

Anlage 5

Modulhandbuch

des Studiengangs

Interactive Media Design **Bachelor of Arts**

des Fachbereichs Media
der Hochschule Darmstadt – University of Applied Sciences

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1. Preliminary Note: Project Based Learning

Preconditions

Facing the rise of complexity

Interactive Media Projects are characterized by a two-dimensional multidisciplinary: They are on first hand a combination of Design, Management, Informatics and Technology (the "classical" disciplines) and on the other hand more and more often a combination of the diverse but meanwhile highly specific media genres with linear and/or interactive modalities like animation, game, interactive products, installations, video, sound ... Teaching should correspond to the exposure of complexity by accentuating respective methods how to handle this rising complexity.

Facing new concepts of work

The change from an industrial to a knowledge-oriented society has deep impact on contemporary and future work patterns. Moreover the half-value period of tools and software gets shorter ever. For the individual worker this means the rise of self directed work, self-motivation, self-organisation, lifelong learning and beyond this – teamwork in international (which means multi-cultural) settings. This requires teaching methods, which help students to reach the qualifications necessary in these fields.

Supporting constructivist learning

In the traditional sense, learning means to memorize and to recall facts. Thus declarative knowledge will be acquired in a static way, which is suitable in complex situations to only a limited extent. The future media developer rather needs practical methodological skills and problem solving competencies. Therefore a change from an instructional to a constructivist view of teaching is helpful. In this sense learning means to incorporate the persistent fundamentals on the one hand and to actively construct thought-patterns on the other hand.

Supporting active learning

Constructivist learning means the change from reproduction to production, from gaining knowledge to developing competencies, from examination to facilitation, from teaching to coaching. These requirements can be fulfilled by an adequate link between theory and practice.

Supporting to learn how to learn

Knowledge management is a central task of our knowledge society. Until today the idea of mainly explicit exchange of knowledge prevails. But especially in the media industry a change from codified knowledge (externalized knowledge) to tacit knowledge (implied/implicit knowledge) is necessary.

Definition

Project-based learning (PBL) is a student-centred pedagogical strategy, applied to the study course Interactive Media Design, in which students learn about the given indicative subjects in the context of complex, multifaceted, and realistic projects. Working in groups, students identify what they already know, what they need to know, and how and where to access new information that may lead to resolution of a problem. The role of the instructor is that of a facilitator of learning who provides appropriate scaffolding of that process by (for example), asking probing questions, providing appropriate resources, and leading class discussions, as well as designing student assessments.

Implementation into the IMD Programme

This form of teaching should embrace the disciplines Design, Informatics/ Technology and Management as inherent parts of a workshop module with a given semester's topic.

Way of teaching

From a constructivist perspective in a project-based learning strategy, the role of the instructor is to guide the learning process rather than provide knowledge (Hmelo-Silver, C. E. & Barrows, H. S. (2006). "Goals and strategies of a problem-based learning facilitator. ", *Interdisciplinary Journal of Problem-based Learning*, 1. 21-39.). In this perspective, feedback and reflection on the learning process and group dynamics are essential components of PBL. Students are considered to be active agents who engage in social knowledge construction. Nevertheless, a professional and reliable input-framework is necessary.

Teaching methods in the workshops can be:
seminar, impulse keynote talk, coaching, discussion

General learning outcomes

In Detail PBL develops the following skills:

- Ability for critical thinking
- Analytical and methodological skills, i.e. transferable skills
- Research skills
- Problem solving skills
- Project management skills
- Communication, negotiation and conflict resolution skills
- Acquisition of knowledge that is flexibly usable
- Development of interdisciplinary competencies
- Social competency
- Capacity for teamwork
- Lifelong learning skills

Project phases

(Basic grid, to be adapted to focal-point-specific workshops)

- Define rules of work
- Analyse situation
- Define problem
- Design research & distribute work
- Research/work
- Share results & analyse results
- Conclusion

Benefits of PBL compared to traditional lecture teaching

- With a given project/workshop/production context, students want to learn to a greater extent than in pure lecture scenarios
- Students take ownership of the need to learn
- Students learn by doing – practice, trial-and-error, repetition, experimenting
- Making sense of what is being learned is more obvious – ‘getting one’s head around it’
- Better effects by learning from feedback: other people’s reactions, seeing the results
- Deepening one’s learning by explaining it to others, teaching, coaching
- Further deepening one’s learning, by making informed judgements on one’s own
- Work and on others’ work – self- and peer-assessing

(Following Phil Race's presentation, University of Aalborg, March 2009)

