Obuda University
Sándor Rejtő Faculty of Light Industry and
Environmental Engineering

TRAINING PROGRAM

Master's Degree in Light Industry Engineering (MSc)

Budapest, 28 September 2024.

DEGREE PROGRAM CURRICULUM

1. Degree program name:

Light Industry Engineering

2. Field of training: Technical

3. Language of training: English

4. Training schedule(s) and duration of courses in semesters, number of contact hours:

full-time - 4 semesters, 1316 hours
correspondence - 4 semesters 327 hours

5. Optional specialisation:

Packaging Technology, Print and Media Technology, Quality Management, Fashion Design and Technology full-time/part-time

6. Number of credits to collect to earn an MSc degree: 120 credits

7. Level of qualification and professional qualification as indicated in the degree certificate:

- level of qualification: Master's degree (Master's, Magister, Master; abbreviation: MSc)
- professional qualification: Light Industry Engineer
- title of the qualification in English: Light Industry Engineer

8. Courses accepted as prerequisites for entry to the Master's Programme

8.1 Full credits may be taken into account for: the Bachelor of Environmental Engineering.

8.2 The following may also be taken into account for the completion of the credits specified in section 9.4 of the CCC: Bachelor's and Master's degree programmes and programmes under Act LXXX of 1993 on Higher Education, which are accepted by the credit transfer committee of the higher education institution on the basis of a comparison of the knowledge on which credit is based.

9. Study area classification of professional qualification according to the standard classification system of training areas: 542/0723

10. Educational objective:

The aim is to train Light Industry engineers who, with a high level of scientific and specific technical knowledge related to the fields of Light Industry, are able to perform technical and organisational tasks in theory and practice, as well as complex design, operation and maintenance tasks. The acquired technical, IT, and aesthetic knowledge and skills enable

them to independently manage and supervise tasks in the fields of design, technology and services, to perform special design, development and research tasks, and to acquire further knowledge independently. They are prepared to pursue their studies at the doctoral level.

11. Professional competencies to be mastered:

LIGHT INDUSTRY ENGINEER

a) Knowledge

- Complex, high level of knowledge of the theoretical and practical aspects of Light Industry.
- Systematic knowledge of materials and technology in the Light Industry.
- Innovative, detail-oriented design skills.
- Knowledge of the materials used in light industrial product design, their composition, properties, applications, and the relationship between material properties and processing.
- Leadership skills and knowledge to support successful teamwork.
- Knowledge of safety, health, environmental (SHE) and quality assurance and control (QA/QC) requirements.
- Knowledge, application and enforcement of technical and economic legislation and engineering ethics.
- Knowledge of computer communications and analysis related to light industrial trades.
- Knowledge of global social and economic processes related to the field.
- Knowledge of the rules for the preparation of production and product documentation.
- Possess a broad range of analytical and problem-solving skills and techniques for research and academic work.

b) Capabilities

- Ability to understand laws and relationships, apply and practice the knowledge acquired, and use problem-solving techniques.
- Ability to discuss specific areas of Light Industry in a broad but sufficiently scientific manner.
- In addition to the knowledge of the subject area, the ability to train engineers as specialists who are able to apply technical and scientific knowledge to product design, product and technology development and production.
- The ability to present mathematical results, reasoning and conclusions clearly, and to communicate professionally in English and Hungarian at a high level.
- Ability to process information, new problems, and new phenomena arising from disciplines related to light engineering, to understand and solve problems to be solved, and to come up with

original ideas.

- Ability to formulate a sound judgement or opinion, to make decisions, to draw conclusions and to give constructive criticism.
- Ability to design modern and innovative products related to Light Industry.
- Ability to carry out situation assessment and risk analysis, evaluate and propose solutions to complex Light Industry problems, to organise and manage processes.
- Ability to take a complex approach to the management of technical, economic and human resources.
- Ability to plan and carry out tasks independently and to a high professional standard.
- Ability to self-train, self-development, deepening and broadening individual knowledge and skills.
- Ability to work in an international environment through social and cultural sensitivity and language and communication skills.

