



JÖNKÖPING UNIVERSITY
School of Engineering

PROGRAMME SYLLABUS
Digital Visualization, 120 credits

Programmestart: Autumn 2016



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Digital Visualization, 120 credits

Digital visualisering, 120 högskolepoäng

Programme code: TGD14

Programmestart: Autumn 2016

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Education Cycle: First-cycle level

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Title of qualification

Higher Education Diploma with Specialisation in Digital Visualization.

Programme overview

Background

There is great potential in the new visualization and media technologies. The need for expertise within the field is noted by the industry's interest in sophisticated information, presentation and marketing productions. The digital techniques compositing and 3D production is used increasingly in most industries. Advertising- and the film industry along with industrial enterprises have realized the benefits of digital production, especially the economic ones. The possibilities for the visual effects that can be created digitally today are very large and new applications are emerging.

Objectives

The programme is designed to prepare the student for a career in production of digital visualization. The format follows industry standard and the courses are divided in accordance with the processes that is included in productions for visual effects in film and advertising. The programme provides technical expertise which will be used in collaboration with others. The core of the education is to promote collaboration with others in the same profession but also with other professionals in the field. Detailed knowledge of the software and skills in areas such as camera technique, cinematography, postproduction with time estimation and approval processes leads the student to become attractive in the labour market. The programme currently has two profiles with clear outputs. The two profiles collaborate closely during the programme and also in working life. The profile Digital Compositing leads to the professional role as a Compositor whose main task is to process the filmed material and integrate digitally generated images of various types in the filmed material. The profile 3D visualization leads to the professional role as a 3D artist whose primary task is to create the digital material that Compositor is to integrate. The two profiles collaborate closely during the programme and in the working life.

Post-graduation employment areas

After two years of study, the student has a complete higher education degree (university degree with a specialization in Digital Visualization) and can begin his/hers professional career as a junior in their profile area. The programme provides theoretical and practical knowledge in order to work with 3D production and digital compositing so well media as manufacturing. Most common for a 3D artist or a compositor is working at a post production company or that they start their own business or works as a freelancer.

Educational concept at the School of Engineering

All educational training at the School of Engineering in Jönköping (JTH), is determined by an educational concept. The concept offer a holistic perspective, where Business Community Contacts, Internationalisation and Entrepreneurial Drive are key words. Besides technical knowledge within the programme, Leadership and Communication, Professional Attitude and Sustainable Development are important parts of the concept.

Business Community Contacts means that JTH has an established collaboration with the business community in various forms throughout the training. An example is the course located directly in the business community (Off campus integrating theory and practice), which is part of all programmes. The aim with this course is to provide the students with an understanding for the future professional tasks, and the ability to relate these to the training.

Internationalisation means that students e.g. are given the opportunity to train languages and intercultural communication through exchanges with foreign universities. JTH has approximately 70 partner universities all over the world, and participates in several international exchange programmes for students. There are opportunities to spend parts of the training abroad and account to the foreign credits in the exam. Due to this student exchange, a great number of courses at JTH are given in English.

Entrepreneurial Drive is received through the holistic perspective of the training programme. Significant is the exchange with the business community, the leadership training, the association with professional work in project based courses, and the economy elements, among other things. Leadership and Communication includes e.g. training in verbal and written communication, project based work, leading and motivating people and also to understand decision processes in companies and organizations.

Professional Attitude comes through basic knowledge in economics, marketing, and business planning. These knowledges are further developed and integrated in technical contexts.

Engineers and technicians with such experiences are useful within a great number of areas in the business community.

Sustainable Development includes understanding of compatibility with a sustainable society and environmental and human aspects in the future productivity and products. The instructions are fully integrated in their technical context and treat social, economical and ecological aspects of sustainable development.

Project based Training is also a part of the educational concept. Assuming responsibility for projects of various sizes frequently occurs as a professional. As a preparatory step, the students are responsible for real projects in connection with the business community in some of the courses.

Student influence is a great and important part in JTH 's continuous quality development. Through student representatives in all boards, councils and decision-making committees, the students actively influence their education.

Objectives

After completion of the programme the student shall meet the learning objectives set out in The Higher Education Ordinance concerning university degree (h), and the learning objectives set by School of Engineering (j). The student shall also have an understanding for life-long learning and the importance to continuously upgrade their skills.

Common learning outcomes

Knowledge and understanding

For degree the student shall

1. demonstrate knowledge and understanding in the principal field (main field) of study, including knowledge of the scientific basis and knowledge of some applicable methods within range, (h)
2. demonstrate knowledge about business (finance, entrepreneurship, business planning, marketing) in relevant activities in their chosen art, (j)

Skills and abilities

For degree the student shall

3. demonstrate the ability to research, collect and critically interpret relevant information to formulate responses to well-defined issues within the major field of study, (h)
4. demonstrate an ability to present and discuss their expertise with various groups, (h)
5. demonstrate the skills required to independently work with certain tasks in the field of study, (h)
6. demonstrate the ability to design products and systems with regard to economic, social and ecological sustainability, (j)
7. demonstrate the ability to apply acquired knowledge in practical work and demonstrate an understanding of their future profession, (j)

Judgement and approach

For degree the student shall

8. demonstrate knowledge of and be capable of dealing with ethical issues in the major field of study, (h)
9. show the ability of an interdisciplinary approach and applying a systems perspective, (j)

Programme-specific learning outcomes

The student shall in addition to the common objectives:

Knowledge and understanding

10. demonstrate an understanding of the demands placed on profile-specific professional role, and demonstrate knowledge of quality aspects in production and delivery of digital material to colleagues and end customer.
11. demonstrate an understanding of techniques and theories on photorealism.

