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Curriculum

for Bachelor of Industrial Design

academic technical engineering degree:

Bachelor of Science

abbrev: BSc

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 17 April 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 the handicraft of 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. 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 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

- Graduates of the Industrial Design Bachelor's degree should be able to demonstrate their knowledge and understanding of the interrelationships within the field of industrial design. This should also include knowledge of certain aspects of current research.
- Graduates should also be able to apply their knowledge and have a professional approach to design-related issues, and be capable, given specific task within their field, of providing an appropriate outcome which they can justify and also adequately explain to others.
- Furthermore, they are able to conduct the necessary investigations in order to prepare a competent briefing, which reflects ethical and social considerations as well as scientific aspects. They can communicate relevant facts, problems, ideas and solutions to both a professional audience or one made up of interested members of the public.
- In addition to this, they need to be self-motivated to further their own abilities within their specialist area, working to a large extent autonomously, and subsequently study towards achieving a Master's degree.

1.2. Profile of the graduate qualification

Alongside a sound theoretically based, current knowledge of surface textures, materials and manufacturing technologies, as well as the ability to analyse sources of inspiration in nature and thereby envisage morphological strategic solutions, a major part of qualification involves professional skills in using Computer Aided Industrial Design software and Rapid Prototyping technologies. Graduates can contribute in a professional capacity to entire process chains (Concurrent or Simultaneous Engineering).

1.3. Possible fields of professional activity

In addition to the basic ability to work on design tasks, graduates can apply their skills to improving processes in respect of *Concurrent Engineering* in the following areas:

- 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 demands an ever greater effort in terms of marketing and product visualization (including virtual product presentations). Graduates of the Bachelor's course can also contribute in this area and they are equally in a position to apply their knowledge in related fields such as architecture or advertising. The following commercial sectors therefore also represent possible work opportunities:

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

§ 2 Course Structure

2.1. Duration and structure of Bachelor's programme

The standard course of study for the Bachelor's degree in Industrial Design at the University of Art and Industrial Design Linz requires 6 semesters and a total of 180 credits (ECTS).

2.2. Entrance requirements

Students must have the general secondary school leaving certificate (*Allgemeine Hochschulreife*) including having studied an appropriate art and design related subject. Ability in this subject must be demonstrated at the entrance examination.

2.3. Course structure

The course of study is mainly devoted to communicating basic knowledge relating to the field and comprises primarily of compulsory classes with relatively few optional classes. 10% of the classes offer free 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 classes relating to the Industrial Design course take the form of semester-long project modules, with the level of complexity increasing in line with increasing credit allocations from 5 – 15.

The qualification is supplemented with compulsory practical study accounting for 15 credits.

The Bachelor's degree course in Industrial Design comprises the following subjects:

1. Industrial Design 61 credits
   (primarily Scionic® / CAID / materials science and environmental technologies)
2. Art and cultural studies 10 credits

3.	Presentation and visualisation techniques and methods	23 credits
4.	The fundamentals of *Gestalt*	16 credits
5.	Techniques and technologies	34 credits
6.	Ergonomics	3 credits
7.	Open options	18 credits
8.	External study related internship	15 credits

2.4. Project module

The various elements of the Industrial Design degree course: Scionic®, Computer Aided Industrial Design and Materials Science and Environmental Technologies (i.e. the core subjects), form a synergenic platform for work in conceptual design and *Gestalt*, which is an integral part of the course as a whole. Drafting and concept design skills draw equally on knowledge and experience – including essential practical capabilities. These triple core disciplines of Scionic®, Computer Aided Industrial Design and Materials Science and Environmental Technologies – supplemented with a design tutorial – are then combined in a semester's project module (accounting for 5 credits/semester during the orientation year, 10 credits/semester in year two and 15 credits/semester in the third year of studies).

