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Curriculum

for Master of Industrial Design

academic technical engineering degree:

Diplom Ingenieur,

abbrev: Dipl.-Ing.

at the

Kunstuniversität Linz

(University of Art and Industrial Design)

Following the decision of the Study Commission for Industrial Design

on 26.2.2002,

and approved by the Federal Ministry for Education, Science and Culture

on 14th May 2002, GZ 52.352/11-VII/D/2/2002

Decision of the senate on 22nd June 2005

amended by decision of the Curricula Committee of 7 May 2008

amended by decision of the Curricula Committee of 1 June 2011

amended by decision of the Curricula Committee of 6 June 2018

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Preamble – A profession in the process of change

Industrial Design lies at the interface between the aesthetic elements of styling and appearance, and the innovation which is driven by science and technology. It requires the application of knowledge from a multiplicity of interdependent disciplines. The teaching Industrial Design of at our university, favours the heuristic approach taking inspiration from the natural world, the creation of virtual models, and the optimisation of design through repetition, as well as empirical testing of the *Gestalt* finding. Original research and the procedures inherent to the natural sciences are core elements behind the creation of a new piece of design. Design is not simply related to the skills of an artisan - it is not just about learning physical model making, it is not 'Rendering with Markers'. The initial project parameters can be evolved into concrete applications which are then developed during the course, although this does not necessarily have to be the only way the course can proceed. In the commercial world of professional practice, study projects can be oriented towards large scale industrial production and even the design of entire systems, or they can alternatively, result in crucial advantages for small-and-medium-sized enterprises by enabling their products or components to attain technical or functional superiority in the globally competitive environment. Creative intuition drives students' work at the university – based on knowledge, experience and skills – giving rise to strategic conceptual ideas, to be followed by preliminary design concepts and training in new, cutting edge product development processes.

It is the synthesis of aesthetic, technological, scientific, commercial and psychological factors that enables 'Design', as it is meant here, to come into existence. In order to separate this meaning from what today has become the rather depreciative use of the word 'design', the neologism Scionic® has become established. This relates to the essential knowledge derived from the natural world and interpreted in syntactic, semantic and semiotic terms. The effect of Industrial Design in this sense is to set new landmarks within the context of the existing social norms. In practice, these can be two or three dimensional, virtual or real, elements of an industrial product, mobile or immobile, and should lead towards the creation of an original and individual, as well as aesthetically satisfying design, which fulfils a given purpose.

The potential application for Scionic® within industry is:
the differentiation of a product or an enterprise within its competitive environment. This differentiation however is not just limited to stylistic elements. It is about the clearly identifiable characteristics of the product's innate properties as manifested in its function, use of materials and innovations related to the way it is manufactured. These are the elements with which it

can acquire a strong position on the global market while also establishing the profile of the enterprise which produces it, simultaneously enhancing the company's image by demonstrating a capacity for strategic planning in its approach to managing innovation..

§ 1 Course objectives and qualification profile

1.1. Learning goals

- The Master's Degree programme is a progression from the Bachelor's Degree. The knowledge and understanding of the subject is expanded and deepened and thus provides Master's graduates with the basic ability to develop and apply themselves to new ideas and solutions. They are in a position to work with competence dealing with issues in the professional field as well as in an academic research environment.
- Over and above this, Master's graduates can apply their knowledge in new, atypical ways in broader and multidisciplinary contexts.
- They are in a position to acquire further knowledge, deal with complexity and have the ability to assess situations in which all the information required is not immediately or readily available.
- They are able to communicate, justify and discuss the innovations which they have themselves created – both to a professional audience as well as to interested members of the general public.
- Graduates have the possibility of following further, primarily independent, academic study, leading specifically to a Doctorate.

1.2. Qualification Profile of Graduates

In addition to theoretical specialised knowledge, the Master's graduates are familiar with all the current technologies relating to surface treatments, materials and manufacturing. They are able to take inspiration from nature and analyse this in a way which leads to morphological problem-solving strategies. And essentially, they have highly developed professional computer skills especially in the application of Computer Aided Industrial Design Software and Rapid Prototyping technologies. With this knowledge and competence, they are in a position to independently undertake design work, within a closed virtual process chain, in a Concurrent or Simultaneous Engineering environment.