Skills and abilities

12. demonstrate the ability to plan and evaluate production projects by the industry practice in digital visualization.
13. demonstrate skill in producing photorealistic image sequences by independently assess, select and use appropriate technology to meet a given specification.

Judgement and approach

14. demonstrate the ability to analyze and reflect on the creative and technical process in the individual, workgroup, production process and final results when working with end customer.
15. demonstrate the ability to make use of a solution-oriented approach in the production of photorealistic materials.

Contents

Programme principles

The programme comprises 120 credits, most of which consists of courses with theoretical content and practical applications.

The program's approach is based on the three production phases; preproduction, production and postproduction. During the first year, students are guided through these stages in order to understand and translate both theoretical and practical knowledge for the projects in year 2, which links all three phases. The program includes profile courses that are divided into three parts spread over the two years, in which the student learns how professional role-specific software and tools are used within production. Initially, the student gets the opportunity to explore different professional roles in the industry by meeting various professional skills that demonstrate commonly used software and describes various productions within digital visualization. Throughout the course, the student gets knowledge within the methodology, structure and quality assurance.

We work exclusively with teachers that are professionals within the industry. The programme remains current and the students get an opportunity to develop their network. Through various collaborative projects the industry is constant present within the courses. The Industrial placement courses are extensive and make up a quarter of the training.

The entrepreneurial spirit permeates the education and in addition to the elements contained in the programme content support is offered to start their own business with business coaching. The training is based largely on the collaboration between the two profiles and elements of group

dynamics and leadership prepares students for project work in the programme. Project based learning is the most common form of instruction during the programme.

Written and oral communication is standard feature of all project work and is trained continuously.

Businesslike training return during the programme and provides an overview of the production and how various products and services presented.

In various courses sustainable development is integrated and it covers basic theories of human and environmental conditions in the visual effects and problematizes these.

Student participation permeates the programme at all levels. Every other week meetings are conducted with the programme director and / or education coordinator where all students are present to ensure that student influence continuously affect education and its content. Student representatives from both profiles sit in on management meetings where the training content appears and is improved by representatives from the industry. Twice a year, individual interviews are conducted with all students to add a dimension in student influence. Every other week an anonymous evaluation is conducted which is used, mainly ongoing in the programme but also as a basis for longer-term development.

The training is conducted in close collaboration with the industry and as soon as Year 1 projects are implemented with various companies of in the industry. In these projects, the students establish contacts for their future career and exchange knowledge and experience with various industry executives. The programme works closely with the industry and using lecturers that are directly connected to the industry, which further contributes to a company-related programme. The students are encouraged to create and compile a unique selling showreel (portfolio) during the programme. This showreel is intended to showcase the students' skills to for example, prospective employers, thereby increasing employability. The student is also asked to take initiative, and use the school's resources to carry out tasks and their own projects within the programme's framework. The programme is conducted in English.

The industry placement courses include 20 weeks and can be implemented either nationally or internationally. The programme ends with a final project work in which the student performs a relevant advanced work in the field of digital visualization. In these courses the student uses and deepen their previously acquired knowledge and skills.

Project work is applied in most of the courses in order to promote both independent and responsible approach in the ability to collaborate and so to increase employability. Larger and smaller projects are therefore conducted throughout the program and sometimes the projects are interdisciplinary.

Programme progression

During year 1 provides basic theoretical and practical knowledge of digital visualization. During year 2, the knowledge and skills also the ability to research and evaluate knowledge deepens, in a relevant scientific level.

The first term in Year 1 is largely focused on providing basic knowledge in various areas of digital visualization. During the second term in Year 1 a major collaborative project is conducted with the emphasis on tutoring. Both the theoretical and technical aspects are applied in the form of collaboration which further adds a dimension of the problems involved.

The emphasis of the programme is shifted in the spring from individual oriented to group-oriented. During the first term of Year 2, the students work in more collaborative but with demands on time estimation, budgeting, production processes and projects from a client perspective. The third term ends with another collaborative project where the quality of production is in the center. In the projects, the student will critically examine their work and analyze and reflect on some selected problem formulations. Within the projects the ability to work both independently and in a team and to take responsibility is trained, which provides a preparation for the coming work demands and challenges. When the third term begins the final project work starts and is finalized before the off campus integrating theory and practice course. The off campus integrating theory and practice course may be conducted either nationally or internationally. The course aims to deepen, strengthen and broaden the skills acquired during

training, and linking education.