c) Attitude

- Open and receptive to the application of new, modern and innovative organic economic practices and methods.
- Applying his/her scientific and technical knowledge, he/she strives to gain a better understanding of the phenomena observed, to describe and explain their laws.
- In the course of his/her work, he/she observes and complies with health and safety, environmental protection (SHE) and quality assurance and control (QA/QC) requirements.
- He/she shall strive to maintain continuous self-training in line with his/her professional objectives in the Light Industry, with particular emphasis on the sub-areas and other areas related to his/her work.
- He/she shall strive for creativity, flexibility and adaptive working practices.
- In his/her work and communication, his/her approach is typically problem-solving and solution-oriented.
- Communicates well in groups and seeks to resolve conflicts.
- Is open to opportunities for professional development as they arise.
- Possesses the ability to take initiative make decisions and take personal responsibility.
- Can make strategic decisions in new and complex situations, and to make decisions in unexpected situations, taking full account of legal and ethical standards.

d) Autonomy and Responsibility

- Selects and applies relevant problem-solving methods independently when solving technical problems.
- Demonstrates a high level of responsibility for sustainability and environmental awareness in the work.
- Takes responsibility for proposals and is aware of the limits of professional possibilities.
- Manages the leadership role constructively, able to manage feedback and self-criticism.
- Takes decisions independently, in consultation with other disciplines (in particular law, economics, energy, environment, architecture, medicine), and takes responsibility for them.

12. The disciplines and specialisations leading to the qualification, from which the degree is drawn:

According to the Regulation of 18/2016. (VIII. 5.) EMMI	Credit point
Basics of Natural Sciences (20-25 credits)	**20**
Economic and Human Knowledge (10-15 credits)	**12**
Professional knowledge in Light Industry Engineering (18-24 credits) - IT applications and Design knowledge - Material Science, Technology and Management in Light Industry	**21** 8 13
Optional skills (48-65 credits) 65	
Optional subjects (min. 6 credits)	6
Diploma thesis (30 credits)	30
Physical Education	**2**
Total:	**120**

13. Criteria requirements:

Physical Education: all full-time and part-time Master's students are required to complete two semesters of Physical Education. The course is taught for 1 hour/week in full-time courses and 6 hours/semester in part-time courses.

Internship: The internship must last at least four weeks, further requirements are set out in the curriculum.

14. Foreign language requirements (for the degree):

The linguistic criterion for obtaining the final certificate is passing an internal language test. The internal language examination is based on a knowledge of the language corresponding to level B2 of the Common European Framework of Reference for Languages (CEFR) and a knowledge of the professional language of the training.

15. Knowledge verification

a) during the study period, by written or verbal reports, written (classroom) tests, the evaluation of home assignments (designs, measurement records, etc.), mid-semester grading or signature,
b) by preliminary examination passed in the study period,
c) by examination or comprehensive examination passed in the examination period, and
d) by final examination.

16. Criteria for admission to a final examination:

a) Final certificate ("absolutorium") granted,
b) Thesis accepted by supervisor.

To be admitted to the final examination, you must have obtained a final certificate. A final certificate is issued by the higher education institution to students who have fulfilled the study and examination requirements and the professional practice requirements of the curriculum, with the exception of the foreign language requirement and the thesis, and who have acquired the required number of credits.

17. Parts of the final examination:

The final examination consists of the defense of the thesis and oral examinations in the subjects prescribed in the curriculum (preparation time of at least 30 minutes per subject), which the student must take continuously on the same day.

The list of questions of the oral examination is made available to candidates 30 days before the date of the final examination.

Candidates may start the examination if their thesis has been accepted by the final examination board with at least a sufficient (2) grade. Criteria for correcting a failed thesis are defined by the competent institute.

18. Result of the final examination:

The weighted average of the marks awarded for the diploma thesis ("*SZD")* and the oral part of the final examination, taking into account the number of subjects in the final examination, is as follows:

$$Z = (SZD + Z1+Z2+...+Zm)/(1+m).$$

19. Criteria for issuing a diploma:

a) Successful final examination,
b) Compliance with the foreign language requirement.

20. Dual training option:

Dual training is joint training linked to the full-time undergraduate education of the university, in contractual cooperation between the university and a company (business company, enterprise, institution) and the student, in order to produce the best qualified

professionals for the company. The conditions for dual training are set out in the contracts between the university and the company and between the company and the student.

21. Cooperative training option:

Co-operative training is a voluntary additional practical module to the full-time undergraduate course of the university, in which the university and a company, enterprise or institution cooperate in order to provide students with a work placement as defined in the training objective.

22. Number of credits to be credited for further studies in the field of training: ---

23. Date of entry into effect: 1 September 2023.

Budapest, 28 September 2024.