2. Modulbeschreibungen der Pflichtmodule im 1. Semester

GD – Grundlagen Design

ID	Workload	CP	Semester	Frequency	Duration
GD	250	10	1.	WS	1 Sem
1	Type of Course Mandatory		Contact Hours 10 SWS/160 h	Self-Study 90 h	Size of Groups 30/15
2	<p>Learning Outcomes / Competencies</p> <p>"Design is invisible" - the famous phrase by Lucius Burckhardt - is the provocative introductory maxim of the first semester. The aim is to strengthen the conceptual skills, focusing on the semantics of the message, the user experience, the interactions of the user, the action space between man and machine. The design of experiences becomes the focus of designing current media: what is emotion, play or story, and how do we manage them?</p> <p>The Module provides a foundation for interactive media design activities. The student is introduced to theories, methods and practical processes involved in time-based and interactive media production. The module encourages students to adopt an analytic, creative and ethical approach to the resolution of basic media design problems.</p> <p>The module integrates theoretical and practical aspects of design processes in the area of interactive media and interface design. The students gain awareness of the issues associated with the development of ideas, the design of experiences and the creation of appropriate forms of interaction and media specific expression within the contemporary digital media landscape.</p> <p>On successful completion of this module the student will be able to:</p> <ul style="list-style-type: none"> • Analyse and valuate media artefacts with regard to design principles • Analyse and valuate design qualities & design principles and the relationship between visible surface and invisible concept • Understand the user: objectives, possible experiences • Understand and shape experiences: emotion, play, story • Show basic abilities in developing design concepts for interactive media and presenting them in a clear and coherent manner • Analyse and evaluate interactive media artefacts in terms of their use of user experience, interaction, space, time, motion, and sound • Demonstrate an awareness of audiences in the communication and interpretation of ideas 				

3	<p>Indicative Module Contents</p> <p>Theory: Design & Interaction Studies</p> <ul style="list-style-type: none"> • Perception of design, perception of interactive products • Theories of semiotics and communication • Principles of design and audio-visual composition • Principles of action & interaction • Understanding the user and the space of action • Shaping user experiences: emotion, play, story <p>Praxis: Basics of Interaction Design</p> <ul style="list-style-type: none"> • Analysis of digital media and interactive media • Principles of action & interaction • Understanding the user and the space of action • Shaping user experiences: emotion, play, story • Concept and production: concept making, visualization and prototyping
4	<p>Teaching Methods</p> <p>The module integrates essential methods of problem-based learning. The range of teaching methods includes impulse lectures, coaching of individual practical assignments and short, group-based project activities within the field of Interactive Media. The student-centred methodical approach creates an interactive learning environment, which encourages learners to explore their creative potential and to integrate professional design thinking in their creative practice. Through individual and group based work the students develop essential methodical, practical and intellectual skills in interactive media design. Carefully selected assignments and projects involve students in design problems that promote the acquisition of critical knowledge, problem solving proficiency, self-directed learning strategies and teamwork capacity.</p>
5	<p>Prerequisite Subjects</p> <p>-</p>
6	<p>Assessment Methods</p> <p>Examination: Final presentation and portfolio (100%)</p>
7	<p>Prerequisites for CP</p> <p>-</p>
8	<p>Used in Other Courses</p> <p>-</p>
9	<p>Name of Module-Responsible and Teaching Professors</p> <p>Prof. Claudia Söller-Eckert , Prof. Andrea Krajewski , Prof. Tsune Tanaka</p>

GC – Grundlagen Creative Coding

ID	Workload	Credits	Semester	Frequency	Duration
GC	250 h	10	1.	WS	1 Sem
1	Type of Course Mandatory		Contact Hours 9 SWS/144h	Self-Study 61 h	Size of Groups 30/15
2	<p>Learning Outcomes / Competencies</p> <p>The Module is installed to provide a fundamental understanding of computer technology and basic programming skills. The students should deepen their knowledge and gain practical experience about media technology and formats such as digital images, video and sound.</p> <p>On successful completion of this module the student will be able to:</p> <ul style="list-style-type: none"> • Understand and use the computer and related media hardware as a tool • Describe the role of informatics in different media areas • Understand and handle analogue and digital media • Analyse, understand and create algorithms • Demonstrate basic programming skills 				
2	<p>Learning Outcomes / Competencies</p> <p>The Module is installed to provide a fundamental understanding of computer technology and basic programming skills. The students should deepen their knowledge and gain practical experience about media technology and formats such as digital images, video and sound.</p> <p>On successful completion of this module the student will be able to:</p> <ul style="list-style-type: none"> • Understand and use the computer and related media hardware as a tool • Describe the role of informatics in different media areas • Understand and handle analogue and digital media • Analyse, understand and create algorithms • Demonstrate basic programming skills 				
3	<p>Indicative Module Contents</p> <ul style="list-style-type: none"> • Audio-visual perception • Computer as a tool (e.g. I/O operations, hard- and software interfaces, communication, networks) • Fundamental media compression methods • Basics of logic and logical operations • Different representation of numbers (e.g. binary and hexadecimal) • Basic concepts and examples of computer programs: variables, types, assignments, input/output, flow control, functions and parameters 				

	<ul style="list-style-type: none"> • Introduction to programming (methods, programming environments, procedures)
4	Teaching Methods Lecture, seminar, practical sessions
5	Prerequisite Subjects -
6	Assessment Methods
	Examination: written exam. portfolio (100%)
7	Prerequisites for CP -
8	Used in Other Courses -
9	Name of Module-Responsible and Teaching Professors <u>Prof. Frank Gabler</u>