The progression in digital visualization and the profiles in the programme is guaranteed partly by the increased demand for independence and understanding of the client perspective, which includes the own contribution to the production process, budgeting and optimizing the delivery quality towards the clients level of requirement. The student is also trained in a scientific approach during the first courses to the gradually become more familiar with the subject and its scientific basis. In the program's advanced courses, the student should be able to independently identify and solve problems also carry out project assignments within a given framework.

Each course in the programme is continuously evaluated and revised annually and courses may change during the programme.

Links between program objectives and the courses are given in separate documents.

Block 1 corresponds profile 3D visualization

In block 1 the course 3D Technical Direction III or III 3D Look Development is chosen

Block 2 corresponds profile Digital compositing

Courses

Mandatory courses

Course Name	Credits	Main field of study	Specialised in	Course Code
Introduction to CGI (Computer Generated Imagery)	6		G1N	TCGG13
Digital Image Management	6		G1F	TDBK14
Final Project Work in Digital Visualization	9		G1E	TEVM15
Industrial Placement Course in Digital Visualization	27		G2F	T1NN18
Post Production, Flows and Processes I	6		G1F	TPFK14
Post Production, Flows and Processes II	9		G1F	TF2K14
Pre Production	6		G1F	TPEK13
Research Methods and Communication	6		G1N	TVEG13

Elective courses

Course Name	Credits	Main field of study	Specialised in	Course Code
3D Animation ¹	6		G1F	T3AK14
3D I ¹	9		G1N	T3DG14
3D II ¹	12		G1F	T3DK14
3D III Look Development ¹	9		G1F	T33K14
3D III Technical Direction ¹	9		G1F	TTDK14
Compositing I ²	9		G1N	TC1G14
Compositing II ²	12		G1F	TCMK14
Compositing III ²	9		G1F	TC3K14
On Set Supervision 3D ¹	9		G1F	TO3K15
On Set Supervision DC ²	9		G1F	TODK15
Rotoscoping and Plate Preparation ²	6		G1F	TRFK14

¹ Elective block 1

² Elective block 2

Programme overview

Year 1

Semester 1		Semester 2	
Period 1	Period 2	Period 3	Period 4
Introduction to CGI (Computer Generated Imagery), 6 credits	Pre Production, 6 credits	Digital Image Management, 6 credits	Post Production, Flows and Processes I, 6 credits
<i>3D I</i> ¹ , 9 credits	<i>3D Animation</i> ¹ , 6 credits		<i>On Set Supervision 3D</i> ¹ , 9 credits
<i>Compositing I</i> ² , 9 credits	<i>Rotoscoping and Plate Preparation</i> ² , 6 credits		<i>On Set Supervision DC</i> ² , 9 credits
	<i>3D II</i> ¹ , 12 credits		
	<i>Compositing II</i> ² , 12 credits		

Year 2

Semester 3		Semester 4	
Period 1	Period 2	Period 3	Period 4
Post Production, Flows and Processes II, 9 credits		Industrial Placement Course in Digital Visualization, 27 credits	
<i>3D III Look Development</i> ¹ , 9 credits	Research Methods and Communication, 6 credits		
<i>3D III Technical Direction</i> ¹ , 9 credits	Final Project Work in Digital Visualization, 9 credits		
<i>Compositing III</i> ² , 9 credits			

¹ Elective block 1

² Elective block 2

Teaching and examination

All teaching is conducted in English. Examination is held in each course or parts of courses. Assessment methods and grading is apparent from the syllabus. Programme overview shows the programme's principled approach for all grades, and may be edited if necessary during the programme. For updated programme review see <http://www.jth.hj.se>.

Prerequisites

General entry requirements and English 6 or English B.

Continuation Requirements

In order to begin the second year, at least 30 credits from the programme's first year must be completed.

Qualification Requirements

To obtain a Higher Education Diploma with Specialisation in Digital Visualization, students must complete a minimum of 120 credits in accordance with the current programme syllabus.

Quality Development

Management councils, Head of Programmes, teachers and students work together with the development of the programmes and courses. All students get the opportunity to do a course evaluation after each completed course and before graduation time. The results of the evaluation are presented to the Head of Programmes, Head of Departments, Course Coordinators and to the Director of Education for further development.

Head of Departments, or corresponding, and Head of Programmes raise questions regarding the programme development within the Council of Programmes.

Representatives of students, training manager and counselor gather continuously to discuss the recently completed programme courses.

The chairman of students Educational Committee is a regular member in Council of Education.

Other Information

Information regarding eligibility

If formal competence is missing, the applicant's substantial competence is tested if the applicant has acquired equivalent knowledge in some other way. The aim is to assess the collective competence and if the applicant has the opportunity to meet selected training. Substantial competence can be about knowledge and experience from working life, long-term mobility or other courses.

Course included in the programme can be read as a separate course, subject to availability.

Prerequisites are stated in the syllabus.

Admission is under "Admission arrangements for first and second level" at Jönköping University.

This syllabus is based on "Regulations and guidelines for education at undergraduate, postgraduate and doctoral studies at Jönköping"