2.5. Preliminary modules

The first two semesters of the Bachelor degree course are regarded as an orientation phase. Classes introducing the basis concepts together with Scionic® design module provide a comprehensive overview of the degree course as a whole. The classes or modules required in the orientation phase are as follows:

Project module Industrial Design	10 credits (5 + 5)
comprising of:	
- *Scionic® conceptual design (Propädeutik)*	*2 credits (1+1)*
- *CA industrial design*	*4 credits (2+2)*
- *Project related technologies*	*2 credits (1+1)*
- *Design tutorial*	*2 credits (1+1)*
Projective geometry	8 credits
Mechanical engineering drafting	4 credits
Model making ID	2 credits
Elementary design theory 3D	3 credits
Elementary design theory 2D	3 credits
Production techniques for metals	3 credits
Production techniques for plastics	3 credits
Production techniques for wood (mainly surface treatment methods)	4 credits
Introduction to scientific work	4 credits

§ 3 Teaching objectives and methods

3.1. Objective, methodologies and principles of the discipline

- O Learning takes place through the constant interaction of theoretical principles with practical applications (practicals, seminars, excursions and conceptual design and *Gestalt* classes).
- O The teaching aims to convey aesthetic, commercial, technical and also cultural awareness and to enable students to recognise the origins and mutual influences involved. It should promote complex thought processes which are supported by appropriate working methods.
- O Practicals, seminars and conceptual design and *Gestalt* classes take into account both the students' main individual areas of interests and also their personal aptitude and talent. Students are advised throughout the course on the direction of their studies and assisted in their own personal development.
- O The training programme is based on methodologies and subject specific tuition as well as inter-disciplinary thinking. The interlinking of subject areas and classes, and also cooperation between teaching staff is specifically encouraged and is, in fact, part of the concept of the project module.
- O Tuition on techniques of organisation management, and personal management, help students develop the ability to set clear targets, to plan their time and to work in a team. Particular attention is given to learning how to interpret and deal with a formal brief and subsequently to present results and design concepts.

3.2. Types of classes and tuition

O Conceptual Design and *Gestalt*

These classes are the central part of the Industrial Design Bachelor 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 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 – planning – design proposal). The design studies module helps students discover their personal strengths with support and advice from staff as required – either individually or in groups.

O Practicals

Practical classes give students the opportunity to try out, test and extend their knowledge within the respective subject. They can either give emphasis to theoretical content of the curriculum or be oriented more towards the project work related to the core conceptual design. Practicals therefore link theory, the application of knowledge and working practice.

O Seminars

Seminars are the transition point between taught knowledge and the independent acquisition of knowledge. Through artistic-creative and/or technical-academic dialogue, the students can examine their own position and, with practice, learn how 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 pointers towards 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.

O Excursions

Study trips give students the opportunity to observe historical and contemporary examples of industrial design, as well as providing *in situ* learning. They complement the other aspects of tuition and give an insight into working practice.

O Design Tutorials

Tutorials are a source of advice and support for the students particularly in respect of their individual study plans, the profile they create with their work and the coherence of their portfolio.

O Internship/Practice

Working practice prior to and during the training are intended to sharpen students' awareness of professional requirements.

§ 4 Examination regulations

4.1. Entrance Examination

The entrance examination is conducted by a commission over a period of two days and comprises two parts:

I. The presentation of the applicant's own work i.e. pieces of art and design, poetry, prose, examples of performing art, etc. These are to be submitted, together with a CV and certificates, prior to the date of the entrance examination. The assessment of this work is based on the artistic and aesthetic quality and the concepts involved, rather than the skill with which these ideas are portrayed, although the effectiveness of the presentation in taken into account. Only if the commission is satisfied with the first part of the entrance examination, can the applicant proceed to part two.

II. Proof of ability under examination conditions.
This is to assess the applicants' artistic talent and feeling for aesthetics and design, as well as to gauge their conceptual ability and awareness of the issues involved in industrial design. Furthermore, the set tasks, involving written and practical work, examine applicants capacity for broad, integrated thought.