GT – Grundlagen Designtheorie und Methodologie

ID	Workload	Credits	Semester	Frequency	Duration
GT	125 h	5	1.	WS	1 Sem
1	Type of Course Mandatory		Contact Hours 3 SWS/48 h	Self-Study 77 h	Size of Groups 30
2	<p>Learning Outcomes / Competencies</p> <p>“Designing the Future” – this is the leitmotif of the course in the first semester. Design and especially design of interactive media products in any case means shaping the future life of users. Future and utopia are enduring subjects for scientists and artists. The course explores utopias of hard- and software interfaces, created and described in film and literature as (science) fiction to compare it with scientifically based trend and future studies. Consequential the students derive strategic approaches for their own projects, shaping the future.</p> <p>On successful completion of this module the student will be able to:</p> <ul style="list-style-type: none"> • Explore design as possibility to communicate a position • Conclude from fictional and non fictional sources • Understand and describe the concept of utopia in design 				
3	<p>Indicative Module Contents</p> <ul style="list-style-type: none"> • Best practices from sci-fi (mechanical controls, visual interfaces, volumetric projection, gesture, sonic interfaces, brain interfaces, augmented reality, anthropomorphism) • Sci-fi’s role in design history • Current trend reports • Creating utopias for future communication, learning, medicine, sex, ... 				
4	<p>Teaching Methods</p> <p>Lecture, seminar, practical sessions, homework</p>				
5	<p>Prerequisite Subjects</p> <p>-</p>				
6	<p>Assessment Methods</p> <p>Examination: Presentation (100%)</p>				
7	<p>Prerequisites for CP</p> <p>Continuous attendance as well as continuous participation of seminars and assignments.</p>				
8	<p>Used in Other Courses</p> <p>-</p>				
9	<p>Name of Module-Responsible and Teaching Professors</p>				

GK – Grundlagen Kommunikation und Lernen

ID	Workload	Credits	Semester	Frequency	Duration
GK	125 h	5	1.	WS	1 Sem
1	Type of Course Mandatory		Contact Hours 3 SWS/48 h	Self-Study 77 h	Size of Groups 30
2	<p>Learning Outcomes / Competencies</p> <p>“Learn how to learn” – this is the leitmotif of the course in the first semester. Starting a study, students must change their learning behaviours and strategies, learnt from school. The module provides a foundation for self-motivation, self-directed learning, scientific research and writing needed in the area of interactive media.</p> <p>On successful completion of this module the student will be able to:</p> <ul style="list-style-type: none"> • Understand, describe and apply strategies for self-motivation • Analyse and change the own learning behaviour • Apply personal learning strategies • Understand, describe and apply the basic elements of scientific research for the research and project practice in interactive media • Understand, describe and apply the basic elements of communication 				
2	<p>Learning Outcomes / Competencies</p> <p>“Learn how to learn” – this is the leitmotif of the course in the first semester. Starting a study, students must change their learning behaviours and strategies, learnt from school. The module provides a foundation for self-motivation, self-directed learning, scientific research and writing needed in the area of interactive media.</p> <p>On successful completion of this module the student will be able to:</p> <ul style="list-style-type: none"> • Understand, describe and apply strategies for self-motivation • Analyse and change the own learning behaviour • Apply personal learning strategies • Understand, describe and apply the basic elements of scientific research for the research and project practice in interactive media • Understand, describe and apply the basic elements of communication 				
3	<p>Indicative Module Contents</p> <ul style="list-style-type: none"> • Basics in psychology of learning • Perceive, understand and apply learning strategies • How to condition myself for learning? • Curiosity as driving force • Approach to information sources • Scientific research and application in practice 				

4	Teaching Methods Lecture, seminar, practical sessions, homework
5	Prerequisite Subjects -
6	Assessment Methods -
7	Prerequisites for CP Continuous attendance as well as continuous participation of seminars and assignments.
8	Used in Other Courses -
9	Name of Module-Responsible and Teaching Professors Prof. Andrea Krajewski, Associated Lecturers

3. Modulbeschreibungen der Pflichtmodule im 2.-7. Semester

P2 – Experimental Media Projects

ID	Workload	Credits	Semester	Frequency	Duration
P2	500 h	20	2.	SS	1 Sem
1	Type of Course Mandatory		Contact Hours 10 SWS/160 h	Self-Study 340 h	Size of Groups 10

Learning Outcome

“Find your way” – this is the leitmotif of the first interdisciplinary project of the study course.

The students explore and apply design and technical principles of interaction in a virtual simulation scenario. They explore simulation concepts, structuring media content, dynamic and interactive scenarios as well as technological skills and tools. The students design and produce media artefacts, interactive visualizations, virtual characters and interfaces for virtual environments, learning environments, simulations or games – all in acoustical and/or visual way. Students learn to approach tasks as projects and to interact in interdisciplinary team settings. They are challenged in self-motivation and time management.

Students are encouraged to take responsibility for self-directed, group-oriented learning processes. They explore individual and collective methods of problem solving and construction of knowledge. They develop presentation ideas tailored to an audience; visualize and verbalize the essential of a message, address and present to an audience and reply to critical questions within their projects. They explore methods and tools of project management.

