



"Voin ulkoistaa
elämässäni kirjanpidon
ja siivouksen.
Luovuuden haluan
sisäistää."

Jere, kulttuurialan opiskelija, Lahti

STUDY GUIDE 2011 - 2012

**Lahti University of Applied Sciences
Institute of Design and Fine Arts**

Degree programme in Design 240 ECTS
Specialisation Line in the Design Industry
Vehicle Design

DEGREE PROGRAMME IN DESIGN

Qualification

Polytechnic Degree in Culture and Arts

Degree Title

Bachelor of Crafts and Design (Muotoilija AMK)

Scope

240 ECTS / 4 years

Specialisation lines and major subjects

Specialisation Line in Applied Art

Jewellery Design

Specialisation Line in the Design Industry

Vehicle Design

Fashion Design

Package Design and Graphics

Interior Architecture and Furniture Design

Industrial Design

A successful designer needs aesthetic understanding; skills in gathering and applying information; teamwork and communication skills; entrepreneurship competence; and creative problem-solving skills. Professionals in the various fields of design industry create serially produced items for everyday use.

Studies

Students follow the curriculum established for their major subject. The curriculum in force at the time of the student's first year of study is applied when evaluating the student's completion of requirements. In addition, students have the opportunity to complete some of their studies abroad, participating in various exchange programmes. Credit transfer and substitution based on earlier studies or experience is possible.

Basic studies required of all students at the Lahti University of Applied Sciences include language and communication studies and entrepreneurship courses. Required arts studies consist of courses in the visual arts, history and cultural theory. Studies taken elsewhere (such as at other institutions of higher learning) may compensate for some courses.

Basic studies are completed primarily during the first two years of study. Professional studies are specific to each major subject and generally begin after the first year of study. Elective courses can be selected from the student's own degree programme, other degree programmes at the Lahti University of Applied Sciences, or from other polytechnics or institutions of higher learning. Elective studies can also include courses taken abroad as an exchange student. Half of the professional practice is completed through participating in supervised business co-operation projects, and half through internships at suitable companies in Finland and abroad. The thesis is a supervised, independently created body of work accompanied by seminar sessions and a maturity test.

DEGREE PROGRAMME IN DESIGN
Specialisation Line in the Design Industry
Major in Vehicle Design 240 ECTS

The education in Vehicle Design focuses on the development of design skills. During their studies, students learn the theory of vehicle design. The aim is also to develop the students' constructive and aesthetical thinking, design and communication skills, and ability to apply theory in practice. Students are able to take into account the appearance, function and economic requirements from the points of view of the user, manufacturer and the environment. The aim is to teach students an overall approach to product development. To accomplish this and be successful in their profession, students need to be willing and able to constantly look for new information, as well as co-operate with experts in other fields.

The studies prepare students to pursue a career in vehicle design. Graduates in vehicle design are able to further their studies and follow the professional development of their field. Vehicle design studies cover private transport and public passenger and freight transport. A special sub-field is the design of work and commercial vehicles. A large part of the degree takes the form of various industry partnership projects.

Degree structure for Vehicle Design

BASIC STUDIES SPECIFIC TO THE DEGREE PROGRAMME 47 ECTS	Year				
	1	2	3	4	Σ
University of Applied Sciences common basic studies 14 ECTS 01SUO Professional communication <ul style="list-style-type: none"> • includes 01SUOA Professional communication (3 ECTS) and 01PINFO Information literacy (1 ECTS) 01RUO Swedish language 3 ECTS <ul style="list-style-type: none"> • 01RUOK written skills (1.5 ECTS) • 01RUOS oral skills (1.5 ECTS) 01ENG Business English basics 01PJYT Introduction to entrepreneurship	1	3			14
Visual studies 1 05PVISUAMUO Visual design 05PVÄRIH Colour	9 3				12
Visual studies 2 05PPIMA Drawing and painting 05PELÄVÄ1 Life drawing I 05PPLASTSOM1 Sculpture I 05PLASTSOM2 Sculpture II		3 3 3	3		12
History and theory of art 05PYLTAHI General art history 05PTAHIM Modern and contemporary art 05PMUOHIST History of design	3 3	3			9

PROFESSIONAL STUDIES 133 ECTS	Year				
	1	2	3	4	Σ
Introduction to design					12
05JOHDMUOP Introduction to design studies	3				
05MUTEKÄPA Design theory and concepts	3				
05MUOPRO1 Design process 1	3				
05PÄÄTUOP1 Supporting major studies 1	3				
Design documentation					10
05DIGTOILAI Digital environments and hardware	1				
05MUOPIIR Design drawing	4				
05OHJMUVA Software	5				
Materials workshops					15
05MATMET Materials workshop, metal	5				
05MATMUOVI Materials workshop, plastic	5				
05MATEPUU Materials workshop, wood	5				
Multi-faceted design					17
05MUOPRO2 Design process 2		3			
05KÄYTMUPA User-centred design		5			
05YMPMUPA Eco-efficient design		4			
05PÄÄTUOP2 Supporting major studies 2		5			
Design presentation 1					15
05MUOTPORT Designer's portfolio		2			
05ESTEKMUOP Design drawing and presentation techniques		2			
05MUODIGIVK Digital photography for the designer		2			
05KÄYOHJ Graphic software		4			
05MALLVI1 Modelling and visualisation software 1		5			
Design workshop					14
05MUPAME Design workshop, metal		3			
05MUOTMUOVI Design workshop, plastic		3			
05MPAJOMT Design workshop, vehicle design models			3		
05KOKEELPAJ Experimental design workshop			5		
Product development and the designer					23
05TUOKEHPR Product development process			5		
05PROJHALL Project management			3		
05TAUSTA Research and knowledge			5		
05MUOTKANS Cross-cultural design			5		
05PÄÄTUO3PA Supporting major studies 3			5		
Design presentation 2					10
05KLSAJO User interface design (human-machine interface)			4		
05MALLVI2 Modelling and visualisation software 2			3		
05MUOCADCAM CAD/CAM			3		
Professional profile					17
05STRAMU Strategic design				4	
05MUOTIDEPA Designer identity				5	
05TULEVTPA Futures research				5	
05PÄÄTUO4PA Supporting major studies 4				3	