1.3. Possible fields of professional activity

Graduates of the Master's in Industrial Design can apply their knowledge in numerous sectors and enterprises, working on their own initiative, managing and organising their own projects. A prime skill is their ability to deal with an integrated process chain in the early development phase in an industrial context, which means that Concept and Design Departments play an integral role in the structure of the product development, i.e. integrating Design and Development Departments within the structure of the product development process as a whole. In addition to general design tasks, Master's graduates can instigate process improvements in Concurrent Engineering, for example:

- defining the structure of an organisation
- adapting process structures in Design / Change Management

- defining infrastructure measures, investment planning
- harmonising data structures and the way processes run
- changing / re-defining tasks, procedures and job descriptions
- preparation of training concepts for employees

The introduction of new products onto already saturated markets requires an ever increasing effort in terms of marketing and product visualization (including virtual product presentation). Master's graduates can also contribute in this area and they are equally in a position to apply their knowledge in related fields such as architecture or marketing and advertising. The following commercial sectors therefore also represent possible job opportunities:

- the automobile and automobile component supply industry
- the retail sector and long lasting capital goods
- the aerospace industry
- advertising, marketing and event management agencies
- architectural practice, building and construction industry
- media, film and television

§ 2 Course structure

2.1. Duration and structure of the Master's programme

The standard course of study for the Master's Degree in Industrial Design at Linz University of Art and Industrial Design requires 4 semesters and a total of 120 credits (ECTS).

2.2. Entrance requirements

The basic requirement for the Master program at the University of Art in Linz is the Bachelor's Degree in Industrial Design.

Other qualifications (according to regulation §64 Abs.V UG 2002) can be considered subject to an entrance examination to prove creative ability. During a personal interview, where examples of work must also be presented, the applicant must demonstrate the equivalent standard to that of the Bachelor's Degree programme at the University of Art in Linz, as well as providing appropriate certification of university level qualifications.

2.3. Course structure

The objective of the Master's programme in Industrial Design is to build on existing knowledge by further developing study, with a focus on selected specialised fields. Four main areas form a synergetic platform for continued study of integrated conceptualisation and design: Scionic® – Computer Aided Industrial Design – Materials Science and Environmental Technology – Ergonomics.

The programme is project-based. 10% of the classes are open options which can be selected from courses on offer at any recognised Austrian or foreign university or equivalent institution. Such choices give students an opportunity to develop their individual strengths.

The overall programme for the Master's Degree is divided into the four main areas, each accounting for 40 credits. Every area is sub-divided, according to the student's main field of interest, into a conceptualisation and design course over 3 semesters and a project related module comprising various classes.

The Scionic® module is mandatory and in addition students must select one of the remaining three areas of study:

1.	Scionic®	40 credits
2.	CAID	40 credits
3.	Materials science and process technologies	40 credits
4.	Ergonomics	40 credits

§ 3 Teaching objectives and methods

Study takes place in the following forms:

1. Conceptual Design and *Gestalt*
2. Lectures
3. Seminars

In general, Conceptual Design and *Gestalt* classes together with seminars aim to further enhance the depth of post-graduate students' knowledge, to promote independent acquisition of experience, and also to examine theoretical aspects more intensively. A high standard of autonomous work is both encouraged and expected, as there is a dialogue between the teacher and the learner. The ability of students to apply their knowledge to project development is taken into consideration for the final grade they receive. The working methods applied to achieve the objectives are equally as important as the end result and so must be carefully considered and reflected upon. With guidelines and support provided by teaching staff, the students themselves must, of course, contribute to the preparation and research relevant to a particular topic. The project work must be appropriately documented in electronic form (written section, graphic section, 2D or 3D data sets).

Description of specific types of class:

O Conceptual design and *Gestalt*

These classes are the central part of the Industrial Design Master's degree course at Linz University of Art and Industrial Design and take the form of project studies whereby disciplines

are connected and integrated. Conceptual design and *Gestalt* also involves theoretical knowledge. Furthermore, the successive stages of concept development and the formulation of objectives are practiced and improved. This includes basic initial research, project conceptualisation, development and implementation and concludes with the preparation and presentation of results (basic idea – research – planning – design proposal – engineering - *Gestalt*). The Design Studies module helps students discover their personal strengths with support and advice from staff as required – either individually or in groups.

O Seminars

Seminars are the transition point between taught knowledge and the independent acquisition of knowledge. Through artistic-creative and/or technical-scientific dialogue, the students can clarify their own position and improve their ability to articulate their arguments.

O Lectures

Lectures give the students a general introduction to the main areas of study and the methods applicable to the course. In particular, they give students further details regarding the main facts and opinions currently held within this field and some special lectures have the specific objective of informing students about the latest scientific developments and reporting on current research.

§ 4 Examination regulations

4.1 Course examinations

Each course is concluded with some form of proof of achievement, appropriate to the subject studied. The course lecturer/tutor must explain the course syllabus and objectives, as well as the form and assessment criteria for the examination, at the start of each semester. The examination can be oral, written or practical (2D, 3D) and can be based on a single or multiple assessment. The form of examination is given in §5 of the respective course plan.

m (mündlich) oral examination

s (schriftlich) written examination, although depending on the content of the course this may include practical designs (e.g. text, drawing, model, photography, video, electronic data set etc.)