Possible Project Topics are:

Crazy Machines, Simulation, Game

On successful completion of this module the student shall be able to:

- Understand and experience key characteristics of team based projects, solve team problems; use relevant and appropriate etiquette in communicating with stakeholders
- Apply basic principles of research such as: examine the topic and identify the audience/user, existing products, the social and cultural environment, functional and technical conditions of the media application
- Demonstrate methodical and practical skills in creating, visualizing and evaluating different ideas and concepts
- Produce media artefacts in an appropriate media language and with necessary technical skills
- Understand and apply basic methods of project management and media law
- Document the project development and the deliveries of the project management

3.	<p>Indicative Contents</p> <p>Media Design</p> <ul style="list-style-type: none"> • History of interaction and interfaces • Man-machine-relationship: space of interaction, mental models and metaphors • The elements of the design process • Target group, & personas • Moodboards • Information structure & information architecture • Intuitive acting, natural dialogue and interactive elements • Creating visual and audible concepts for interactive media • Interactive animation and simulation • Interactive sound design <p>Media Informatics/Technology</p> <ul style="list-style-type: none"> • Basic programming concepts • Integration of algorithms and media objects • Usage of function, loops and conditions. • Proper formatting to support code maintenance and reuse • Programming abilities in 2D graphics • Concepts of programming simple animations, simulations and games • Implementations of simple interaction models. • Introduction software architecture: tools and methods (e.g. UML, PAP, CLD) • Applying advanced data structures • Introduction into the concepts of OOP (object oriented programming) <p>Media Management</p> <ul style="list-style-type: none"> • Basic rules of self-management • Rules of team communication • Team roles and attitudes • Role differences in work and leisure • Basic project management theories, methods and tools • Introduction to media law
4	<p>Teaching Methods</p> <p>Project work/problem based learning, assisted team work, seminars</p>
5	<p>Prerequisite Subjects</p> <p>Knowledge in the basics of Interaction Design, Media Informatics and Media Technology (e.g. GD, GC).</p>
6	<p>Assessment Methods</p> <p>Examination: Project, portfolio (100%)</p>

7	Prerequisites for CP -
8	Used in Other Courses -
9	Name of Module-responsible and Teaching Professors Prof. Claudia Söller-Eckert , all professors of IMD

GM – Grundlagen Designtheorie und Methodologie

ID	Workload	Credits	Semester	Frequency	Duration
GM	125 h	5	1.	WS	1 Sem
1	Type of Course Mandatory		Contact Hours 3 SWS/48 h	Self-Study 77 h	Size of Groups 30
2	<p>Learning Outcomes / Competencies</p> <p>“Design Attitude” – this is the leitmotif of the GM course in the second semester. Design Theory is a rather young science compared to natural or social sciences. For a long time, design was considered to be something between arts and crafts. Today, design theory embraces methods, strategies and research with respect to design. It serves for the conception as well as reflexion of the creative work itself and it’s design process. Whereas the traditional sciences have objects that are observed experimentally or empirically, design shapes and changes the environment, design theory is never universal and has to take into account a situation, context or time. Design Theory forces the transformation from theory to praxis to be further developed. The course gives access to design theory as a knowledge and reflexion source for the own design process.</p> <p>On successful completion of this module the student will be able to:</p> <ul style="list-style-type: none"> • Understand and describe the concept of design theory • Apply design theory strategies for the own design process • Define an own position as designer • Understand the basics to • Develop an own design position and attitude, that influences the individual design process 				
3	<p>Indicative Module Contents</p> <ul style="list-style-type: none"> • Design history - from hardware to software design • The myth of good design • Design ethics • Creative thinking • Design as a statement • Design is invisible • Design is not design 				
4	<p>Teaching Methods</p> <p>Lecture, seminar, practical sessions, homework</p>				
5	<p>Prerequisite Subjects</p> <p>-</p>				

6	Assessment Methods -
7	Prerequisites for CP Continuous attendance as well as continuous participation of seminars and assignments.
8	Used in Other Courses -
9	Name of Module-Responsible and Teaching Professors <u>Prof. Tsune Tanaka</u> , Prof. Andrea Krajewski

P3 – Professional Media Projects

ID	Workload	Credits	Semester	Frequency	Duration
P3	500 h	20	3.	SS	1 Sem
1	Type of Course Mandatory		Contact Hours 10 SWS/160 h	Self-Study 340 h	Size of Groups 10
2	<p>Learning Outcomes / Competencies</p> <p>“Consolidate your processes” – this is the leitmotif of the subsequent interdisciplinary project of the study course.</p> <p>The aim of this Project is to combine design, technology and management in the development and realisation of a ambitious typical media product. The project should promote awareness of the professional issues associated with the conception, production and post production process of a standard media product in the area of interactive media design. The students learn to generate ideas, concepts and solutions in response to the identified user and market needs of an interactive media product. There is an emphasis on user centred conceptual design, professional methods and techniques and management of complex workflows. The focus is on user groups and/or special application fields. The whole project workflow is accompanied and controlled by a professional project management.</p> <p>Possible project topics are:</p> <p>Special application areas like “Mobile”; special topics like “e-Emergency”, special target groups like “children”, “70plus”, ...</p> <p>On successful completion of this module the student will be able to:</p> <p>Overall Competencies</p> <ul style="list-style-type: none"> • Apply analytical and methodological skills with more routine • Transfer skills • Apply problem solving skills • Work in a mid-sized team • Define quality standards <p>Project competencies</p> <ul style="list-style-type: none"> • Demonstrate creativity, initiative and experimentation in developing and progressing ideas over the course of a project • Apply project management techniques, tools and strategies throughout the lifecycle of a project • Meet agreed deadlines and declared milestones of a project • Apply an appropriate range of specialised software and hardware tools in the execution and completion of a project 				