Elective studies 15 ECTS	Year				
	1	2	3	4	Σ

Elective studies					15
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PROFESSIONAL PRACTICE 30 ECTS	Year				
	1	2	3	4	Σ
Professional practice I Internship					15
Professional practice II Business co-operation projects, R&D					15

THESIS 15 ECTS	Year				
	1	2	3	4	Σ
Thesis 05POPINNÄYT Thesis				15	15

BASIC STUDIES SPECIFIC TO THE DEGREE PROGRAMME 47 ECTS

University of Applied Sciences required basic studies 14 ECTS

As specified in the general curriculum of the Lahti University of Applied Sciences. The course content and descriptions can be found in the study guide for common basic studies at the Lahti University of Applied Sciences.

Visual studies 1, 12 ECTS

Module-specific learning outcomes

Students

- know how to use their sense of sight as a basis for creative thinking
- know how to express their thoughts through a visual medium
- have a creative, independent attitude towards the artistic management of design and communication processes
- know how to use basic visual elements in a controlled, deliberate manner
- know how to analyse and interpret visual culture
- know how to use key concepts in visual expression correctly and vividly
- see their professional identity as part of the context of design and visual communication.

05PVISUAMUO VISUAL DESIGN 9 ECTS

Learning outcomes

Students

- can make detailed, original visual observations
- have increased their depth of understanding and analysing what they see
- have practised using their visual thinking in creative tasks
- know how to make use of various ideation methods
- know how to present their visual creations to peer audiences and evaluate them critically
- recognise the artistic nature of a professional design process
- can use their improved visual and artistic general knowledge as a basis for tasks related to design and communication.

Contents (the focus depends on the major subject)

Natural forms and man-made forms; the methods of image construction; classical and expressive aesthetics; allegory, metaphor and symbol; image as a semiotic sign; classical myths and narration.

Methods and assessment

Introductions and lectures, supervised assignments and critique sessions.

Excursions to exhibitions.

Graded on a scale from 1 to 5.

Materials

Literature and exam dates are provided at the beginning of the course.

05PVÄRIH COLOUR 3 ECTS

Learning outcomes

Students

- observe and assess colours and chromatic structures with increased awareness
- understand the impressive, expressive and symbolic characteristics of colour
- know Itten's theory of 7 colour contrasts and know how to apply it creatively
- understand the laws of colour interaction and know how to use them
- know some of the elements of classical colour theory and their applications in art and design
- can express themselves and convey both aesthetic and communicative qualities through colour.

Contents

Itten's theory of 7 colour contrasts; Itten's concept of colour harmonies; the aesthetic, psychological and symbolic bases of colour expression; Albers' concept of colour relativity and interaction.

Methods and assessment

Introductions and lectures, supervised assignments and critique sessions.

Graded on a scale from 1 to 5.

Materials

Albers, J. 1998. Värien vuorovaikutus. Vapaa Taidekoulu, Helsinki.

Itten, J. 1991. Värit taiteessa. Taide, Helsinki.

Huttunen, M. Värit pintaa syvemmältä.

Visual studies 2, 12 ECTS

Module-specific learning outcomes

Students

- know the anatomical structure, rhythm and movement of the human body
- are able to analyse their visual perceptions as a whole
- know how to express their associations and thoughts through the medium of sculpture
- understand the character and role of composition, rhythm and movement in an image
- have an increased ability to generate independent, artistically insightful perceptions and ideas
- are more mature in their personal artistic expression
- use their sense of sight with increased criticism and analysis.

05PPIMA DRAWING AND PAINTING 3 ECTS

Learning outcomes

Students

- demonstrate a grasp of the essence of contemporary art through their own work
- demonstrate a grasp of the significance of visual analysis and visual thinking in finding solutions to visual problems.

Contents

Giving concrete visual form to the students' own visual perceptions and ideas.

Methods and assessment

Individually supervised assignments and critique sessions.

Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

05PELÄVÄ1 LIFE DRAWING I, 3 ECTS

Learning outcomes

Students

- know how to observe
- understand the structure of the human body
- have developed their understanding of forms, proportions and spatial thinking
- know how to analyse what they see
- are skilled in using various drawing instruments
- are encouraged to express themselves visually.

Contents

Croquis drawings and large-scale studies of life models; anatomy basics such as bones and superficial muscles; slideshows and critique sessions.

Methods and assessment

Assignments, 80% obligatory presence, critique session.
Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

05PLASTSOM1 SCULPTURE I, 3 ECTS

Learning outcomes

Students

- understand the significance of space, light and movement in three-dimensional work
- know how to use basic materials, instruments and methods
- understand the significance of the interaction of form and material
- know how to analyse both their individual formal idiom and that of their environment
- know how to apply their skills and knowledge in targeted work in their respective fields.

Contents

Familiarisation with the basics of three-dimensional composition and design, materials, and methods, through supervised assignments. Recognition of the problems involved in the transition between two- and three-dimensionality.

Methods and assessment

Assignments as instructed.

Critique sessions.

Materials

Information to be provided at the beginning of the course.