László Koltai Ph.D. Habil
Dean

C U R R I C U L U M

FULL-TIME

Óbuda University
Rejtő Sándor Faculty of Light Industry and Evironmental Engineering

MSc Sample curriculum
Full time training
Light Industry Engineering Programme
Head of programme: Dr. Borbély Ákos

Valid from:01.09.2024.
Decision number: RKK-KT-CIII/205/20
Date of decision: 16.05.2024.

Weekly teaching hours (Lecture (L), Classroom work (Cw), Laboratory work (Lw). ; Requirements (R; e-exam, tm-term mark, s-signature, a3: 3 step assessment), Credits (Cr)																						
	Code	Subjects	weekly hour	Credit	Type	Semester																Required prelineary knowledge
						1				2.				3.				4.				
						L	Cw	R	Cr	L	Cw	R	Cr	L	Cw	R	Cr	L	Cw	R	Cr	Code
Natural sciences (20-25 credit)			**16**	***20***		**8**	**8**		***20***	**0**	**0**		***0***	**0**	**0**		***0***	**0**	**0**		***0***	
1.	RMXAM1EMNF	Applied Mathematics and Statistics	4	5	A	2	2	e	5													
2.	RMXME1EMNF	Modelling in engineering (blended)	4	5	A	2	2	e	5													
3.	RMXAP1EMNF	Applied physics	4	5	A	2	2	e	5													
4.	RMEAC1EMNF	Applied chemistry (blended)	4	5	A	2	2	e	5													
Economy and human subjects (10-15 credit)			**11**	***12***		**0**	**0**		***0***	**3**	**4**		***8***	**2**	**2**		***4***	**0**	**0**		***0***	
5.	RMXFT1KMNF	Financial, accounting and tax studies	4	4	A					2	2	e	4									
6.	RMXLO1KMNF	Leadership and organisation (blended)	3	4	A					1	2	e	4									
7.	RMXPM1LMNF	Production and process management in light industry	4	4	A									2	2	e	*4*					
Light industry subjects (18-24 credit),			**14**	***21***		**1**	**6**		***9***	**2**	**3**		***8***	**2**	**0**		***4***	**0**	**0**		***0***	
8.	RMXEI1KMNF	Electronics and information technology	3	4	A					2	1	e	4									
9.	RMXLI1KMNF	Logistics in light industry	3	4	A	1	2	tm	4													
10.	RMXCA1KMNF	Computer aided product design	2	4	A					0	2	tm	4									
11.	RMXTS1KMNF	Technological measurements	4	5	A	0	4	tm	5													
12.	RMXPS1LMNF	Product security (blended)	2	4	A									2	0	e	4					
			41	*53*		*9*	*14*		*29*	*5*	*7*		*16*	*4*	*2*		*8*	*0*	*0*		*0*	
								4				3				2				0		
								2				1				0				0		

A requirement of the diploma is the completion of at least 4 weeks of work experience.

Subjects of the final exam: **1. Modelling in engineering**

2. Subject depending on specialisation:
Packaging technology specialization: Packaging technology and design
Printing and media technology specialisation: Print media technologies and materials
Quality management specialization: Quality management and management systems
Fashion design and technology specialization: Fashion collection development and manufacturing technologies

László Koltai Habil Ph.D.

Dean

Óbuda University
Rejtő Sándor Faculty of Light Industry and Evironmental Engineering

MSc Sample curriculum
Full time training
Light Industry Engineering Programme
Packaging technology specialisation
Head of profession: László Koltai Habil Ph.D.

Valid from:01.09.2024.
Decision number: RKK-KT-CIII/205/2024
Date of decision: 16.05.2024.

Weekly teaching hours (Lecture (L), Classroom work (Cw), Laboratory work (Lw). ; Requirements (R; e-exam, tm-term mark, s-signature, a3: 3 step assessment), Credits (Cr)