- Negotiate a range of design communication and organisational problems which occur in a multidisciplinary team environment
- Demonstrate the use of appropriate research and presentation methods in the development and implementation of a project
- Identify and redeem the users needs

Disciplinary competencies

Design

- Describe the scope of creative activities within a typical media project in the selected focus
- Apply a basic design methodology, typical for the focus
- Develop a reasonable UX and UI design concept considering an argued strategy and the respective user group and field of application
- Create a product or artwork aesthetics that corresponds to the intended design targets

Media Informatics & Technology

- Achieve a fundamental understanding of data handling
- Understand and apply complex data models
- Demonstrate and apply knowledge about databases
- Achieve awareness and discuss data security and privacy issues

Media Management

- Install and guide projects
- Calculate project costs
- Lead (small) teams and evaluate team performances
- Apply business-planning methodologies
- Apply first media marketing measurements

3	<p>Indicative Contents</p> <p>Media Design</p> <ul style="list-style-type: none"> • Elements of an iterative design process • Apply methods to promote creativity, understand influencing parameters enabling creativity in an interdisciplinary team setting • Physiological and psychological aspects of user centred design. • User research and usability methods and practices • User Experience as leitmotif for the design of interactive media • Participatory design and the role of a designer in his / her role as human-computer-interface expert and the interpreter of user demands • Application design (web-based, browser-based and serious games) for mobile media • Human Computer Interaction (GUI, HCID, NUI, ...) design of media systems • Audible and visual interaction design for mobile media • Brand and Corporate Design • Linear video documentations for interactive media products <p>Media Informatics/Technology</p> <ul style="list-style-type: none"> • Software architectural design patterns • Pattern for implementing user interfaces (e.g. model-view-controller) • Responsive UI • Introduction to data persistence, databases and remote storage • Databases (e.g. database design, tables, normalization, querying databases, SQL) • Representing and interacting with objects (e.g. DOM, XML) • Client-side scripting (e.g. Java) and Server-side scripting (e.g. PHP) • Data security and privacy. Simple encryption methods. • Relational databases: incorporating search results into interactive content <p>Media Management</p> <ul style="list-style-type: none"> • Introduction to teamwork methodologies and dynamics • Introduction of project management techniques • Assess relevant parameters to build basic business models • Exposure to conflicting stakeholder interests • The brand as revenue factor • Introduction to Media Marketing • Presentations styles, techniques and technologies • Experience stress, failure and frustration and learn to deal with it in a team environment
4	<p>Teaching Methods</p> <p>Project/problem based learning, workshops, seminars, lectures</p>
5	<p>Prerequisite Subjects</p>

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6	Assessment Methods Examination: Project, portfolio (100%)
7	Prerequisites for CP Successful completion of all modules of semester 1, except one module
8	Used in Other Courses -
9	Name of Module-responsible and Teaching Professors Module-responsible: Prof. <u>Andrea Krajewski</u> (Interactive Media Design) All professors and associated professors of the study course Interactive Media Design

P4 – Complex Media Projects

ID	Workload	Credits	Semester	Frequency	Duration
P4	500 h	20	4.	SS	1 Sem
1	Type of Course Mandatory		Contact Hours 10 SWS/160 h	Self-Study 340 h	Size of Groups 10
2	<p>Learning Outcomes / Competencies</p> <p>“Define your aspiration level” – this is the leitmotif of the subsequent interdisciplinary project of the study course.</p> <p>The aim of this project is to develop, produce and implement a system of connected media products and data. The project should promote awareness for complex problems and solutions beyond single and self-contained media products. The project demands to dig deeper, to think out of the box, to be precise and same time to extend the idea of interaction design and to find a “language” for it. The students learn how to find new business fields for new media and technical developments in connection to the creation of user-need-based solutions. Parallel ethical, social and legal aspect should be taken into consideration.</p> <p>Possible project topics are:</p> <p>Internet of Things, Big Data, Business Intelligence</p> <p>On successful completion of this module the student will be able to:</p> <p>Overall Competencies:</p> <ul style="list-style-type: none"> • Deepen analytical and methodological skills • Scrutinize technology driven trends • Realize their responsibility as media designer and developer • Define own quality standards <p>Project competencies:</p> <ul style="list-style-type: none"> • Demonstrate ethical responsibility, creativity, initiative and experimentation in developing and progressing ideas • Extend the idea of interactive media design from a product to a system • Apply knowledge of experts of different specialized fields outside the team’s competencies • Identify and redeem the users prospective needs • Develop a business idea and a finance plan • Pitch a project concept for funding <p>Disciplinary Competencies:</p> <p>Media Design:</p>				