05PLASTSOM2 SCULPTURE II, 3 ECTS

Learning outcomes

Students

- understand the theory and language of the visual arts
- are capable of original artistic expression
- know the latest phenomena and movements in sculpture
- have the courage and sensitivity to look for unconventional solutions to artistic problems
- are familiar with the methods and problems involved in mounting exhibitions.

Contents

The course explores conceptual art and contemporary art philosophy through lectures and audiovisual materials. The course also includes visits to exhibitions. Students become familiar with contemporary phenomena in sculpture through supervised assignments and are encouraged to find their own expressive idiom. Students present their assignments in exhibitions, which helps to deepen and elaborate their understanding of artistic work.

Methods and assessment

The assignments issued must be acceptably completed.

Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

History and theory of art 9 ECTS

Module-specific learning outcomes

Learning outcomes

Students

- know and recognise the overall development of Western visual arts, architecture and design
- understand the historical and collective basis of art, communication and design
- are able to analyse and interpret the visual tradition of the field in relation to their own work
- have increased competence in interpreting images in writing.

05PYLTAHI ART HISTORY 3 ECTS

Learning outcomes

Students know the development of Western art from prehistory to the early 19th century and the basic concepts of art history research.

Contents

The history of Western art and architecture from prehistory to the early 19th century.

Methods and assessment

Lectures, exam and study trip.

Graded on a scale from 1 to 5.

Materials

Online materials on the intranet.

Honour – Fleming. 1992 (and later editions) Maailman taiteen historia. Helsinki: Otava.

05PTAHIM MODERN AND CONTEMPORARY ART 3 ECTS

Learning outcomes

The aim is to open up different vistas in art and to link phenomena in art to the student's individual expression.

Students

- know and recognise the development of visual arts from the late 19th century to the present day.

Contents

The developments, movements and pivotal representatives of modern art, focusing on painting; the concepts and expressive devices of contemporary art and their influence in art.

Prerequisites

Art history (3 ECTS) or a corresponding course.

Methods and assessment

Lectures, study trip and analysing works of art.

Graded on a scale from 1 to 5.

Materials

Online materials on the intranet and

Sederholm. 2000. Tämäkö taidetta? Porvoo: WSOY.

05PMUOHIST HISTORY OF DESIGN 3 ECTS

Learning outcomes

Students

- know and recognise the periods, characteristics and pivotal representatives of Finnish and international design

- recognise the significance of design history topics for their particular professional field

- know the social background influencing design and the links between the visual arts and design.

Contents

Basic concepts. Familiarisation with the periods and background of Finnish and international design from the emergence of the arts and crafts movement to contemporary design. Discussion of the sub-areas of design from the point of view of the history of the profession.

Methods and assessment

Lectures and extensive paper.

Graded on a scale from 1 to 5.

Materials

Online materials on the intranet and

Seppälä-Kavén. 2008. Muodon ajat. Turku: Turun ammattikorkeakoulu

PROFESSIONAL STUDIES 133 ECTS

Introduction to design 12 ECTS

Module-specific learning outcomes

Students

- are familiar with the theoretical basis, terms and concepts of design, as well as the job description of a designer

- understand the content of the design process

- know how to use various ideation techniques and problem-solving skills

- know the basics of sound interaction skills.

05JOHDMUOP INTRODUCTION TO DESIGN STUDIES 3 ECTS

Learning outcomes

Students

- understand the basic principles related to the degree programme

- orient themselves towards the world of the designer and its sub-fields

- are familiar with the basic processes involved in design and team work

- can produce ideas and solve problems in collaboration with other design majors.

Contents

Supervised, creative teamwork workshops. Lectures by experts in design major subjects. Assignments.

Methods and assessment

Lectures, assignments, group assignments. Feedback sessions. Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

05MUTEKÄPA DESIGN THEORY AND CONCEPTS 3 ECTS**Learning outcomes**

Students

- understand the theoretical points of departure and foundations of design
- know basic concepts and how to use them deliberately
- are able to work on the basis of theory and know how to apply it to practice.

Contents

Supervised workshop, lectures, exam and excursion.

Methods and assessment

Participation in a workshop and attending lectures. Critique discussion summing up the contents. Graded on a scale from 1 to 5.

Study materials

Information to be provided at the beginning of the course. Examples of course literature:

Kettunen, I. 2001. Muodon palapeli. WSOY.

Papanek, V. The Green Imperative.

Papanek. Turhaa vai tarpeellista.

Stuart Macey, Geoff Wardie. H-Point: The Fundamentals of Car Design & Packaging.

05MUOPRO1 DESIGN PROCESS 1, 3 ECTS**Learning outcomes**

Students

- understand the basic principles of design processes and know how to apply them to their own work
- demonstrate improved ideation and problem-solving skills, self-expression and creative thinking
- know the basics of teamwork
- know how to apply three-dimensional prototype methods.

Contents

Supervised workshops. Lectures. Basics of building models. Assignment in concept design (supporting major subject studies can be integrated if applicable).

Methods and assessment

Participation in a workshop and attending lectures. Feedback session. Process management and passed assignment. Graded on a scale from 1 to 5.

Study materials

Information to be provided at the beginning of the course. Examples of course literature:

Keinonen, T. Tuotekonseptointi.

Kettunen, I. 2001. Muodon palapeli. WSOY.

05PÄÄTUOP1 SUPPORTING MAJOR STUDIES 1, 3 ECTS**Learning outcomes**

Students

- show improved competence during professional special courses.

Contents

Complementary studies fulfilling the development needs of the group. Supporting major subject studies can be integrated with the assignments if applicable. Possible (alternative) content examples:

- making wax models or mock-ups
- computer-aided 2D design drawing.

