koebner (Hrsg.): Reclams Sachlexikon des Films. Philipp Reclam jun. Verlag Stuttgart. 2. Auflage 2007;

Kurzfilmproduktion, Becher, Frank, Konstanz 2007

10 Studio Production

Major field of study

Technique and application of audio-visual media

Type of examination

Final grade examination PStA

Literature

Module: Storyboard

Module No. 11
Responsible for Module Günter Reinhardt
Major field of study Technique and application of audio
Course number/ name
11 Storyboard
Lecturer Prof. Dr. Karlheinz Müller
Günter Reinhardt
Semester 2
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Compulsory
Degree Postgraduate
SWS 4.0
ECTS 5.0
Workload
Attendance: 60.0 Hours
Self-study: 90.0 Hours
Total: 150.0 Hours
Language of Instruction German

Objectives of the module

The module will inform students of the various applications, such as the production of films, commercials and computer games, as well as industrial and music videos to the creation of websites, animated films, as well as sensibly incorporating the means of a storyboard in the production process.

- The students can design tasks to structure and visualize the appropriate means.

- They are able to graphically implement spatial and temporal structures and processes.

- They know and master both the visual language of the moving image as well as the conceptual requirements of a professional storyboard.

- They have the necessary expertise to use digital design and other concepts in real-world analogue.

Recommended prerequisites

none

Content

1. The Exposé
    a) Atmosphere
    b) Characters
    c) Narrative Perspective

d) Conflict

e) Goal

f) Highlight

2. The Mood Board

a) Mood

b) Casting

c) Colors

d) Locations

e) Content

3. The Customer Board

a) As a sales aid

b) As a mood sketch

c) The key scenes

4. The Shooting Board

a) The language of storyboards

b) Logic

c) Dramaturgy

d) Procedure

e) Editor

f) Image design / Characters

g) Tips and Tricks

Teaching and learning methods

Lecture, exercises, project work in groups

Literature

Zeichnen für Dummies, von Brenda Hoddinott und Elisabeth Schüsslbauer von Wiley-VCH Verlag GmbH & Co. KGaA 2006;

Storyboard Design: Grundlagen, Üungen und Techniken, Giuseppe Christiano, 2008, Stiebner;

Notizen zur Zeichentechnik, Peter Jenny, 1999, Schmidt;

Film Directing Shot by Shot, Steven D. Katz, 1991, Michael Wiese Productions

11 Storyboard

Type of examination

Final grade examination PStA

Module: Application-oriented 3D modeling and animation

Module No. 12
Responsible for Module Prof. Joerg Maxzin
Major field of study Technique and application of audio-visual media
Course number/ name
12 Application-oriented 3D modeling and animation
Lecturer Gerhard Brändlein
Prof. Dr. Nailja Luth
Prof. Joerg Maxzin
Prof. Dr. Dieter Meiller
Semester 2
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Compulsory
Degree Postgraduate
SWS 4.0
ECTS 5.0
Workload
Attendance: 60.0 Hours
Self-study: 90.0 Hours
Total: 150.0 Hours
Language of Instruction German

Objectives of the module

The ability to develop photo-realistic, computer-generated images, films, interactive scenes and application-specific 3D shapes will be acquired.

Recommended prerequisites

Basics of 3D modeling and animation

Content

Content Deggendorf

1 Overview of 3D software concepts
- 1.1 3D visualization and animation
- 1.2 CAD design
- 1.3 freeform modeling

2 Tap of contexts
- 2.1 Art and evolutionary remuneration
- 2.2 Specific Anatomy
- 2.3 3D concepts

3 Modeling - Advanced Techniques
- 3.1 Strategies for creating editable polygon bodies
- 3.2 Practical work with editable polygon bodies

4 Import and export of 3D data
    4.1 3D file formats
    4.2 Software Requirements specific
5 Digitizing forms
    5.1 3D scanning method
    5.2 X-ray tomography
    5.3 photogrammetry
6 Processing of un-interpreted 3D data
    6.1 Retopologisierung
    6.2 Reverse Engineering
    6.3 Reverse Engineering
7 Applied freeform modeling
    7.1 Special 3D input tools
    7.2 Introduction to free-form modeling
8 Advanced techniques of 3D texturing
    8.1 Normal Mapping
    8.2 3D Paint Tools
9 Manufacturing - 3D and Rapid Manufacturing
    9.1 Additive fabrication
    9.2 Subtractive manufacturing method

Content Amberg
Modeling, texturing and animation of prototypes is taught. The goal is the visualization of products and architecture for various purposes: for example, instructions, print advertising or for presentations at trade shows, museums and lectures. Also the preparation of scenes for display on the web is discussed.
1 survey
    1.1 Historical Development
    1.2 Application
2 Visualization of products
    2.1 Parametric model
        2.1.1 Polygon Modeling
        2.1.2 Modification stack
    2.3 Realistic materials
        2.3.1 Procedural Matieralien
        2.3.2 Texture
        2.3.3 UVW mapping and texture processing
    2.2 Reverse Engineering
        2.4.1 Forward kinematics
        2.4.2 Inverse Kinematics
    2.4 Scene Structure
        2.4.1 camera
        2.4.2 lights
        2.4.3 shadow

2.5 rendering

2.5.1 Still

2.5.2 movie

3 Visualization of architectural scenes

2.1 CGI basics

2.1.1 Image-based Lightning

2.2 Light and shadow simulation

2.2.1 light

2.2.2 shadow

2.2.3 reflections

2.3 camera adjustments

4 Interactive scenes on the web

3.1 Overview of 3D web technology

3.2 Export as X3DOM

Teaching and learning methods

Seminar lectures, Lectures and practical laboratory exercises, Presentation of semester results.

Other

Support the e-learning platform.

Current information on RSS.

Where possible, guest lectures and field trips.

Literature

1. Mach, Rüdiger: 3D-Visualisierung, Bonn, Galileo Press, 2000;
2. Informieren mit Computeranimation, Zusammenfassung der Beiträge zum Usability Day V, 11. Mai 2007;
3. Lengerich [u.a.], Pabst Science Publ., 2007;
4. Bousquet, Michele: How to cheat in 3ds Max 2009, Amsterdam, Focal Press/Elsevier, 2008;
5. Wendt, Volker: 3ds Max 9 Workshops, Heidelberg, mitp, 2007;
6. Gebhardt, A., (2007), Generative Fertigungsverfahren, 1. Auflage, Hanser, München;
7. Murdock, K. L., (2010), 3ds Max 2010 Bible, 1. Auflage, Wiley, Indianapolis;
8. Spencer, S., (2010), ZBrush Digital Sculpting Human Anatomy, 1. Auflage, Sybex, Indianapolis;
9. Digital Tutors, (2008), Caricatures in ZBrush 3 (DVD), 1. Auflage), Digital Tutors, Oklahoma City

12 Application-oriented 3D modeling and animation

Major field of study

Technique and application of audio-visual media

Type of examination

Final grade examination PStA

Module: Subject-specific elective

Module No. 13
Responsible for Module Prof. Dr. Udo Garmann
Major field of study Technique and application of audio-visual media
Course number/ name
13 Subject-specific elective
Lecturer Prof. Dr. Udo Garmann
Semester 2
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Optional
Degree Postgraduate
SWS 4.0
ECTS 5.0
Workload
Attendance:60.0 Hours
Self-study: 90.0 Hours
Total:150.0 Hours
Language of Instruction German

Objectives of the module

In subject-specific electives, lecture courses can be chosen from similar programs. A list of possible courses is given in the study plan announced at the beginning of the semester.