- Analyse, create and argue user and need based application scenarios for complex connected media and data systems
- Develop product concepts for the near future based on scientific research
- Develop a reasonable UX and UI design concept considering an argued strategy and the respective user group and field of application
- Understand and apply the basics of system design
- Extract meaning from data and translate it into sensuous representations
- Create 3D interfaces in an appropriate product language
- Create a product or artwork aesthetics that corresponds to the intended design targets

Media Informatics & Technology:

- Achieve an understanding of distributed media systems
- Understand principles of network based communication
- Gain knowledge about complex data structures
- Gain, discuss and apply knowledge about computer network based data handling (e.g. network topologies, cloud)
- Discuss and apply techniques for network security and privacy.
- Demonstrate knowledge about software architecture, design and implementation of distributed media systems

Media Management:

- Develop a business plan
- Develop a finance plan
- Develop a marketing strategy for a media project
- Understand and apply code of conducts in the development of media products

3

Indicative Module Contents

Media Design

- From a vision to the product conventional and innovative approaches in ideation processes
- From 2d to 3d Interfaces
- Interface as action space (Handlungsraum)
- Sensory design
- User Experience Design
- Product Semantics
- Product design for tangible interfaces
- Designing the character of a product
- Information Design
- Sound design for interaction

- Design and dramaturgy of rich media documentations

Informatics/Technology

- Software quality, requirement analysis, specification, implementation
- Distributed and/or parallel computing (e.g. messaging, multi threading)
- Network topologies and cloud
- Wired and wireless connectivity (e.g. Lan, Wlan, WiFi, Bluetooth, NFC)
- Software engineering (e.g. UML, use cases)
- Complex data structures
- Application Interfaces (API)
- Web-services and Rich Media Applications
- Introduction to embedded systems and microcontrollers
- Microcontroller (e.g. Arduino, Raspberry Pi) and Interaction
- Sensor technology and actuators

Media Management

- Broaden project management skills including project plan, work breakdown structure, project management software
- Apply the technique of business model canvas to generate and structure an advanced business model focussing amongst others on value proposition, key activities, customer segments
- Structured development of a business-/product idea
- Finance planning for a period of three years
- Develop a project on the basis of a project idea
- Raise awareness for the correlation of company culture and product & service portfolio

4	Teaching Methods Project/problem based learning, workshops, seminars, lectures
5	Prerequisite Subjects Successful completion of P2 and all mandatory modules of semester 1-2
6	Assessment Methods Examination: Project, portfolio (100%)
7	Prerequisites for CP
8	Used in Other Courses -
9	Name of Module-responsible and Teaching Professors Prof. Andrea Krajewski, all professors and associated professors of the study course Interactive Media Design

P5 – Industrial Placement incl. Preparation and Follow Up

ID	Workload	Credits	Semester	Frequency	Duration
P5	750 h	30	5th Semester	Winter Term	1 Semester
1	Type of Course Mandatory		Contact Hours 6 SWS/95 h	Self-Study 655 h	Size of Groups 30
2	Learning Outcomes / Competencies On successful completion of this subject the student will be able to: <ul style="list-style-type: none"> • Understand and reflect the practical work of a designer, producer, developer • Reflect new fields of application and new professional methods • Integrate needs of practice in coming projects • Integrate methods of practice in coming projects 				
3	Indicative Module Contents The industrial placement takes five months. There will be accompanying studies at university before the placement and after the placement. The course before the placement gives information about industrial places and about the organisation of the placement. In the course after the placement the students give a presentation about their projects in the placement and about their experiences. Students have to produce a detailed report about their projects. The students work in the fields of: <ul style="list-style-type: none"> • Concept, planning and / or production of movie, video, TV and AV projects • Concept, planning and / or production of multimedia, animation, game, media installation projects • Concept, planning and / or production of media systems • Implementation and / or programming of multimedia products, games and media systems • Management and marketing of multimedia products, games and media systems 				
4	Teaching Methods Lectures, tutorials, group discussions and peer reviews, presentation				
5	Prerequisite Subjects Successful completion of P2-P3 and all mandatory modules of semester 1-2				
6	Assessment Methods Examination Prerequisite: Completed IP (0%) Examination: Participation at IP seminar, presentation (100%)				
7	Prerequisites for CP -				
8	Used in Other Courses -				
9	Name of Module-responsible and Teaching Professors				