Methods and assessment

Participation in a workshop. Lectures. Process management. Assignment (must be passed). Feedback session. Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

Design documentation 10 ECTS

Module-specific learning outcomes

Students

- know how to visually illustrate and present the various phases of the design process
- recognise the significance of personal performance in a presentation situation
- recognise the significance of research and process documentation
- are familiar with the software required in producing presentation materials
- know how to use digital technology in documentation
- understand the basic communication tools and visual communication practices in their field.

05DITOILAI DIGITAL ENVIRONMENTS AND HARDWARE 1 ECTS

Learning outcomes

Students

- are familiar with the university's hardware and data systems
- know the basics of using a digital camera and know how to scan prints, slides, materials and small items with flatbed and slide scanners
- know how to use the university's laser printers.

Contents

IT hardware and peripherals, data networks, saving methods and common practices. Digital presentation materials. Basics of digital imaging. Printing practices and materials.

Methods and assessment

Participating in lectures and contact tutoring. Passed assignment or skills test. Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

05MUOPIIR DESIGN DRAWING 4 ECTS

Learning outcomes

Students

- know how to create freehand images of their ideas and designs
- know how to create and interpret technical drawings
- understand the significance of presentation techniques in conveying design ideas.

Contents

Students practise drawing and interpreting images during this course, which focuses on freehand drafting, ideation and skills required in technical drawing. Mastering basic methods, tools and equipment through drawing and experimenting with presentation drawings. Basics of freehand drawing and sketching. Necessary skills in creating and interpreting technical documents.

Methods and assessment

Lectures and contact education. Acceptably completed assignment portfolio. Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course. Examples of course literature:

Pipes, Alan. *Drawing for Designers* (2007)

Koncelik, Joseph A. & Reeder, Kevin. *Conceptual Drawing* (2008).

Heikkilä, Matti. *Tekniset piirustukset*. WSOY 2008. ISBN10: 9510264725.

05OHJMUVA SOFTWARE 5 ECTS

Learning outcomes

Students

- know the basics and principles of graphic design required in the field
- are familiar with image editing, vector graphics and layout software required in producing presentation materials
- know how to produce simple digital presentations.

Contents

Basics of Adobe Photoshop, Illustrator and InDesign. Content-related basics of presentation graphics. MS PowerPoint as the designer's presentation tool. If applicable, students may produce materials to support their major subject assignments.

Methods and assessment

Attendance in lectures and contact education, supervised assignments. Learning portfolio or skills test. Graded on a scale from 1 to 5.

Materials

Software manuals; detailed information to be provided at the beginning of the course.

Materials workshops 15 ECTS

Module-specific learning outcomes

Students

- have basic knowledge of materials and how to work them
- know how to safely use machinery and hand tools for working various materials
- are familiar with surface treatment techniques and materials
- know the basics of joining techniques for various materials and material-specific structures.

05MATMET MATERIALS WORKSHOP, METAL 5 ECTS

Learning outcomes

Students

- have basic knowledge of metals and how to work them
- know how to safely use machinery and tools for working metal materials
- are familiar with surface treatment techniques and materials
- have basic knowledge of how to join metals and typical metal structures.
- know how to carry out their own design assignments under supervision.

Contents

The course aims at familiarising students with the most common materials involved in the manufacture of metal products, their characteristics and typical structures. In addition, students become familiar with the machinery and hand tools needed when working various materials, and with their safe use. During the course, students learn about common joining and surface treatment materials used with metals and related job safety. Students complete various exercises with metals; the tasks can be integrated with major subject courses.

Methods and assessment

Lectures, demonstrations, assignments, critique sessions. Exam; required literature to be announced later. General lecture on job safety at materials workshops for all participants of the module. Graded on a scale from 1 to 5.

Study materials (examples of course literature)

Lepola, Makkonen. Hitsaustekniikat ja teräsrakenteet.

Maaranen. Koneistustekniikat.

Rautaruukki. Ohutseinäputkikäsikirja.

Lepola, Makkonen. Materiaalit ja niiden käyttö.

05MATMUOVI MATERIALS WORKSHOP, PLASTIC 5 ECTS

Learning outcomes

Students

- have basic knowledge of the most common plastics, their uses and working methods
- know the safe use of machines and tools used in working and shaping plastics
- are familiar with surface treatment techniques and materials of plastics
- know the basics of the joining techniques and typical structures of plastics.

Contents

The course aims at familiarising students with the most common materials involved in the manufacture of plastic products, their characteristics and typical structures. In addition, students become familiar with the machinery and hand tools needed when working various materials, and with their safe use. During the course, students learn about common joining and surface treatment materials used with plastics and related job safety. Students complete various exercises with plastic materials; the tasks can be integrated with major subject courses.

Methods and assessment

Lectures, demonstrations, assignments, critique sessions. Exam; required literature to be announced later. General lecture on job safety at materials workshops for all participants of the module.

Graded on a scale from 1 to 5.

Study materials (examples of course literature)

Pasi Järvinen: Uusi muovitieto (2008)-

05MATEPUU MATERIALS WORKSHOP, WOOD 5 ECTS

Learning outcomes

Students

- have basic knowledge of materials and how to work them
- know how to safely use machinery and tools for working wood materials
- are familiar with surface treatment techniques and materials for wood and wood-based materials
- have basic knowledge of joining wood and wood-based materials and their typical structures
- know how to carry out their own design assignments under supervision.

Contents

The course aims at familiarising students with the most common materials involved in the manufacture of wooden products, their characteristics and typical structures. In addition, students become familiar with the machinery and hand tools needed when working various materials, and with their safe use. During the course, students learn about common joining and surface treatment materials used with wood and wood-based materials and related job safety. Students complete various exercises with wood materials; the tasks can be integrated with major subject courses.