The applicant has passed the entrance examination when both stages have been successfully completed.

4.2. 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

4.3. Bachelor Thesis Degree Projects

After the orientation phase of the Bachelor's Degree course, two comprehensive coordinated project proposals have to be submitted within the scope of the various classes relating to the project modules (namely Scionic®, CA Industrial Design, project related technologies). The examination commission of the Department of Industrial Design will assess each of these Bachelor Degree Projects. The student must inform all relevant members of teaching staff at the beginning of the semester of their intention to submit their Bachelor Degree Project work.

4.4. Bachelor Examination

The Bachelor of Industrial Design is awarded after the successful completion of all individual examinations required within the separate classes as set out in the curriculum together with the examination commission's assessment of the Bachelor Degree Projects.

4.5. Final Examination

Overall assessment of the final examination: In addition to the assessment of individual modules, students receive an overall grade of "passed", if every subject has been completed successfully, or "failed" if this is not the case. If no module was assessed with a grade worse than "gut" (good) and at least half of all modules were graded "sehr gut" (very good), the overall assessment is "mit Auszeichnung bestanden" (passed with distinction).

A module grade is calculated from the mean of the module's individual course grades.

§ 5 Bachelor of Industrial Design - Course Overview

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

The full Bachelor's Degree course requires 180 credits.

From the discipline

1. Industrial Design	61 credits

Comprising:

the **Industrial Design Project Module,**	5 + 5	credits	
	10 + 10	credits	
	15 + 15	credits	
	(total: 60	credits)	
which is made up of:			
- *Scionic® conceptual design*	*18* credits	*EG*	*iP*
- *CA industrial design,*	*24* credits	*EG*	*iP*
- *Project related technology*	*12* credits	*SE*	*iP*
- *Design tutorial*	*6* credits	*SE*	*iP*
Scionic® conceptual design excursion	1 credit	EX	T

From the discipline

2. Art and Cultural Studies	10 credits

Open subject options (according to personal focus) from those offered by university departments in Philosophy and Aesthetics, History of Design, History of Art, Culture, Media and Art Theory, as well as comparable subjects.

From the discipline

3. Visualisation methods and presentation techniques	23 credits

Comprising:

Model making	6 credits	ÜB	s/m
Projective geometry and perspective drawing	8 credits	SE	s/m
Mechanical engineering drafting	4 credits	SE	s/m
Open subject options (according to personal focus) from those offered in Visualisation Methods and Techniques in Industrial Design, Presentation Strategies and Techniques, Rhetoric, Speech and Voice Training, as well as other comparable subjects.	5 credits		n.G.

From the discipline

4. The Principles of Design	16 credits		
Comprising:			
Elementary design theory 2D	3 credits	SE	s/m
Elementary design theory 3D	3 credits	SE	s/m
Product photography industrial design	4 credits	SE	s/m
University classes of a general nature			
An introduction to scientific work	4 credits		n.G.
Open subject options (according to personal focus)	2 credits		n.G.

from those offered in Bionics, Fine Art, Graphic Design, as well as other comparable subjects.

From the discipline

5. Techniques and Technology	34 credits		
Comprising:			
Production techniques for metals	3 credits	VL	s/m
Production techniques for plastics	3 credits	VL	s/m
Production techniques for wood (mainly surface treatments)	4 credits	VL	s/m
Design-engineering	4 credits	VL	s/m
Materials science	12 credits	VL	s/m
Open subject options (according to personal focus)	8 credits		n.G.

from those offered in Business Studies and Economics, Design and Innovation Management, Marketing, Advertising, as well as other comparable subjects.

From the discipline

6. Ergonomics	3 credits		
Ergonomics	3 credits	SE	s/m

7. Open Options	18 credits

8. Study related internship/practice	15 credits

in an architect's, design or engineering practice or in industry.