P6 – Advanced Media Projects

ID	Workload	Credits	Semester	Frequency	Duration
P6	500 h	20	6.	SS	1 Sem
1	Type of Course Mandatory		Contact Hours 10 SWS/160 h	Self-Study 340 h	Size of Groups 10
2	<p>Learning Outcomes / Competencies</p> <p>“xtreme interfacing” – this is the leitmotif of the subsequent interdisciplinary project of the study course.</p> <p>The aim of this project is to develop, produce and implement a media system that fuses seamlessly into the environment of the user and/or vice versa enables the total immersion of the user into the user experience of the interface. This demands for another definition of interface, interaction and computing. The students investigate, apply and combine complex technologies from software development, programming and network technologies to explore the potential of innovative or alternative interface approaches. The project might, for example develop an ambient application, which responds to a defined target group, taking cognisance of user needs and market potential. The product could be conceived in its entirety and be developed as a prototype, mock up or simulation.</p> <p>The students learn how to setting up modern business start-ups in der media field and how to get funding.</p> <p>Possible project topics are:</p> <p>Urban Spaces, Interactive Fiction, Environmental Design, Ambient Intelligence</p> <p>On successful completion of this module the student will be able to:</p> <p>Overall Competencies:</p> <ul style="list-style-type: none"> • Lifelong learning skills • Ability for critical thinking concerning innovation, new formats and technologies • Ability to transfer technical innovation into cultural and/or social innovations <p>Project competencies</p> <ul style="list-style-type: none"> • Manage a self-initiated project from brief through to presentation • Demonstrate creativity, independence and inventiveness in the approach and methods used to develop and implement a project • Make informed choices through a critical approach to information gained through appropriate research methods in the development and implementation of ideas for a project • Effectively use quality control techniques and methods to ensure a high quality finish to their product • Present a project in a coherent and clear fashion using a range of appropriate documentation and communication skills 				

Disciplinary competencies:

Media Design

- Demonstrate creativity, independence and inventiveness in the approach and methods used to develop and implement a project
- Develop an abstract definition of interface and interaction, and apply this for “invisible” interfaces
- Create demos and presentations for large scale interactive projects

Media Informatics/Technology

- Apply fundamental technological knowledge about usual, natural and expanded user interfaces (e.g. gesture tracking, multi-touch, image processing, tangibles)
- Perform advanced user interface programming
- Gain and apply knowledge about electronics and microcontroller
- Understand and use sensors and actuators
- Discuss, understand and apply emerging interface and interaction technologies
- Discuss and understand the technological background of projection and display technologies.

Media Management

- Apply professional project management skills and explore new trends in project management
- Fund a start-Up business

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Indicative Module Contents

Media Design

- Current interaction development: system and user. Innovations, technological developments and social-cultural evolutions, possible influences on the life scenarios work and leisure.
- Understanding of the relevant conceptual, theoretical, social, technical and design issues related to haptic and ubiquitous interactive products and pervasive environments.
- Human factors and the design and use of technology in immersive environments
- Ambient interaction
- Sound-design for interactive spatial interfaces
- Game-design for interaction in space
- Advanced animation and simulation
- Advanced data visualisation
- Video-production for self-marketing-videos

Media Informatics/Technology

- Technological knowledge and design ambient and/or environmental systems
- Advanced HCI (human computer interaction)
- Architecture of complex soft- and hardware systems (e.g. Ambient Systems)
- Databases for complex systems and applications
- Microcontroller (e.g. Arduino, Raspberry Pi) and Interaction
- Sensor technology and actuators
- Advanced pre-visualisation, prototyping and testing
- Display technologies
- Projection technologies
- Emerging technologies for complex media systems
- Artificial intelligence
- Adaptive systems

Media Management

- Agile Management, Rapid Prototyping
- Funding and start-Up from scratch
- Legal forms of venture
- Marketing strategy with focus on corporate identity and corporate image
- The marketing of an own interdisciplinary team
- Conceptualize appropriate promotional material (website, business stationary, flyers, brochures, banners)
- Personal qualities assessment, feedback techniques and systemic asking as engagement tool
- Fine tune presentation skills & be exposed to difficult clients

4	Teaching Methods Project work, seminar, lecture
5	Prerequisite Subjects Successful completion of P2-P4 and all mandatory modules of semester 1-2
6	Assessment Methods Examination: Project, portfolio (100%)
7	Prerequisites for CP -
8	Used in Other Courses -
9	Name of Module-responsible and Teaching Professors Prof. Tsune Tanaka, all professors of IMD

R7 – Research-Project

ID	Workload	Credits	Semester	Frequency	Duration
R7	375 h	15	7th Semester	Every Term	10 weeks
1	Type of Course Mandatory		Contact Hours 2 SWS/32 h	Self-Study 343 h	Size of Groups 10
2	<p>Learning Outcomes / Competencies</p> <p>On successful completion of this subject the student will be able to:</p> <ul style="list-style-type: none"> • Use appropriate methodologies to explore the topic for an interactive product; and/or • Demonstrate the advantages of carrying out extensive and detailed user or situation research for a product; and/or • Use appropriate methodologies with regard to research for product development; and/or • Use appropriate methodologies with regard to market research; and/or • Use appropriate methodologies with regard to product concept and development; and/or • Use appropriate methodologies to plan the project organisation and financing of a media-project; and/or • Identify and design for the cultural environment in which a product will be used or experienced 				
3	<p>Indicative Module Contents</p> <p>The student(s) submits a briefing document for a interactive project to a desired project coach. Once this brief has been accepted, the student then writes a planning document, containing:</p> <ul style="list-style-type: none"> • A project proposal • The results of the necessary research, developing the project • The description of a developed rough concept for the project • A project plan <p>Project Schedule:</p> <ul style="list-style-type: none"> • Application with briefing document • Agreement on deliverables according to chosen subject with coach • Delivery of research- and concept-plan • Discussion sessions and review of preliminary results (group/peer reviews) • Final Presentation (assessment) 				
4	<p>Teaching Methods</p> <ul style="list-style-type: none"> • Coaching 				