Methods and assessment

Lectures, demonstrations, assignments, critique sessions.

Exam; required literature to be announced later.

General lecture on job safety at materials workshops for all participants of the module.

Graded on a scale from 1 to 5.

Study materials (examples of course literature)

Siikanen. Puurakentaminen.

Keinänen, Tahvanainen. Pohjolan jalot puut.

Multi-faceted design 17 ECTS

Module-specific learning outcomes

Students

- have widened their skills required in the design process
- understand various approaches to design
- know the principles of user-centred design
- understand the significance of ecological and commercial points of departure in design
- can assess design projects from the point of view of materials and manufacturing technology.

05MUOPRO2 DESIGN PROCESS 2, 3 ECTS

Learning outcomes

Students

- show improved understanding of design processes and working methods
- understand various approaches to design
- show improved understanding of materials and manufacturing.

Contents

Deepening process and method skills gained earlier. Assignment: an innovative design concept and / or participation in a design competition. Deepening knowledge of materials and manufacture technology. Supporting major subject studies can be integrated with the assignments if applicable.

Methods and assessment

Attending lectures, participation in workshops and tutoring. Assignment (must be passed). Critique discussion summing up the contents. Graded on a scale from 1 to 5.

Study materials

Information to be provided at the beginning of the course. Examples of course literature:

Ulrich & Eppinger. 2003. Product Design and Development. Third edition.

05KÄYTMUPA USER-CENTRED DESIGN 5 ECTS

Learning outcomes

Students

- know the principles of user-centred design

- understand the role of applied ergonomics in design
- understand the role of research methods in user-centred design
- understand the key requirements of vehicle control systems
- know how to apply user-centred research knowledge in design.

Contents

Basics and methods of user-centred design. Basics and definitions of target group identification. Sources of user information. Basics of applied ergonomics.

Methods and assessment

Attending lectures, participation in workshops and tutoring. Assignment (must be passed). Critique discussion summing up the contents.

Graded on a scale from 1 to 5.

Study materials

Information to be provided at the beginning of the course. Examples of course literature:

Keinonen, T. Ed. 2000. Miten käytettävyys muotoillaan? Helsinki: The University of Art and Design Helsinki. Nokia Oyj.

Kuutti, V. 2003. Käytettävyys, suunnittelu ja arviointi. Talentum. ISBN: 951-762-835-8.

Pantzar, M. 1996. Kuinka teknologia kesytetään. Kulutuksen tieteestä kulutuksen taiteeseen. Helsinki: Hanki ja jää.

Huotari, P., Laitakari-Svärd, I., Laakko, J., Koskinen, I. Käyttäjakeskeinen tuotesuunnittelu.

05YMPMUPA ECO-EFFICIENT DESIGN 4 ECTS

Learning outcomes

Students

- understand the principle of environmental efficiency
- know how to apply new, eco-efficient technologies, methods and practices
- understand the special characteristics of the development of eco-efficient products
- know how to integrate eco-efficiency into the design process.

Contents

Principles of environmental efficiency. Focus areas include applied research, new materials, new technologies, business competence and project management. Eco-efficient product development. The significance of design from environmental and business-related points of view.

Methods and assessment

Attending lectures, participation in workshops and tutoring. Assignment (must be passed). Critique discussion summing up the contents.

Graded on a scale from 1 to 5.

Study materials

Information to be provided at the beginning of the course.

05PÄÄTUOP2 SUPPORTING MAJOR STUDIES 2, 5 ECTS

Learning outcomes

Students

- show improved competence during professional special courses.

Contents

Complementary studies fulfilling the development needs of the group. Supporting major subject studies can be integrated with the assignments if applicable. Possible (alternative) content examples:

- aerodynamics and the design of vehicle surfaces
- model building.

Methods and assessment

Participation in a workshop. Lectures. Process management. Assignment (must be passed). Feedback session.

Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

Design presentation 1, 15 ECTS

Module-specific learning outcomes

Students

- understand the role of visual expression as the designer's instrument
- know the basics of product photography
- know how to apply the basics of advertising and information-related graphics

- know how to create a presentation event consisting of multiple forms
- demonstrate CAD and graphic software skills needed for creating presentation materials
- are able to make their visual communication skills and knowledge part of their routine
- can create a portfolio presenting the results and processes of their work.

05MUOTPORT DESIGNER'S PORTFOLIO 2 ECTS

Learning outcomes

Students

- can create a portfolio presenting their work
- understand the requirements and cost structures of printing processes
- know about various printing materials.

Contents

The contents and objectives, presentation forms and formats of a designer's portfolio and their industrial and cultural differences. International presentation methods for designers. Graphic printing technology. The influences of the image, illustration, colour and typography in communicative expression.

Methods and assessment

Participation in lectures and contact tutoring. Passed learning journal.

Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

05ESTEKMUOP DESIGN DRAWING AND PRESENTATION TECHNIQUES 2 ECTS

Learning outcomes

Students

- demonstrate deeper skills in the visual field and presentations they gained the previous year
- know how to produce detailed freehand image collections of their designs
- know the possibilities and limitations of freehand presentation techniques
- demonstrate basic professional visual expression skills.

Contents

Improving and polishing the presentation technique skills gained during the previous module.

Methods and assessment

Participation in lectures and contact tutoring; passed portfolio.

Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course. Examples of course literature:

The Art of Star Wars.

Car Styling Magazine.

Auto & Design Magazine.

Pipes, Alan. Drawing for Designers (2007)

Eissen, Koos & Steur, Roselien. Drawing techniques for product designers. (2008).

Koncelik, Joseph A. & Reeder, Kevin. Conceptual Drawing (2008).