	Code	Subjects	weekly hour	*Credit*	Type	Semester																Required prelineary knowledge
						1.				2.				3.				4.				
						L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	Code
Differentiated professional subjects (min. 10 Cr) all:			**13**	***17***		**0**	**0**		***0***	**1**	**3**		**5**	**1**	**2**		**4**	**1**	**5**		**8**	
13.	RMWPT1CMNF	Packaging machines (blended)	3	*4*	B													1	2	tm	4	
14.	RMWPT2CMNF	Packaging materials (blended)	4	*5*	B					1	3	e	5									
15.	RMWPE1CMNF	Package design I.	3	*4*	B									1	2	e	4					
16.	RMDTH1CMNF	Package design II.	3	*4*	B													0	3	tm	4	
Compulsory optional subjects all:			**34**	***42***		**0**	**0**		***0***	**1**	**2**		***4***	**1**	**11**		**14**	**1**	**18**		**24**	
17.	RMWPT1CMNF	Packaging technologies I.	3	*4*	B					1	2	tm	4									
18.	RMWPT2CMNF	Packaging technologies II.	4	*4*	B									1	3	e	4					
19.	RMWPE1CMNF	Packaging ergonomy (blended)	3	*4*	B													1	2	e	4	
20.	RMDTH1CMNF	Thesis	24	*30*	B									**0**	**8**	**tm**	**10**	**0**	**16**	**tm**	***20***	
Differentiated professional subjects, Compulsory optional subjects			**47**	***59***		**0**			***0***	**7**			***9***	**15**			***18***	**25**			***32***	
Compulsory fundamentals, professional core subjects			**41**	***53***		**23**			***29***	**12**			***16***	**6**			***8***	**0**			***0***	
Elective courses			**4**	***6***		**0**			***0***	**2**			***3***	**2**			***3***	**0**			***0***	
Elective course 1.										2	0	tm	*3*									
Elective course 2.														2	0	tm	*3*					
Compulsory subjects all:			2	2		1			1	1			1									
21.		Physical education I.	1	1		0	1	a3	1													
22.		Physical education II.	1	1						0	1	a3	1									Physical education I.
Total:			**94**	**120**		**1**			***30***	**1**			***29***				***29***				***32***	
		Weekly hours				24				22				23				25				
		Term mark						2				3				2				3		
		Exam:						4				4				4				1		

László Koltai Habil Ph.D.
Dean

Number of theoretical classes: **24** **26%**
Number of practical classes: **70** **74%**

Óbuda University
Rejtő Sándor Faculty of Light Industry and Evironmental Engineering

MSc Sample curriculum
Full time training
Light Industry Engineering Programme
Print and media technology specialisation
Head of profession: Csaba Horváth habil Ph.D.

Valid from:01.09.2024.
Decision number: RKK-KT-CIII/205/2024
Date of decision: 16.05.2024.

Weekly teaching hours (Lecture (L), Classroom work (Cw), Laboratory work (Lw). ; Requirements (R; e-exam, tm-term mark, s-signature, a3: 3 step assessment), Credits (Cr)																									
	Code	Subjects	weekly hour	*Credit*	Type	Semester																			Required prelineary knowledge
						1				2.				3.				4.							
						L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	Code
Differentiated professional subjects (min. 10 Cr) all:			***13***	***17***		**0**	**0**		***0***	**0**	**4**		**5**	**2**	**4**		**8**	**1**	**2**		**4**					
13.	RMWDP1NMNF	Design and editing of printed products	*4*	*5*	B					0	4	e	5													
14.	RMWPE1NMNF	Print media materials, environmental protection and quality assurance I. (blended)	*3*	*4*	B									1	2	tm	4									
15.	RMWPE2NMNF	Print media materials, environmental protection and quality assurance II. (blended)	*3*	*4*	B													1	2	e	4					
16.	RMWBF1NMNF	Binding and finishing technologies	*3*	*4*	B									1	2	e	4									
Compulsory optional subjects all:			***34***	***42***		**0**	**0**		**0**	**1**	**2**		**4**	**1**	**10**		**14**	**1**	**19**		**24**					
17.	RMWPM1NMNF	Print media technologies I.	*3*	*4*	B					1	2	e	4													
18.	RMWPM2NMNF	Print media technologies II.	*3*	*4*	B									1	2	tm	4									
19.	RMWPM3NMNF	Print media technologies III. (blended)	*4*	*4*	B													1	3	e	4					
20.	RMDTH1NMNF	Thesis	*24*	*30*	B									**0**	**8**	**tm**	**10**	**0**	**16**	**tm**	***20***					
Differentiated professional subjects, Compulsory optional subjects			**47**	***59***		**0**			***0***	**7**			***9***	**17**			***22***	**23**			***28***					
Compulsory fundamentals, professional core subjects			**41**	***53***		**23**			***29***	**12**			***16***	**6**			***8***	**0**			***0***					
Elective courses			**4**	***6***		**0**			***0***	**2**			***3***	**0**			***0***	**2**			***3***					
Elective course 1.																		**2**	**0**	**tm**	***3***					
Elective course 2.										2	0	tm	3													
Compulsory subjects all:			2	2		1			1	1			1													
21.		Physical education I.	1	1		0	1	a3	1																	
22.		Physical education II.	1	1						0	1	a3	1													Physical education I.
Total:			**94**	***120***		**1**			***30***	**1**			***29***				***30***				***31***					
		Weekly hours				24				22				23				25								
		Term mark						2				2				3				2						
		Exam:						4				5				3				2						