13 Subject-specific elective

Type of examination

Oral and written examinations. 180 Min., final grade examination PStA

Module: 3D computer animation

Module No.	14
Responsible for Module	Prof. Dr. Peter Faber
Major field of study	industrial multimedia
Course number/ name	
	14 3D computer animation
Lecturer	Prof. Dr. Peter Faber
	Prof. Dr. Nailja Luth
Semester	2
Duration of Module	1 Semester
Frequency of Module	Yearly
Compulsory/ non-compulsory	FWP
Degree	Postgraduate
SWS	4.0
ECTS	5.0
Workload	
	Attendance: 60.0 Hours
	Self-study: 90.0 Hours
	Total: 150.0 Hours
Language of Instruction	German

Objectives of the module

3D computer animation has gained more and more importance over the years. It is an integral and fundamental part in not only media production but also in the industrial economic environment.

The main objective of computer animation is to make fake objects seem real, by putting them in a real environment in such a way that the viewer gets the impression that it actually exists.

The techniques used for this purpose are in a constant state of change. In 3D computer animation module, students gain an overview of basic and in particular, long-term deployable techniques that they can undergo an evaluation in order to design their own systems according to specifications. To this end, students develop an understanding of further currently available techniques and procedures.

Recommended prerequisites

Deggendorf:

Recommended is "Digital Media", "Engineering Mathematics" and "Graphics Programming" from the Bachelor of Media Technology.

Amberg-Weiden:

Recommended is "computer graphics", "Programming Techniques for Multimedia" and "Interactive Systems" from the Bachelor of Media Technology and Production.

Content

1 introduction

a Overview

b. modeling

2 Graphic processing

a dynamic programming procedures

b. simulations

3 Advanced Techniques and Applications

a. applications

b. project work

Teaching and learning methods

Seminar lectures with exercises, project work, if necessary

Other

For oriented digital / multimedia news programs used; cross connections to "computer vision" or "Machine Vision"

Literature

Deggendorf:

- Computergrafik; M. Bender, M. Brill; Hanser Verlag; München; 2. Auflage; 2006
- OpenGL Programming Guide; D. Shreiner et al.; Addison-Wesley Professional; 5. Ausgabe; 2006 (oder neuer)
- Multiple View Geometry; R. Hartley A. Zisserman; 2nd Edition; Cambridge University Press; 2010
- Augmented Reality; M. Tönnis; Springer-Verlag; Berlin; 2010
- Hello, Android; Ed Burnette; The Pragmatic Bookshelf, LLC; Raleigh, NC, USA; 2nd Edition; 2009
- Professional Android 2 Application Development; Reto Meier; Wiley Publishing Inc.; Indianapolis, IN, USA; 2010

Amberg-Weiden:

Bücher:

- Methods der Computeranimation; D. Jackel, S. Neunreitner, F. Wagner; Springer, 2006
- Lighting & Rendering; J. Birn; New Riders, 2007
- Cinema 4D Release 11; A. von Koenigsmarck, Galileo Design, 2009

Magazine:

- "3D Attack", monatlich, Michigan USA, www.3dattack.net
- weitere Literature und Onlineressourcen nach Angabe in der Veranstaltung

14 3D-Computer animation

Major field of study

Industrial Multimedia

Content

Type of examination

LN written, Final grade examination PStA

Module: Computer Vision and Industrial Image Processing

Module No. 15a o. 15b
Responsible for Module Prof. Dr. Peter Faber
Major field of study Industrial Multimedia
Course number/ name
15a Computer Vision
15b Industrial image processing
Lecturer Prof. Dr. Martin Jogwich
Prof. Dr. Nailja Luth
Semester 2
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Compulsory
Degree Postgraduate
SWS 9.0
ECTS 9.0
Workload
Attendance:80.0 Hours
Self-study: 220.0 Hours
Total:300.0 Hours
Language of Instruction German

15a Computer Vision

Major field of study

Industrial Multimedia

Objectives

The students first learn the basic methods of image acquisition, image filtering and automatic image analysis. Here, a deep understanding of the theoretical basis and detailed knowledge of fundamental processes of computer processing are acquired.

Students learn programming with the tools HDevelop (C-like programming), OpenCV and C + + as well as to realize their own projects in developed environments.

Content

1) Work with industrial cameras,

2) establishment of digital images and image description, Fourier transform images, image operators,

3) image enhancement, image smoothing, image segmentation, edge detection,

4) filtering in the frequency domain,

5) Morphological Operators, skeletonization,

6) methods of image analysis and object recognition

7) Programming in Halcon

8) Programming with OpenCV C + +

Recommended prerequisites

Thorough knowledge in:

- Mathematics

- Digital signal processing technology and media

- Computer science

- Digital imaging

Type of examination

Written Examination60 Min., Final grade examination PStA

Methods

Seminar lectures for all participants;

Practical exercises with the computer and with a digital camera (in small groups)

Other

No online lectures, possibly research or industrial excursions

Literature

Lecture scripts;

Practice scripts on the various topics and sections;

Books:

Jähne, B., Digitale Bildverarbeitung, Springer;

Nitschwitz, A., Haberäcker, P., Masterkurs Computergrafik und Bildverarbeitung, Vieweg;

Tönnies, K., Grundlagen der Bildverarbeitung, Pearson Studium;

J. Russ, Ch. Russ: "Intriduction to Image processing and Analysis" CRC Press, 2008

15b Industrial Process Imaging

Major field of study

Industrial Multimedia

Objectives

The aim of the module is to enable the students to independently solve standard industrial image processing. An image processing application is used, to help with an introduction to image processing algorithms without much programming effort and is often used in industrial environments.

After completion of the module 1 (preprocessing), the students have achieved the following:

You are able to capture an image with gray level transformations, image arithmetic operations, and filter operations to process so that the following

image processing steps can be performed stably and time-efficiently with high contrast.

After completion of the module 2 (image processing), the students have achieved the following learning objectives:

They have the competence to stably and time efficiently extract image preprocessing steps from contrast enhanced images through to image processing algorithms of feature extraction and image analysis(dimensions, patterns, fonts, codes, positions)

After completion of the module 3 (laboratory tasks), the students have achieved the following learning objectives:

They are able to structure standard issue positions of machine vision to develop solutions and to apply self-developed solutions.