05MUODIGIVK DIGITAL PHOTOGRAPHY FOR THE DESIGNER 2 ECTS

Learning outcomes

Students

- know how to produce and use photographs in design presentations
- know the basics of studio photography.

Contents

Creative photography and photography technology. A studio photography workshop during which students become familiar with such topics as the basics of digital product photography and visual documentation.

Methods and assessment

Participation in the workshop and lectures. Passed assignments. Critique discussion summing up the contents.

Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

05KÄYOHJ GRAPHIC SOFTWARE, 4 ECTS

Learning outcomes

Students

- show improved skills in graphic software
- can produce simple product sheets
- can design, produce and create a layout for a portfolio presenting the results and processes of their work.

Contents

Advanced skills in Adobe Photoshop, Illustrator and InDesign. Creating PDF presentations. If applicable, students may produce materials to support their major subject assignments.

Methods and assessment

Participating in lectures and contact education. Passed assignments or skills tests.

Graded on a scale from 1 to 5.

Materials

Software manuals; detailed information to be provided at the beginning of the course.

05MALLVII MODELLING AND VISUALISATION SOFTWARE 1, 5 ECTS**Learning outcomes**

Students

- know how to use 3D software to create various models needed in design projects
- know how to produce 3D visualisations of rendered geometries.

Contents

The basics of 3D modelling and visualisation, as well as CAD/CAM software. If applicable, students may produce materials to support their major subject assignments.

Methods and assessment

Participating in lectures and contact education. Passed assignments or skills tests.

Graded on a scale from 1 to 5.

Materials

Software manuals; detailed information to be provided at the beginning of the course.

Design workshop 14 ECTS**Module-specific learning outcomes**

Students

- know how to choose the materials best suited to each function
- know how to choose the manufacture techniques best suited to the object being designed and its material
- know how to design functional, manufacturable, well-designed models and prototypes of feasible materials
- show improved knowledge in integrating visualisation, modelling and manufacturing.

05MUPAME DESIGN WORKSHOP, METAL 3 ECTS**Learning outcomes**

Students

- show improved skills, building on the Materials workshop on metals
- demonstrate deeper skills in using and applying the production and manufacturing methods of the metal industry in their design process
- know how to optimally use and take advantage of metal materials, techniques and structures when designing and manufacturing functioning models and end products.

Contents

The course aims at deepening skills in and knowledge of manufacturing materials, joining techniques and surface treatment techniques. In addition, the course aims at increasing students' skills in designing and manufacturing practical, well-designed workshop prototypes mainly of metal materials. Students also learn about various modelling methods and materials and their appropriate use. They increase their knowledge of materials and practise working techniques through assignments. The course also contains expert lectures on such topics as laser working and sheet metal forming. Assignments can be integrated with industry partnership projects and major subject studies.

Methods and assessment

Participation in lectures and visits. Completed assignments, critique sessions.

Graded on a scale from 1 to 5.

Materials

Study materials (additional literature complementing the list indicated in the related Materials workshop).

Kujanpää, Salminen, Vihinen. Lasertyöstö.

Lesko. Industrial design materials and manufacturing guide.

Mollerup. Collapsibles.

05MUOTMUOVI DESIGN WORKSHOP, PLASTIC 3 ECTS

Learning outcomes

Students

- show improved skills, building on the Materials workshop on plastic
- demonstrate deeper skills in using and applying the production and manufacturing methods of plastic products in their design process
- know how to optimally use and take advantage of plastic materials, techniques and structures when designing and manufacturing functioning models and end products.

Methods and assessment

Increasing the skills and knowledge acquired during Materials workshop, plastics. Understanding the characteristics, uses and selection criteria of plastics. Mastering the manufacturing methods and typical structures. Optimising various factors and understanding feasibilities in the creation of models and end products. Deepening knowledge on materials and increasing design competence through various assignments. Expert lectures on such topics as vacuum forming, reaction injection moulding and injection moulding. Visits, assignments and critique sessions.

Graded on a scale from 1 to 5.

Study materials (Additional literature complementing the list indicated in Materials workshop, plastics)

<http://www.muovimuotoilu.fi/> website.

05MPAJOMT DESIGN WORKSHOP, VEHICLE DESIGN MODELS, 3 ECTS

Learning outcomes

Students

- show improved skills, building on the Materials workshops
- demonstrate deeper skills in finding the appropriate model-making techniques for the various phases in the vehicle design process
- know how to optimally use and take advantage of materials, techniques and structures when designing and manufacturing models and end products.

Methods and assessment

Increasing the skills and knowledge acquired during the Materials workshops. Understanding the characteristics, uses and selection criteria of materials. Mastering the manufacturing and working methods and typical material structures. Optimising various factors and understanding feasibilities in the creation of models and end products. Deepening knowledge on materials and increasing design competence through various assignments. Expert lectures, demonstrations, visits, assignments and critique sessions.

Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

05KOKKEELPAJ EXPERIMENTAL DESIGN WORKSHOP 5 ECTS

Learning outcomes

Students

- know how to appropriately use various materials, structures and working methods
- know how to design innovative products using various materials while meeting high design standards
- can use the latest knowledge of materials and follow the development of materials and manufacturing methods through various information sources.

Contents

Deepening skills in and knowledge of manufacturing materials, constructions made of various materials, modelling, joining techniques and surface treatment methods. Competence in the design and manufacture of various innovative material constructions, meeting high design standards. Familiarisation with latest manufacturing materials and their appropriate uses. The course is an experimental laboratory workshop. It includes lectures on the latest innovations in materials and manufacturing technology.

Methods and assessment

Supervised, design-oriented exercises, material experiments. Completed assignments, documentation of experiments and processes, portfolio, attending lectures.

Graded on a scale from 1 to 5.