	<ul style="list-style-type: none"> • Tutorials, group discussions and peer reviews • Presentation and demonstration
5	Prerequisite Subjects Successful completion of P2-P4 and all mandatory modules of semester 1-2
6	Assessment Methods Examination: Project, portfolio (100%)
7	Prerequisites for CP -
8	Used in Other Courses -
9	Name of Module-responsible and Teaching Professors <u>Prof. Andrea Krajewski</u> , all professors of IMD

P7 – Bachelor Module incl. Colloquium

ID	Workload	Credits	Semester	Frequency	Duration
P7	375 h	15	7.	Every Term	12 weeks
1	Type of Course Mandatory		Contact Hours	Self-Study	Size of Groups
2	<p>Learning Outcomes / Competencies</p> <p>On successful completion of this subject the student will be able to</p> <ul style="list-style-type: none"> • Discuss the design, cultural, technical and economic issues related to the project • Show appropriate use of project management skills and tools in application of project resources and in meeting project milestones on time and to specifications • Demonstrate judgement in the application of appropriate research and design methods in arriving at final solution(s) for the proposed project • Demonstrate specialised technical, creative or conceptual skills and tools in the development, completion and presentation of the project outcomes • Show critical personal reflection and accountability in relation to learning from successful and unsuccessful project outcomes 				
3	<p>Indicative Module Contents</p> <p>Students may develop and realise a complete media system or media product, such as an interactive media system, an interactive animation, a game, an interactive video or an interactive sound product. The work should demonstrate an understanding of how to apply a range of methods and tools in arriving at a professional solution.</p> <p>Students may explore a concept from a cultural or market perspective that they wish to develop as a proposal to industry. Students developing ideas should cater for the cultural, technical, aesthetic and business aspects of a particular idea and explore all these aspects through sound research methods. Students should be able to create and present a prototype that has a sound basis in technology as well as being appropriate to the needs of the target stakeholders. Such projects should demonstrate an awareness of the market in which the proposed project will operate or be displayed. Prototypes may be aimed at business, cultural, academic or community based environments.</p> <p>Projects can be the product of individual or team effort and in the case of teamwork the project proposed should outline clearly the areas of responsibility for each member of the team.</p> <p>Project Schedule:</p> <ul style="list-style-type: none"> • Discussion sessions and review of preliminary ideas • Student presentation of Ideas (seminars; individual and group reviews) • Paper Prototyping (group/peer reviews) 				

	<ul style="list-style-type: none"> • Prototype Presentation (group/peer reviews) • Final Presentation (assessment)
4	Teaching Methods <ul style="list-style-type: none"> • Coaching • Tutorials, group discussions and peer reviews • Presentation and demonstration
5	Prerequisite Subjects Successful completion of all modules of semester 1-6 (including IP), except two elective modules
6	Assessment Methods Bachelor Project: 75% Colloquium: 25%
7	Prerequisites for CP -
8	Used in Other Courses -
9	Name of Module-responsible and Teaching Professors All professors of IMD

4. Modulbeschreibungen der Wahlpflichtveranstaltungen im 2. bis 6. Semester

W – Wahlpflichtkurse

ID	Workload	Credits	Semester	Frequency	Duration
W_x	125 h	5	2, 3, 4, 6	Each semester	1 Semester
1	Type of Course Elective		Contact Hours 3 SWS / 50 h	Self-Study 75 h	Size of Groups 20
2	<p>Learning Outcomes / Competencies</p> <p>Electives shall enable the student to:</p> <ul style="list-style-type: none"> • Deepen his or her knowledge in specialised media fields or advanced topics and/or • Explore new topics, contexts and/or media foci <p>On successful completion of these modules the student shall be able to:</p> <ul style="list-style-type: none"> • Develop and describe media concepts in a broad cultural and social horizon as well as in adaption to the eventually addressed media genre • Use a professional project management from brief and concept through to implementation and presentation • Use quality control techniques to ensure a professional finish to their product • Use all necessary design abilities to achieve a high quality media product • Use all necessary coding, informatics and technical abilities and skills to achieve a high quality media product • Evaluate and assess the product or service completed from the success and functionality of the design, the technical, but also from a cultural perspective. • Integrate different media and different techniques to a complex product. • Follow an own vision and prove it by a running prototype or product. 				
3	<p>Indicative Module Contents</p> <p>The elective catalogue can generally include all relevant topics in interactive media design, like for instance:</p> <ul style="list-style-type: none"> • Coding, Informatics, Technology • Design in Practice and Theory • Management and Communication • All other relevant topics that should influence an interactive media designer <p>The current catalogue will be issued by the examination board of the study course IMD at the end of the prevenient semester.</p>				
4	<p>Teaching Methods</p> <p>Lecture, seminar, practical and presentation</p>				
5	<p>Prerequisite Subjects</p> <p>-</p>				
6	<p>Assessment Methods</p>				

	Final presentation and documentation
7	Prerequisites for CP -
8	Used in other courses -
9	Name of Module-Responsible and Teaching Professors Andrea Krajewski / Course Coordinator respectively