Content

1 Preprocessing

a) Monadic image preprocessing (Workshop 1)

b) image preprocessing Diadische (Workshop 2)

c) pre-processing with filtering operations (Workshop 3)

2 image processing

a) Dimensional check (Workshop 4)

b) Pattern Recognition (Workshop 5)

c) Position detection (Workshop 6)

3 Configuration / Programming of two typical applications of industrial image processing laboratory

Type of examination

Final grade examination PStA

Methods

Seminar, E-Learning-Workshops, laboratory exercises

Other

High amount of e-learning content wg. desired flexibility of the participant

Literature

Bässmann, H.; Kreyss, J.: *Bildverarbeitung Ad Oculos.* 4. Auflage. Berlin/Heidelberg: Springer, 2004.

Demant, C.; Streicher-Abel, B.; Waszkewitz, P.: *Industrielle Bildverarbeitung.* 2. Auflage. Berlin/Heidelberg: Springer, 2002.

Erhardt, A.: *Einführung in die Digitale Bildverarbeitung.* 1. Auflage. *Wiesbaden: V*ieweg + Teubner, 2008.

Hermes, Th.: *Digitale Bildverarbeitung.* 1. Auflage. München/Wien: Carl Hanser Verlag, 2005.

Hornberg, A.: *Handbook of Machine Vision.* 1. Auflage. Weinheim: Wiley - VCH, 2006.

Jähne, B.:*Digitale Bildverarbeitung.* 6. Auflage. Berlin/Heidelberg: Springer, 2005.

Jähne, B.; Massen, R.; Nickolay, B.; Scharfenberg, H.:*Titel??*1. Auflage. Berlin/Heidelberg: Springer, 1996.

Tönnies, K.D.: *Grundlagen der Bildverarbeitung.* 1. Auflage. München: Pearson Studium, 2005.

Module: IT security for media technicians

Module No. 16
Responsible for Module Prof. Dr. Udo Garmann
Major field of study Industrial Multimedia
Course number/ name
16 IT security for media technicians
Lecturer Prof. Dr. Udo Garmann
Semester 2
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Compulsory
Degree Master
SWS 4.0
ECTS 5.0
Workload
Attendance:60.0 Hours
Self-study: 90.0 Hours
Total:150.0 Hours
Language of Instruction German

Objectives of the module

The students should know the protection objectives of information technology, know potential threats to systems and transactions, and know appropriate countermeasures. They learn to analyze damage scenarios, are introduced to the fundamentals of modern cryptography, as well as in the current protection mechanisms for system and transaction security (network structures, firewall techniques; secure network protocols, VPN). They acquire a comprehensive knowledge of the measures for data integrity and authentication, and understand objectives and mechanisms of modern application protocols for secure information technology processes.

The students should be able to define protection objectives for a company or institution network and identify appropriate safety measures. They will be able to develop complex defence mechanisms for specific protection objectives (data integrity, integrity of system resources, authenticity) and take appropriate precautions against hazards. They will be able to analyze, adapt and develop complex protocols for application systems and transaction security.

Students acquire the skills to define a desired security policy and contribute to the expansion and further development of the method used. They have a comprehensive overview of threats to information technology security and can estimate the potential of possible countermeasures and security mechanisms in the sense of graded security strategies.

Recommended prerequisites

Sound mathematical knowledge and skills;

Knowledge of algorithms and their complexity;

Introduction to computer science (structure and functioning of computers);

Content

1 introduction

- Thematic Classification - protection objectives - Threats
- Description of hazards and countermeasures
- Overview of issues system and transaction security

2 Fundamentals of system security

- Damage scenarios (viruses, Trojan horses, spam attacks, ...)
- Hazard and Defence Programs
- Protective structures and firewall techniques
- Measures for data integrity and commitment
- Authentication measures I: Access control
- Authentication measures II: identification of partners
- Measures to authenticate III: document authenticity

3 Elements of cryptology

- Basic concepts and classical methods
- Mathematical foundations of modern cryptography (Integers, Euclidean algorithm, residual arithmetic, finite groups and body, cyclic groups, generating elements, primality testing)
- Modern symmetric block ciphers
- Asymmetric Cryptography
- Hash Functions and Digital Signatures
- Security of cryptosystems (perfect security, pragmatic security, attack scenarios, complexity)

4 Basics of Transaction Security

- Secure network protocols
- VPN techniques
- Complex application protocols (eg, Electronic Voting, Electronic Payments, "e-government")

Teaching and learning methods

Lecture and seminar lectures with worked examples; investigate and treat students and report on current security issues; practice sheets with practical tasks that students should expect at home and then treated in the lecture to the theoretical deepening of the substance.

Beamer, blackboard, overhead.

Literature

Eckert, C.: IT-Sicherheit, Konzepte - Verfahren - Protokolle, Oldenbourg-Verlag;

Schäfer, G.: Netzsicherheit, Algorithmische Grundlagen und Protokolle, dpunkt-Verlag;

Buchmann, J.: Einführung in die Kryptologie, Springer-Verlag;

Schneier, B.: Angewandte Kryptographie, John Wiley;

Schneier, B.: Secrets and Lies, John Wiley;

Wätjen, D.: Kryptographie, Grundlagen, Algorithmen, Protokolle, Spektrum Akademischer Verlag;

Ertel, W.: Angewandte Kryptographie, Carl Hanser Verlag

Websites:

Bundesamt für Sicherheit in der Informationstechnik

www.CrypTool.de (kryptographische Software)

16 IT security for media technicians

Major field of study

Industrial Multimedia

Content

Type of examination

Written Examination90 Min.

Module: Application Design

Module No. 17
Responsible for Module Prof. Dr. Goetz Winterfeldt
Major field of study Industrial Multimedia
Course number/ name
16 Application Design
Lecturer Prof. Dr. Dieter Meiller
Prof. Dr. Goetz Winterfeldt
Semester 2
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Compulsory
Degree Postgraduate
SWS 4.0
ECTS 5.0
Workload
Attendance:60.0 Hours
Self-study: 90.0 Hours
Total:150.0 Hours
Language of Instruction German

Objectives of the module

The module deepens knowledge in the field of architecture for media systems. It is based on the lectures basics of programming and design techniques into the media applications. Students should be able to know and apply the typical pattern for media applications.

After completion of the module the students have achieved the following learning objectives:

(7) The students know typical issues in the design of media applications

(8) They have designed and implemented applications that used this pattern and they know basic tools that help to minimize the amount of work

(9) They know language-specific problem areas and know how to tackle them in the language.

Content

6.0 architectures

7.0 streaming

- 7.1 Problem
- 7.2 Pattern
- 7.3 Buffers and their realization

8.0 Display Trees

8.1 Problem

8.2 Pattern

8.3 render trees and their realization

9.0 parallelizing processes

9.1 Problem

9.2 Pattern

9.3 Event trigger processes

10.0 Application architecture

10.1 Problem

10.2 Model, View, Controller

10.3 representation of sound

11.0 platform independent programming

11.1 Problem

11.2 Adapter Pattern

11.3 Porting 3D graphics

Teaching and learning methods

Lecture and Internship

Literature

Bjarne Stroustrup, "The C++ Programming language", ISBN-0-201-51459-1, 1990

16 Application Design

Major field of study

IM

Objectives

Content

Type of examination

Written Examination90 Min.