Study materials (examples of course literature)

Ashby, Johnson. Materials and design.

Naumanen. Materiaalitekniikoiden kehityskohteita.

www.uiah.fi/virtu/materiaalit
www.designsite.dk

Product development and the designer 23 ECTS

Module-specific learning outcomes

Students

- understand the principles of interaction between the client and the designer
- can independently manage industry partnership projects related to their studies
- know how to collect and independently analyse relevant background information as part of the design project
- know how to collaborate with various people and functions involved in product development, such as marketing and technical product development
- know how to operate in a multi-cultural environment.

05TUOKEHPR PRODUCT DEVELOPMENT PROCESS 5 ECTS

Learning outcomes

Students

- understand the principles of product development processes
- know how to integrate the design process into product development
- demonstrate improved design process management skills in an industry partnership project.

Contents

Principles of the product development process. The focus is on collaboration between the various people involved in product development, such as marketing and technical product development. Attention is also paid to interaction between the various major subjects during the projects. Some projects may include exchange students as participants: in these cases, the language of instruction is partially English.

Methods and assessment

Participation in a supervised industry partnership project, attending lectures. Process management. Assignment (must be passed). Feedback session.

Graded on a scale from 1 to 5.

Study materials

Information to be provided at the beginning of the course. Examples of course literature:

Jordan, P.W. Designing Pleasurable Products.

Ulrich & Eppinger. 2003. Product Design and Development. 3rd edition.

Poikolainen et al. Design Management – yrityskuvasta kilpailuvaltti.

05PROJHALL PROJECT MANAGEMENT 3 ECTS

Learning outcomes

Students

- know the general principles of project management from the point of view of design
- are familiar with various project management methods
- know how to schedule their own work
- know how to phase a design project and to resource as part of product development.

Contents

Principles and methods related to projects. The projects are mainly industry partnership projects, during which students get to apply and practise the skills they have learned. Independent project management is a key topic. Attention is also paid to interaction between the various major subjects during the projects. Some projects may include exchange students as participants: in these cases, the language of instruction is partially English.

Methods and assessment

Lectures. Participation in the partnership project. Critique discussion summing up the contents. Assignment (must be passed). Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

05TAUSTA RESEARCH AND KNOWLEDGE 5 ECTS

Learning outcomes

Students

- know how to use and analyse various research methods used in product development and apply them correctly in the design process

- understand the principles of research and its role as part of product development.

Contents

Research methods as part of product development. Basics of research. Projects focus especially on the collection and independent analysis and organisation of relevant background information as part of the design project. Attention is also paid to interaction between the various major subjects during the projects. Some projects may include exchange students as participants: in these cases, the language of instruction is partially English.

Methods and assessment

Lectures. Gathering and applying information in the student's own work. Participation in the partnership project. Assignment (must be passed). Critique discussion summing up the contents. Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

05MUOTKANS CROSS-CULTURAL DESIGN 5 ECTS

Learning outcomes

Students

- recognise the influence of cultural traits on product development
- know how to operate in a multi-cultural environment.

Contents

Analysis of international and national traits. Multicultural operational environment in product development. Attention is also paid to interaction between the various major subjects during the projects. Some projects may include exchange students as participants: in these cases, the language of instruction is partially English.

Methods and assessment

Lectures and learning journal. Participation in the partnership project. Critique discussion summing up the contents. Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

05PÄÄTUO3PA SUPPORTING MAJOR STUDIES 3, 5 ECTS

Learning outcomes

Students

- show improved competence during professional special courses.

Contents

Complementary studies fulfilling the development needs of the group. Supporting major subject studies can be integrated with the assignments if applicable. Some projects may include exchange students as participants: in these cases, the language of instruction is partially English. Possible (alternative) content examples:

- Design for All
- transport systems and logistics
- road safety.

Methods and assessment

Participation in a workshop. Lectures. Process management. Assignment (must be passed). Feedback session. Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

Design presentation 2, 10 ECTS

Module-specific learning outcomes

Students

- can communicate in their own individual way
- can conduct themselves naturally and confidently in various situations
- show improved computer-aided modelling and visualisation skills
- show improved knowledge in making full use of relevant software
- know how to choose the appropriate professional presentation method and technique.

05KLSAJO USER INTERFACE DESIGN (human-machine interface) 4 ECTS

Learning outcomes

Students

- know the basics of GUI design
- know how to use applicable software for user interface design.

Contents

The course focuses on the basics of designing GUI interfaces for passenger and work vehicles and on gaining an understanding of the potential of various display technologies. Students become familiar with the potential of different types of software for designing GUI interfaces and simulating their operation. The course project is a user interface concept. Some projects may include exchange students as participants: in these cases, the language of instruction is partially English.

Methods and assessment

Lectures and supervised assignments. If applicable, students may produce materials to support their major subject assignments.

Graded on a scale from 1 to 5.

Materials

Software manuals; detailed information to be provided at the beginning of the course.

05MALLVI2 MODELLING AND VISUALISATION SOFTWARE 2, 3 ECTS

Learning outcomes

Students

- demonstrate appropriate use of 3D software during the different stages of design projects
- understand the feasibility of various modelling techniques and software for different purposes
- understand the significance of 3D geometry after the product development stage in mould making and manufacturing.

Contents

Deepening modelling and visualisation skills and improving skills in full-scale use of 3D software. Some projects may include exchange students as participants: in these cases, the language of instruction is partially English.

Methods and assessment

Participating in lectures and contact education. Passed assignments or skills tests.

Graded on a scale from 1 to 5.

Materials

Software manuals; detailed information to be provided at the beginning of the course.