T (Teilnahmeverpflichtung) compulsory attendance, not graded

n.G. (nach Gepflogenheit) applicable to classes which are offered by other disciplines or departments

iP (immanentem Prüfungscharakter) continuous assessment during course

4.2. Master's Thesis

The Master's Thesis must be based on one of the main mandatory areas of study. It must represent original independent work relating to either the theoretical/scientific aspects and/or the aesthetic-design aspects of a chosen topic, and must include all the appropriate two or three dimensional visualisations required. Students have the right to propose a topic themselves or to choose from a range of suggestions provided by their tutor. The nature of the topic chosen should be such that it is both possible and reasonable that it is completed within a period of 6 months.

4.3. Master Examination

Before examination by the commission is permitted, candidates must have achieved positive grades in all the modules and courses which comprise the Master's Degree programme as well as successfully completing their Master's thesis. The student's personal tutor or supervisor who provided guidance through the thesis will be a member of the examination commission. The final examination result combines the results of all course examinations taken as part of the Master's programme and the result of the oral examination in front of the commission. All the required sub-examinations must have received a pass grade. The examination by the commission is with reference to the field or topic of the written (and electronically documented) Master's thesis.

The overall grade awarded for the Master's Degree is derived from the average grade of all the subjects required by the programme, together with the result of the oral examination by the commission.

§ 5 Master of Industrial Design - Course Overview

Disciplines and the associated classes (corresponding credits according to ECTS)

The Master's Degree Course gives priority to autonomous, independent scholarly project work, the topics of which are to a large extent freely chosen by students. The role of academic staff at the university is to advise and monitor students during their studies, sharing with them their knowledge, experience and expertise.

The Master's Degree course requires 120 credits (ECTS points) encompassing the following mandatory as well as optional subjects:

Mandatory Field

Scionic®	40 credits		
Scionic®	**30 credits**	EG	iP
Project related module	**10 credits**		
comprising:			
CA industrial design, Project related technology, Ergonomics, Design and Innovation Management	6 credits	SE	s/m
- Open subject options (according to personal focus)	4 credits		n.G.

from those offered by the departments of Art and Cultural Studies, Philosophy / Humanities, Linguistics / Languages, Rhetoric / Presentation Techniques, Business and Economics, Design and Innovation Management, Organisational Structure and Project Management, Patents and Copyright, Constitutional Studies and Administration Law.

Optional Field 1:

CAID	40 credits		
CA Industrial Design	**30 credits**	EG	iP
Project related module	**10 credits**		
comprising:			
Scionic® conceptual design and *Gestalt,* Project related technology, Ergonomics, Design and Innovation Management	6 credits	SE	s/m
- Open subject options (according to personal focus)	4 credits		n.G.

from those offered in the departments of Art and Cultural Studies, Philosophy / Humanities, Linguistics / Languages, Rhetoric / Presentation Techniques, Business and Economics, Design and Innovation Management, Organisational Structure and Project Management, Patents and Copyright, Constitutional Studies and Administration Law.

Optional Field 2:

Material Sciences and Process Technologies	40 credits		
comprising:			
Project related technology	30 credits	EG	iP
Project related module	10 credits		
comprising:			
Scionic® conceptual design and *Gestalt,* CA industrial design, Ergonomics, Design and Innovation Management	6 credits	SE	s/m
- Open subject options (according to personal focus)	4 credits		n.G.

from those offered in the departments of Art and Cultural Studies, Philosophy / Humanities, Linguistics / Languages, Rhetoric / Presentation Techniques, Business and Economics, Design and Innovation Management, Organisational Structure and Project Management, Patents and Copyright, Constitutional Studies and Administration Law.

Optional Field 3:

Ergonomics	40 credits		
Ergonomics	**30 credits**	EG	iP
Project related module	**10 credits**		
comprising:			
Scionic® conceptual design and Gestalt, CA industrial design, Project related technology, Design and Innovation Management	6 credits	SE	s/m
- Open subject options (according to personal focus	4 credits		n.G.

from those offered in the departments of Art and Cultural Studies, Philosophy / Humanities, Linguistics / Languages, Rhetoric / Presentation Techniques, Business and Economics, Design and Innovation Management, Organisational Structure and Project Management, Patents and Copyright, Constitutional Studies and Administration Law.

Optional Field 4:

Design and Innovation Management 40 credits

Design and Innovation Management	**30 credits**	EG	iP
Project related module	**10 credits**		
comprising:			
Scionic® conceptual design and Gestalt, CA industrial design, Project related technology, ergonomics	6 credits	SE	s/m
- Open subject options (according to personal focus from those offered in the departments of Art and Cultural Studies, Philosophy / Humanities, Linguistics / Languages, Rhetoric / Presentation Techniques, Business and Economics, Design and Innovation Management, Organisational Structure and Project Management, Patents and Copyright, Constitutional Studies and Administration Law.	4 credits		n.G.

Open subject options 12 credits

Master's Thesis 28 credits

The Master's Thesis can be based on one of the four above mentioned modules and must be completed during the 4th semester of the course.