Module: Multimedia - Content und Streaming

Module No. 18
Responsible for Module Prof. Dr. Udo Garmann
Major field of study Industrial Multimedia
Course number/ name
18 Subject-Specific Electives
Lecturer Prof. Dr. Udo Garmann
Semester 2
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Compulsory
Degree Postgraduate
SWS 4.0
ECTS 5.0
Workload
Attendance:60.0 Hours
Self-study: 90.0 Hours
Total:150.0 Hours
Language of Instruction German

Objectives of the module

Know:

- Functionality package mediating networks such as the Internet
- Tasks of the different multimedia protocols
- Programming of socket applications
- Problems and limitations for multimedia on the Internet (NAT firewall)

Apply:

Installation and configuration of distributed applications (web, chat, VoIP)

Analyze:

Known multimedia protocols such as RTP, etc.

Rate:

Analyze and evaluate streaming technologies

Synthesize:

Socket-based can develop applications with multimedia components

Recommended prerequisites

formal: none

Content: lectures on programming and computer networks

Content

1 introduction

2 Basic computer networks
- 2.1-layer model
- 2.2 protocol
- 2.3 standards
- 2.4 The transport layer
- 2.5 The network layer
- 2.6 multicast
- 2.7 NAT
- 2.8 firewalls

3 Multimedia protocols
- 3.1 Introduction
- 3.2 RTP (transfer of data)
- 3.3 (RTSP control of multimedia)
- 3.4 RTCP (quality control)
- 3.5 SIP

4 practical part
- 4.1 Installation and sniffing a chat application
- 4.2 Installation and sniffing a VOIP application

5 Java programming
- 5.1 Socket programming
- 5.2 TCP sockets
- 5.3 UDP sockets
- 5.4 Java NIO
- 5.5 The NIO Reactor Framework

6 Advanced topics
- 6.1 compression
- 6.2 VoIP
- 6.3 Streaming with Adobe Flex
- 6.4 Streaming with MS Silverlight

Teaching and learning methods

Lectures with practical exercises

Other

Course Management with Moodle

Literature

James F. Kurose, Keith W. Ross: Computernetzwerke, Der Top-Down-Ansatz, 4., aktualisierte Auflage, München 2008;

Jon Crowcroft, Mark Handley, Ian Wakeman: Internetworking Multimedia, licensed under the creative commons, download at http://www.cl.cam.ac.uk/~jac22/ware.html

18 Subject-Specific Electives

Major field of study

Technique and application of audio-visual media

Type of examination

Written Examination90 Min.

Module: Subject-Specific Electives

Module No. 19
Responsible for Module Prof. Dr. Udo Garmann
Major field of study Industrial Multimedia
Course number/ name
19 Information Visualization
Lecturer Prof. Dr. Udo Garmann
Semester 2
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory FWP
Degree Postgraduate
SWS 4.0
ECTS 5.0
Workload
Attendance:60.0 Hours
Self-study: 90.0 Hours
Total:150.0 Hours
Language of Instruction German

Objectives of the module

In subject-specific electives lecture courses can be chosen from similar programs. A list of possible courses is given in the study plan announced at the beginning of the semester.

19 Information Visualization

Major field of study

Industrial Multimedia

Objectives

The course is illustrated by case studies and methods of the fundamental properties of information visualization techniques and systems. The ability to visualise abstract data should be acquired. Focus is on graph visualizations. These can be used to represent, for example, social networking, file systems, UML diagrams or web structures.

Content

The course is an introduction to the methods of information visualization as well as their practical application.

Recommended prerequisites

Java basics

Type of examination

Oral and Written Examination180 Min., Final grade examination PStA, Written Examination 90 Min.

Methods

Seminar lectures, maximal 10 students

Literature

Card, S.K.; Mackinlay, J.; Shneiderman, B.:*Readings in Information Visualization: Using Vision to Think.* San Francisco: Morgan Kaufmann Publishers, 1999.

Module: Advanced Topics in Media Business

Module No. 2
Responsible for Module Prof. Dr. Goetz Winterfeldt
Major field of study
Course number/ name
2 Advanced Topics in Media Business
Lecturer Prof. Dr. Goetz Winterfeldt
Semester 1
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Compulsory
Degree Master
SWS 2.0
ECTS 2.0
Workload
Attendance: 23.0 hours
Self-study: 37.0 Hours
Total:60.0 Hours
Language of Instruction German

Objectives of the module

The module introduces the fundamentals of the media industry. After successful completion of the module the students should know basic concepts of strategic planning and apply to have an insight into the key segments of the media industry (Internet, books, newspapers, games, outdoor advertising, film and television). They should know basic indicators for the evaluation of the company and can use to assess the company. In practice, they should be able to build a simple booking system and master the basics of booking.

After completion of the module the students have achieved the following learning objectives:

Understanding and applying (1) fundamentals of media economics

(2) Have analyzed and reported a segment

(3) Have applied basic concepts of accounting in business

(4) Have practically applied a simple booking system to a company

(5) How to analyze results of the financial year

(6) Have analysed a member of the media

Recommended prerequisites

none

Content

(I) Corporate Strategies in the media industry

1.0 Concepts of Finance
2.0 Strategy
3.0 Market and market analysis
4.0 Tools for strategic analysis
4.1 Porter Analysis
4.2 Portfolioanalye
4.3 Customer, Competition and Company
5.0 Strategies in the cable market

(II) Corporate strategy in the media industry

1.0 Company Analysis
2.0 Income Statement, Balance Sheet and Liquidity
3.0 Balance Sheet Analysis
4.0 German media groups in country

Teaching and learning methods

Lectures and Presentations

Other

Exam 70% and projects 30%

Literature

E&Y:*Medienreport*. 2009

2 Advanced Topics in Media Business

Type of examination

Oral Exam, Final grade examination PStA, Written Examination90 Min.

Literature

Module: Master Seminar

Module No. 21
Responsible for Module Prof. Dr. Udo Garmann
Major field of study
Course number/ name
21 Master seminar
Lecturer Prof. Dr. Udo Garmann
Semester 3
Duration of Module 1 Semester
Frequency of Module depending on application
Compulsory/ non-compulsory Compulsory
Degree Postgraduate
SWS 32.0
ECTS 2.0
Workload
Attendance: 32.0 Hours
Total: 32.0 Hours
Language of Instruction German

Objectives of the module

Professional presentation of work results in the Master Seminar

Recommended prerequisites

All successfully filed results of the 1st and 2nd Semester

Content

Lectures / presentations with discussion

21 Master seminar

Content

Type of examination

Oral Exam

Module: Media and Innovation Management

Module No. 3
Responsible for Module Prof. Dr. Maximilian Kock
Major field of study
Course number/ name
3 Media and Innovation Management
Lecturer Prof. Dr. Peter Faber
Prof. Dr. Goetz Winterfeldt
Semester 1
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Compulsory
Degree Master
SWS 4.0
ECTS 5.0
Workload
Attendance:60.0 Hours
Self-study: 90.0 Hours
Total:150.0 Hours
Language of Instruction German

Objectives of the module

Understanding the necessity of keeping step with new technologies as a survival condition for media companies.