05MUOCADCAM CAD/CAM 3 ECTS

Learning outcomes

Students

- know the basics of using 3D geometry in milling
- know the potential of 3D geometry in 3D-based manufacturing processes
- know the basics of using 3D geometry in producing rapid prototypes
- know how to order rapid prototypes and milling services from companies providing such services.

Contents

Students learn and practise the full-scale use of 3D software in the various stages of design and manufacture. Some projects may include exchange students as participants: in these cases, the language of instruction is partially English.

Methods and assessment

Participating in lectures and contact education. Passed assignments or skills tests.

Graded on a scale from 1 to 5.

Materials

Software manuals; detailed information to be provided at the beginning of the course.

Professional profile 17 ECTS

Module-specific learning outcomes

Students

- understand the significance of product development in a company's operational strategy
- are aware of the influence of future changes in a company's product development strategy
- recognise their personal strengths as designers
- understand the opportunities and risks related to entrepreneurship in design.

05STRAMU STRATEGIC DESIGN 4 ECTS

Learning outcomes

Students

- understand the role of design as a strategic factor in business
- understand the significance of organising design and the related operational models
- understand the changing practices of design.

Contents

Analysis of product development processes. Strategic operation of a company and the role of product development. Industry practices. The focus is on the overall management of a product development project, including all sub-sectors, and the significance of product development in the company's operational strategy. The course mainly consists of industry partnership projects. Attention is also paid to interaction between the various major subjects during the projects. Some projects may include exchange students as participants: in these cases, the language of instruction is partially English.

Methods and assessment

Participation in projects and attending lectures. Process management. Assignment (must be passed). Feedback session. Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

05MUOTIDEPA DESIGNER IDENTITY 5 ECTS

Learning outcomes

Students

- understand the significance of professional profiling and identity from the point of view of the industry
- have created recognisable professional profiles for themselves
- understand the special features of alternative operational environments for professional designers.

Contents

Characteristics and development of professional identity. The course serves as an introduction to the thesis; one of the key goals is the formation of the student's individual designer identity and preparation for entering the labour market. The course mainly consists of industry partnership projects. Attention is also paid to interaction between the various major subjects during the projects. Some projects may include exchange students as participants: in these cases, the language of instruction is partially English.

Methods and assessment

Participation in projects and attending lectures. Process management. Assignment (must be passed). Feedback session. Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

05TULEVTPA FUTURES RESEARCH 5 ECTS

Learning outcomes

Students

- understand the principles of futures research and know how to apply them in the design process
- are aware of the influence of future changes in a company's development strategy
- know how to use knowledge from futures research when anticipating consumers' needs in the future.

Contents

Principles of futures research and its impact on the operational strategies of the company. The course mainly consists of industry partnership projects. Attention is also paid to interaction between the various major subjects during the projects. Some projects may include exchange students as participants: in these cases, the language of instruction is partially English.

Methods and assessment

Participation in projects and attending lectures. Process management. Passed project. Feedback session. Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

05PÄÄTUO4PA SUPPORTING MAJOR STUDIES 4, 3 ECTS

Learning outcomes

Students

- show improved competence during professional special courses.

Contents

Complementary studies fulfilling the development needs of the group. Supporting major subject studies can be integrated with the assignments if applicable. Some projects may include exchange students as participants: in these cases, the language of instruction is partially English. Possible (alternative) content examples:

- vehicles for the video game and film industries
- future transport needs.

Methods and assessment

Participation in a workshop. Lectures. Process management. Assignment (must be passed). Feedback session.

Graded on a scale from 1 to 5.

Materials

Information to be provided at the beginning of the course.

Elective studies 15 ECTS

Module-specific learning outcomes

Students

- have advanced their professional skills through supplementary studies
- have improved their general knowledge.

Contents and method of completion

Students can choose courses from the elective courses offered by the Institute of Design and Fine Arts and the entire university. Elective studies may also include courses taken at other institutions of higher learning, provided that they are suitable for the profile of the student's major subject.

PROFESSIONAL PRACTICE 30 ECTS

The degree includes 30 ECTS credits of professional practice, half of which (15 ECTS) are completed through participating in supervised industry partnership projects taking place during the student's terms of study, and half (15 ECTS) through internships at suitable companies in Finland and abroad.

Learning outcomes

Students

- are familiar with practical tasks essential to professional studies and know how to apply their skills and knowledge in the working world under supervision.

Methods and assessment

The scope of internships is 15 ECTS, which equals 10 work weeks with 40 weekly work hours. It is necessary to submit a report on the internship and a certificate of employment to the principal teacher to acquire the credits. Further information on professional practice is provided during the spring term. Pass/fail.

THESIS 15 ECTS

Learning outcomes

The thesis shows that the student knows the design process and related practices in their profession, and shows competence in their visual and written expression. The thesis shows the student's ability to apply their skills and knowledge, their familiarity with design and research methods, and their problem-solving skills in their respective field.

Contents

The thesis is a supervised design project or a body of work carried out independently or collaboratively. Its aim is to improve the student's professional skills and contribute to the field in general. The thesis always includes a written report. The thesis project is supported by mandatory seminars and a maturity test.

Prerequisites

Before starting the thesis, the student must have completed all basic studies and most professional studies.

Methods and materials

At the Institute of Design, the thesis comprises a design for a product, collection, or space, or a completed body of work, and a written report.

In order to complete the degree, the student must participate in seminars (topic, intermediate, completion) presenting their project, and must take the maturity test.

Detailed instructions for the thesis (applicable to the entire university and to the Institute of Design specifically) and related materials are available on the students' intranet.

Assessment

The thesis is always evaluated as a process, from choosing the topic to presenting the outcome. Graded on a scale from 1 to 5. Detailed information on the assessment of an artistic and practical thesis is available on the students' intranet.

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