Knowledge of the basic approaches, methods and tools of technology and innovation management.

Ability to recognize, analyse and edit innovative problems or tasks.

Recommended prerequisites

Business knowledge

Content

1 International innovation dynamics

2 Basic Concepts and hang together in innovation management

3 Structure and process of strategic and operational innovation management

4 Technology-and market-oriented foresight

5 Technology-oriented environment and company analysis

6 Specific problem areas of strategic innovation management

7 Components of the formulation of the innovation strategy of a company

8 Elements of an innovation-driven corporate organization and culture

9 Theory and practice of innovation management in media companies

Teaching and learning methods

Seminar lectures with PowerPoint presentation, panel, PC and Internet-based work

Literature

Script or work documents with text space
Books:

Corsten et al.: Grundlagen des Innovationsmanagements, 2006;

Gerpott, T.: Strategisches Technologie- und Innovationsmanagement, 2. Aufl. 2005;

Strebel, H. (Hrsg.): Innovations- und Technologiemanagement, 2003;

Vahs, D./Burmester, R.: Innovationsmanagement, 3. Aufl. 2005;

Aktuelle Artikel aus Fach- und Publikumszeitschriften;

Internetbasiertes Lehr- und Anschauungsmaterial

3 Media and Innovation Management

Type of examination

Oral Exam, Final grade examination PStA, Written Examination90 Min.

Module: Web Engineering

Module No. 4
Responsible for Module Prof. Dr. Udo Garmann
Major field of study
Course number/ name
4 Web Engineering
Lecturer Prof. Dr. Udo Garmann
Prof. Dr. Dieter Meiller
Semester 1
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Compulsory
Degree Master
SWS 4.0
ECTS 5.0
Workload
Attendance:60.0 Hours
Self-study: 90.0 Hours
Total:150.0 Hours
Language of Instruction German

Objectives of the module

Goal is the attainment of the ability to implement web-based applications.

Current web technologies are acquired in addition to basic knowledge.

Recommended prerequisites

Basic knowledge of web technologies (HTML, CSS, Javascript, PHP, databases)

Content

The design and implementation of web applications is taught using the Model-View-Controller.

Various client and server-based framework based on JavaScript and PHP are used here.

Furthermore, current web technologies and trends are examined.

Teaching and learning methods

Seminar lectures;

Programming environment, textbooks, scripts, sample files

Literature

Kappel et.al. : Web-Engineering, dpunkt Verlag 2003;

Caroline & Matthias Kannengiesser: PHP5 / MySQL5, Franzis, Poing, 2005;

Krug, S. Don't Make Me Think, Redline GmbH, Heidelberg 2006

4 Web Engineering

Type of examination

Oral Exam, Final grade examination PStA, Written Examination90 Min.

Methods

Module: Methods of visualization

Module No. 5
Responsible for Module Prof. Dr. Dieter Meiller
Major field of study
Course number/ name
FM1105 Methods of Visualisation
Lecturer Prof. Dr. Dieter Meiller
Günter Reinhardt
Semester 1
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Compulsory
Degree Master
SWS 4.0
ECTS 5.0
Workload
Attendance:46.0 Hours
Self-study: 104.0 Hours
Total:150.0 Hours
Language of Instruction German

Objectives of the module

Amberg:

The conflict with the principles of brainstorming plays an important role. Here, there are learnable methods. These methods are part of the construction method of competence.

Method 1 of these is the provision of information. Here the students learn how to systematically get information.

The establishment of a conversation and feedback culture is such a method. It's not just about the provision of information, but a mutual "inspiring" and "helping".

The self-organization of learning must have methods. The students are to acquire confidence and competence which will enable them to cope with complex communication tasks independently.

It is important to acquire a solid core curriculum of expertise.

One of which is graphic techniques that enable students to develop their concepts of layouts through to production. The other is to be media-friendly.

This, of course, is an accurate knowledge of the current media landscape. The exchange of information is designed so that it is not limited to the use of traditional graphical means of expression. The point is rather to develop systems for complex visual information on the various communication platforms such as print, film, and web space.

The emphasis on expression and design in the society of medial information and knowledge is becoming increasingly important. The design of products and media influences the interaction between people, things and information. Thus, the designer assumes direct responsibility related to society. In the design process, technical and cultural developments are anticipated and set trends.

Students should develop the ability to develop the awareness of a changing media landscape, strategies and solutions for given topics.

Deggendorf:
The module will enable students to recognize the relevance of avant-garde, artistic work in the media environment and the means of classical and new media and to evaluate their own contributions as well as to design and produce. The focus is on the areas of photography and visual narrative by means of digital image processing.

Learning Objectives: The following will be achieved:

- Placement of conceptual and factual knowledge to the development and current state of the art photography and media art
- Students are able to recognize, describe and discuss artistic tasks
- They are able to develop their own topics, for it to create strategies and solutions and to convert them into concrete proposals and projects to present and explain.
- They have the necessary expertise to design and concepts to translate into practical results.
- They are able to work independently and creatively.

Recommended prerequisites

none

Content

Amberg:

Design principles

layout

Painting and Drawing Techniques

creativity Techniques

Illustration techniques for poster, book and movie.

Deggendorf:

1 photo art - Virtual Images
1.1 History and development of artistic photography
1.2 thematic and artistic intentions and approaches

1.3 exemplary artists
1.4 Interpretation and Understanding

2 project
2.1 Details
2.2 Interim Presentation
2.3 Production
2.4 Final presentation with written development / self-interpretation

Teaching and learning methods

Amberg:

Seminar lectures, textbooks, painting and drawing utensils, Photoshop, digital camera and scanner.

Deggendorf

Lectures, project work in groups or individually

Other

Deggendorf guest lectures in the field of media art are planned

Literature

Kribbeln im Kopf von Mario Pricken. Schmidt Hermann Verlag 2010;

Danny Gregory: The Creative License. Hyperion, New York, 2006;

Frieling, Rudolf - Daniels, Dieter [Hrsg./Bearb.], Medien - Kunst - Interaktion, Wien, Springer, 2000;

Frieling, Rudolf - Daniels, Dieter [Hrsg./Bearb.], Medien - Kunst - Aktion, Wien, Springer, 1997;

Goetz, Ingvild - Urbaschek, Stephan [Hrsg./Bearb.], Fast forward, Ostfildern, Hatje Cantz, 2006;

Stocker, Gerfried [Hrsg.], Human Nature, Ostfildern, Hatje Cantz, 2009;

Hansen, Mark, New philosophy for new media, Cambridge, Mass, MIT Press, 2004;

Janus, Elizabeth, Die Rache der Veronika, Zürich, Scalo Verl., 1998;

Weski, Thomas - Liesbrock, Heinz - Barmann, Stefan, How you look at it, Köln, Oktagon, 2000;

Krautz, Jochen, Vom Sinn des Sichtbaren, Hamburg, Kova?, 2004;

Marotzki, Winfried, Bildinterpretation und Bild-verstehen, Wiesbaden, Verl. für Sozialwiss., 2006;

Stocker, Gerfried "Human nature" Ostfildern, Hatje Cantz,, 2009

FM1105 Methods of visualization

Type of examination

Oral Exam, Final grade examination PStA, Written Examination90 Min.

Module: Media interface electronics or media art

Module No. 6a o. 6b
Responsible for Module Prof. Dr. Peter Faber
Major field of study
Course number/ name
6a Media Interface - Electronics
6b video and media art
Lecturer Prof. Dr. Peter Faber
Prof. Dr. Klaus Grüger
Prof. Ernst Jürgens
Semester 1
Duration of Module 1 Semester
Frequency of Module Yearly (Half-yearly is still being discussed)
Compulsory/ non-compulsory FWP, Compulsory
Degree Master
SWS 8.0
ECTS 10.0
Workload
Attendance: 120.0 Hours
Self-study: 180.0 Hours
Total: 300.0 Hours
Language of Instruction German

Recommended prerequisites

none

6a Media Interface - Electronics

Objectives

The overall module is divided into a more technical part (media interface electronics), and a more artistic part (media arts) which is described here. The objective is to identify the operation and the application of newer (electronic) media.

In the course “media interface electronics”, the technical requirements of electronic interfaces are investigated. This can for example be areas, such as the structure and function of data lines, as well as affecting the rear thereof, and the necessary electronic interaction between the sensor and the processor (or the processor / processor interaction). Students understand the basic effects in semiconductor electronics, as they are for the construction of electronic and optoelectronic application interfaces. They know the technical basis for the calculation and simulation of electronic circuits and interface programming. From their knowledge of the construction of electronic circuits and interface programming, they can implement a given design or own smaller systems to the analysis.

Content

- Electronics circuit basics
- Components
- Semiconductor electronics, computation / simulation / measurement
- Basic Circuits
- Interfaces and programming
- Project work
- The Basics
- Construction or hardware-specific programming
- Individual project ideas

Type of examination

Final grade examination PStA, Written Examination90 Min.

Methods

Seminar lectures with project work, exercises, lectures on project work, if necessary, partially elaborated.

Other

Amberg: Increased target practice in electronics
Deggendorf: Increased target direction controller programming.

Literature

Recommendations in Amberg-Weiden:

1. U.Schmidt: Digitale Film- und Videotechnik: 3., erweiterte Auflage, 2010. ISBN: 978-3-446-42477-7

2. J.Keith: Video Demystified – A Handbook for the Digital Engineer. 5th Edition; Newnes Elsevier, 2007: ISBN: 978-0-7506-8395-1

Recommendations in Deggendorf

1. H.Göbel: Einführung in die Halbleiter-Schaltungstechnik, 2008, Springer.

2. Making Things Talk; Igoe, Tom; Beijing [u.a.], O'Reilly, 2007; Signatur: 00/ST 170 I24

General recommendations:

1. U.Tietze, Ch.Schenk, E.Gamm: Halbleiterschaltungstechnik. 13.Auflage, 2011. ISBN 978-3-642-01621-9

2. P.A.Henning: Taschenbuch Multimedia. 3.Auflage, 2003. ISBN 3-446-22308-8

3. Ggf. weitere Literature und Onlineressourcen nach Angabe in der Veranstaltung

6b Video and media art

Objectives

The module is intended to familiarize students with the theory and practice of media and the term in its historical meaning (media / art history).

In project work, students should consistently follow experimental tasks and thus a separate approach, creative handwriting, which is not determined solely by the needs of the specific TV / media work.

The preparation of this external view on the professional reality is understood as a contribution to the expansion of the media-cultural education of the students.

Students should know and explain basic media aesthetic positions.

The students should be able to interpret and discuss media artifacts.

The students should be able to implement their own media aesthetic concepts / projects and represent them in discussions.

The students should be able to analyze media aesthetic positions of artists for their relevance to the TV production.

The students should be enabled by addressing media art in a position to own TV formats to design, or to use artistic ideas for your own creative career.

Content

1 Media art as an art historical phenomenon (lecture with examples)

1.1. The concept of total art work as a multimedia project

1.2. Early media art: the abstract film

1.3. Media Art and the Fluxus movement

1.4. Contemporary Positions: "Infermental" Ed and Vera Body "Over time," Fischli / White

1.5. Music Videos

2 Topic of the project: "TV Interruptionen" (discussion and analysis of examples)

3 Subgenere of video art) Lecture and discussion of examples

3.1. Video art and video installations

3.2. Multimedia performance

4 First presentation of the ideas of the project team

5 Analysis of the works of individual artists (lecture, presentations, discussion)

5.1. Matthew Barney ("Cremaster")

5.2. Bruce Nauman "Make Me Think" (documentary)

5.3. Bill Viola

5.4. Pipilotti Rist

6 Presentation of the interim results of the students' work

7 Television and Media Arts (discussion and analysis of examples)

7.1. Gerry Shum "The TV Gallery"

7.3. Examples from the series "make up artist film" (editorial, Dr. Wibke von Bonin, WDR)

8 final presentation

Type of examination

Oral Exam, Final grade examination PStA, Written Examination90 Min.

Methods

Interdisciplinary lecture, teamwork, project work, lectures and discussions, field trips museums / exhibitions;

Public presentation (e.g. City Museum)

Other

The lecture will be held as a cross-curricular project in cooperation with the lecture "Methods of Visualisation" by Prof. Günter Reinhardt

Literature

Medienkunst und Museum by Reinhard Storz, Basel;

Über das Beschreiben, Interpretieren und Verstehen von internetbasierten Werken von Hans Dieter Huber, Stuttgart (2004);

Wildernde Gezähmte. Figurationen von Widerspenstigkeit in zeitgenössischer Videokunst. von Yvonne Volkart, Zürich;

40 Jahre Videokunst, Ostfilden 2006;

Video art, Elwes, Catherine, London 2005;

Altitude 03, Köln, Kunsthochschule für Medien, 2003, VHS-Video. - 60 Min.;

Videokunst, Haustein, Lydia, München 2003;

Video - 25 Jahre Videoästhetik, Ostfildern-Ruit 2003;

The arttape, Amsterdam, Netherlands Media Art Institute 2006;

Bildgestaltung im Medienkontext, Heinevetter, Annelie, Bonn 2004;

Medien - Kunst - Netz, Wien 2008;

Medien - Kunst - Aktion, Wien 1997;

Walter Smerling und Ernst Jürgens "Video-Skulptur. Retrospektiv und aktuell 1963 - 1989". Dokumentation 60 Minuten, Köln 1989;

div. Künstler-Videos auf DVD

Module: Controller for media devices or story and script development

Module No.	7a o. 7b
Responsible for Module	Prof. Dr. Goetz Winterfeldt
Major field of study	
Course number/ name	
	7a Controller for media devices
	7b story and script Development
Lecturer	Prof. Dr. Michael Thiermeyer
	Prof. Dr. Goetz Winterfeldt
Semester	1
Duration of Module	1 Semester
Frequency of Module	Yearly
Compulsory/ non-compulsory	Compulsory
Degree	Postgraduate
SWS	8.0
ECTS	10.0
Workload	
	Attendance: 120.0 Hours
	Self-study: 180.0 Hours
	Total: 300.0 Hours
Language of Instruction	German

Recommended prerequisites

none

7a Controller for media devices

Objectives

The module shows how, based on a standard chipsets (TI), various multimedia applications can be developed. The test development environment includes a multimedia board, a host development system on the target platform for the cross to be developed. Supported are: sound in, sound out, Video In, Video Out, as interfaces are USB and Ethernet. The platform can be used to develop applications such as set-top boxes, DVD box, DVD player or recording systems.

After completion of the module, the students have achieved the following learning objectives:

Have developed (1) an understanding of the development of media devices

(2) have received an introduction to the Linux operating system

(3) have set up a cross development environment that allows the development of applications for the media core

(4) to know, use and configure the development tools

(5) to know based architectures for media applications

(6) have developed an application for the Board Darvinci

(7) have dealt with special interface boards

Content

(I), media controllers

1.0 Operating systems for media applications

Linux 2.0
2.1 operating system
2.2 Process Control
2.3 File System
2.4 User Management
2.5 Configuration

3.0 Basics of the C programming
3.1 Basics C
3.2 Programming

4.0 Development host system
4.1 commands to configure
4.2 Configuring Remote Development
4.3 Cross over setting Tung

5.0 Target System
5.1 Overview
5.2 Configuration
5.3 Compilation and installation

6.0 multimedia components
6.1 PAL system
6.2 Image Output on PC via Pal system
6.3 codec
6.4 issue

Recommended prerequisites

none

Type of examination

Oral Exam, Final grade examination PStA, Written Examination90 Min.

Methods

Lecture and practical training, internship in the lab with development board and host development and in addition baking coupling via PAL Interface

Literature

Bjarne Stroustrup, "The C++ Programming language",1990, ISBN-0-201-51459-1;

Jerry Peek, "Unix Power Tools", Random House, ISBN 0679-79073-X;

Andrew S. Tannenbaum, "Moderne Betriebssysteme", Pearson Studium, ISBN 3-83273-7019-1;

Dokumentation des Darvinci Boards (intern)

7b Story and Script Development

Objectives

Students are able to assess and develop dramatic content.

Content

Principles and practice of dramatic narrative of their application based on the development of their own materials:

Provision and utilization of the concept of power as a guiding principle dramatic storytelling - main genres as cases of drama and comedy, as well as their mixed form - internal or external conflict as a source of dynamic main and sub-plot and content of highlights

Narrative Tactical concepts are illustrated and deepened by exemplary film clips.

Script representation forms: core action, action steps scene with and without dialogue.

Each participant developed an action core and unfolds it - under the guidance of the lecturer and in dialogue with other participants - a structure with exemplary scene (use of university learning management system meet-to-learn.de)

Recommended prerequisites

none

Type of examination

Oral Exam, Final grade examination PStA, Written Examination90 Min.

Methods

Seminar, training, case studies, self-study, self-reliant accompanied works (project work using the university learning management system meet-to-learn.de)

Literature

Mamet, D. (1989), Die Kunst der Filmregie, Alexander, Berlin;

McKee, R. (2000), Story, Alexander, Berlin;

Truffaut, F. (1989), Mr. Hitchcock, wie haben Sie das gemacht?, München, Heyne

Module: Audio Production

Module No. 8
Responsible for Module Prof. Dr. Maximilian Kock
Major field of study Technology and application of audiovisual media
Course number/ name
8 Audio Production
Lecturer Prof. Dr. Maximilian Kock
Prof. Dr. Gerhard Krump
Semester 2
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Compulsory
Degree Postgraduate
SWS 4.0
ECTS 5.0
Workload
Attendance:75.0 Hours
Self-study: 75.0 Hours
Total:150.0 Hours
Language of Instruction German

Objectives of the module

The students should be able to apply acquired theoretical and practical knowledge in the specific audio production. Technical skills are always connected with job-related conditions with design and content characteristics, thereby developing a presentable product. Here numerous methods of how sound audio mixing and sound production effects processing, sound design and multichannel sound mix can be used to train practical skills of sound production and sound design.

Among other things, the following skills and abilities to be acquired:

- Knowledge of essential principles and terminology of Audio Production

- Knowledge and application of the principles of sound generation electronic and natural instruments, MIDI and sound synthesis techniques

- Knowledge and use of field recordings, so the recording and processing of natural sounds in the recording studio environment also

- Methods of artificial noise generation (foley artist)

- Methods of multi-channel audio recording, mixing options and coding

- Knowledge and application of effects and sound editing and sound mixing options

- Mastering of different shots and different audio tracks for sophisticated end product in stereo and surround technology

- Application of recording, audio editing and audio playback to develop a publicly presentable media product

- Independent work in the recording studio

- Presentation of own production results

- Combination of acquired technical expertise with design and skills to a sophisticated product

- Creative development and technical implementation of an idea to a product under their own responsibility, and deadline-oriented systematic work

The project combines factual knowledge and conceptual knowledge with process and production knowledge to metacognitive knowledge by the students, and to use and recognize their talent in the field of audio production

Recommended prerequisites

Bachelor's degree with acoustic principles and knowledge of operation of audio software and mixing sound recordings

Content

1 Electronic sound production: types of sound production, sound modules, VCO, VCA, VCF, etc., synthetic forms, history

2 Sound production of natural musical instruments: sound radiation in space, instrument types, history, physical and musical characteristics

3 Signal processing with effects units: modulation effects, exciters, compressors, etc. (technology, signal flow and practical application), audio mastering

4 MIDI, surround sound, CD technology: technical background, historical development, practical applications

5 Sound Design: Theoretical and practical sound design in radio plays, audiobooks, and tone-only world of sound in contrast to the film sound image with anchor; concomitantly: Sound Design history and the history of Germanic radio play.

6 Artificial noise generation: Practical work in studio recording booths and their alienation opportunities through effects units.

Teaching and learning methods

Seminar lectures with practical exercises in the recording studio, independent work in the studio under individual supervision

Beamer, blackboard, overhead projector, audio and video demos

Other

extensive script, instructions, practical exercises

Literature

Dickreiter M., Handbuch der Tonstudiotechnik, K.G. Saur-Verlag, 2008;

Meyer J., Akustik und musikalische Aufführungspraxis, Verlag Das Musikinstrument, Frankfurt, 1980;

Ruschkowski A., Elektronische Klänge und musikalische Entdeckungen, Reclam Stuttgart, 1998;

Wandler H., Elektronische Klangerzeugung und Musikreproduktion, Verlag Peter Lang Frankfurt, 2005;

Friedrich H.-J., Tontechnik für Mediengestalter, Springer-Verlag, 2008;

Lensing J. U., Sound-Design Sound-Montage Soundtrack-Komposition, Schiele und Schön-Verlag, 2009;

Lazarus H. et al. Akustische Grundlagen sprachlicher Kommunikation, Springer-Verlag, 2007;

Weinzierl S., (Hrsg.) Handbuch der Audiotechnik, Springer-Verlag, 2008;

Flückiger F., Sounddesign, Schüren-Verlag, 2001

8 Audio Production

Major field of study

Technique and application of audio-visual media

Type of examination

Final grade examination PStA, Written Examination90 Min.

Module: Hearing and Psychoacoustics

Module No. 9
Responsible for Module Prof. Dr. Gerhard Krump
Major field of study Technique and application of audio-visual media
Course number/ name
9 Hearing and Psychoacoustics
Lecturer Prof. Dr. Maximilian Kock
Prof. Dr. Gerhard Krump
Semester 2
Duration of Module 1 Semester
Frequency of Module Yearly
Compulsory/ non-compulsory Compulsory
Degree Postgraduate
SWS 4.0
ECTS 5.0
Workload
Attendance:75.0 Hours
Self-study: 75.0 Hours
Total:150.0 Hours
Language of Instruction German

Objectives of the module

The students should be able to know and understand the complex signal processing hearing and their technical / mathematical description so that via function schemes and models correlations between stimulus and sensation can be independently explained and described hearing and psychoacoustic principles and concepts. By knowing and dealing with descriptive models, signal theory and ear-specific links and relationships can be represented, so that auditory sensations can be in certain areas of validity of the model description objectively calculated and estimated.

The students should work through this module in a creative (sound editing, sound design) and engineering-oriented (sound advice, noise abatement) and scientifically oriented (research, development) sense.

There is mediated factual knowledge, conceptual knowledge, process knowledge, but also metacognitive knowledge.

In the lecture, practice sheets with practical tasks will be distributed, which are expected to be completed by the students at home first and explained later by the lecturer.

Among other things, the following competences will be acquired:

- Knowledge of and audible psychoacoustic terms

- Knowledge of signal processing hearing and related hearing loss

- Knowledge and implementation of acoustic measurement and their evaluation and technical description

- Knowledge of acoustic feature patterns and models and their application

- Understand the relationship between stimulus and sensation (eg frequency - pitch level - volume, modulation - roughness)

- Understand acoustic relationships and feelings, their description and their complex interaction with the physical and electrical systems

- Applications of scientific knowledge and ways of working and Methods

- Analysis and evaluation of acoustic problems using appropriate measurement methods and description of the technical connections and interactions with formulas, graphs, and functional diagrams

- Use of appropriate calculation method and general schemes for solving acoustic problems

- Development of new acoustic solutions through combination of engineering-based methods, functions, procedures, and model simulations of various disciplines such as mechanical, computer science, electrical engineering and acoustics (eg, vehicle acoustics)

- Creating listening tests and thus scientific analysis of sound and products (eg sound of speakers, televisions, product testing)

- Declaration acoustic phenomena and sensations through knowledge of the associated moderate signal processing and from development of new processing and analysis Methods (eg, test, analysis, and development of various methods such as MP3 codec)

Recommended prerequisites

Bachelor's degree with acoustic principles

Content

1 Stimulus and sensation: sensation function, listening trial methods, experimental evaluation

2 Audible system: hearing physiology, calm hearing, auditory pathology, recruitment, cocktail party effect, harm hearing tests for determination hearing, speech audiometry, otoacoustic emissions

3 Masking: Masking by noise, even top end noise, uniform stimulating noise masking by pure tones, temporal masking effects, masking thresholds period pattern

4 Frequency group and stimulation: critical bandwidth, stimulation and excitement threshold function scheme, excitation level

5 Loudness: Newly noticeable changes in sound level, volume level, Isophone, loudness, loudness throttled, functional diagram of loudness, loudness –tone specific, time-dependence of the loudness

6 Fluctuation Strength: Functional diagram of the fluctuation strength

7 Roughness: Functional diagram of the roughness

8 Focus: Functional diagram of the sharpness

9 Pitch: Newly perceptible changes in frequency, pitch ratio, spectral pitch and pitch shifting, virtual pitch, scales of pitch perception, saliency of pitch

10th Subjective Duration: Functional diagram of the subjective duration

11th Spatial hearing: the outer ear transfer functions, interaural level difference, interaural time difference, determining the direction of bands, removal hearing, inter-aural coherence, recording method, Binaural masked thresholds differences, binaural loudness, binaural signal detection, models binaural hearing

Teaching and learning methods

Lecture and seminar lectures with worked examples and numerous audible demonstrations and experiments. Excercises should be completed at home.

Beamer, blackboard, overhead projector, audio and video demos.

Other

extensive script

Literature

Terhardt E., Akustische Kommunikation, Springer-Verlag, 1998;

Ulrich J., Hoffmann E., Hörakustik, DOZ-Verlag, 2007;

Weinzierl S., Handbuch der Audiotechnik, Springer-Verlag 2007;
Zollner M., Zwicker E., Elektroakustik, Springer-Verlag 1993;
Fastl H., Zwicker E., Psychoacoustics, Springer-Verlag, 2005;
Zwicker E., Psychoakustik, Springer-Verlag, 1982

9 Hearing and Psychoacoustics

Major field of study

Technique and application of audio-visual media

Type of examination

Written Examination90 Min.

Module: Courses that accompany internships

Module No. F-31

Responsible for Module Prof. Ernst Jürgens

Major field of study

Course number/ name

F6101 PLV 1
F6102 PLV 2
F6103 PLV 3
F6104 PLV 4

Semester 6

Duration of Module 1 Semester

Frequency of Module continuous

Compulsory/ non- compulsory PLV

Degree Undergraduate

SWS 12.0

ECTS 8.0

Workload

Attendance: 180.0 Hours
Self-study: 60.0 Hours
Total: 240.0 Hours

Language of Instruction German

Objectives of the module

Participants will deepen the knowledge acquired during the studies using modern software tools by linking theory and practice. The required teamwork promotes leadership and communication skills of students intensively.

Recommended prerequisites

Admission to the internship semester requires that at least 120 ECTS credits have been achieved.

Content

To give the students a free choice of their internship, the theoretical training period will be combined into four projects. Attendance is compulsory.

Since a semester lasts 15 weeks, projects will correspond to 45 teaching hours. (3 hours per week * 15weeks)

The PLV-projects will be completed throughout the course. For this purpose, the course will offer projects each semester. (Information is given by email and / or poster) The students can enrol in the list at the beginning of the 2nd Semester, and will then receive an email about whether the project will take place.

During the exam registration period, students must sign a document that is binding to the projects. The results can only be distributed to registered students.

Other

Two PLV's can be replaced by at least a two-week work placement.

F6101 PLV 1

Type of examination

Written, oral, LN, or StA

F6102 PLV 2

Type of examination

Written, oral, LN, or StA

F6103 PLV 3

Type of examination

Written, oral, LN, or StA

F6104 PLV 4

Type of examination

Written, oral, LN, or StA