Number of theoretical classes: **24** **26%**
Number of practical classes: **70** **74%**

László Koltai Habil Ph.D.
Dean

Óbuda University
Rejtő Sándor Faculty of Light Industry and Evironmental Engineering

MSc Sample curriculum
Full time training
Light Industry Engineering Programme
Quality Management Specialization
Head of profession: Tibor Gregász Ph.D.

Valid from:01.09.2024.
Decision number: RKK-KT-CIII/205/202
Date of decision: 16.05.2024.

Weekly teaching hours (Lecture (L), Classroom work (Cw), Laboratory work (Lw). ; Requirements (R; e-exam, tm-term mark, s-signature, a3: 3 step assessment), Credits (Cr)

	Code	Subjects	weekly hour	*Credit*	Type	Semester 1				2.				3.				4.				Required prelineary knowledge
						L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	Code
Differentiated professional subjects (min. 10 Cr) all:			**12**	**16**		**0**	**0**		**0**	**2**	**4**		**8**	**1**	**2**		**4**	**1**	**2**		**4**	
13.	RMWMS1QMNF	Management systems in practice I. (blended)	3	*4*	B					1	2	e	4									
14.	RMWMS2QMNF	Management systems in practice II. (blended)	3	*4*	B									1	2	tm	4					
15.	RMWMS3QMNF	Management systems in practice III. (blended)	3	*4*	B													1	2	e	4	
16.	RMWES1QMNF	Evaluation of subjective data	3	*4*	B					1	2	tm	4									
Compulsory optional subjects all:			**35**	**43**		**0**	**0**		***0***	**1**	**3**		**4**	**1**	**11**		**15**	**1**	**18**		**24**	
17.	RMWQM1QMNF	Quality management I.	4	*4*	B					1	3	tm	4									
18.	RMWQM2QMNF	Quality management II.	4	*5*	B									1	3	tm	5					
19.	RMWQM3QMNF	Quality management III.	3	*4*	B													1	2	e	4	
20.	RMDTH1QMNF	Thesis	24	*30*	B									0	8	tm	10	0	16	tm	*20*	
Differentiated professional subjects, Compulsory optional subjects			**47**	***59***		**0**			***0***	**10**			***12***	**15**			***19***	**22**			***28***	
Compulsory fundamentals, professional core subjects			**41**	***53***		**23**			***29***	**12**			***16***	**6**			***8***	**0**			***0***	
Elective courses			**4**	***6***		**0**			***0***	**0**			***0***	**2**			***3***	**2**			***3***	
Elective course 1.																		2	0	tm	*3*	
Elective course 2.														2	0	tm	*3*					
Compulsory subjects all:			2	2		1			1	1			1									
21.		Physical education I.	1	1		0	1	a3	1													
22.		Physical education II.	1	1						0	1	a3	1									Physical education I.
		Total:	**94**	***120***		**1**			***30***	**1**			***29***				***30***				***31***	
		Weekly hours				24				23				23				24				
		Term mark						2				3				4				2		
		Exam:						3				4				2				2		

László Koltai Habil Ph.D.
Dean

Number of theoretical classes: 25 27%
Number of practical classes: 69 73%

Óbuda University
Rejtő Sándor Faculty of Light Industry and Evironmental Engineering

MSc Sample curriculum
Full time training
Light Industry Engineering Programme
Fashion design and technology specialisation
Head of profession: Dr. Edit Csanák DLA

Valid from: 01.09.2024
Decision number: RKK-KT-CII/198/2024
Date of decision: 14.03.2024.

Weekly teaching hours (Lecture (L), Classroom work (Cw), Laboratory work (Lw). ; Requirements (R; e-exam, tm-term mark, s-signature, a3: 3 step assessment), Credits (Cr)

	Code	Subjects	weekly hour	*Credit*	Type	Semester 1				2.				3.				4.				Required prelineary knowledge
						L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	Code
Differentiated professional subjects (min. 10 Cr) all:			***13***	***17***		**0**	**0**		***0***	**0**	**4**		**5**	**2**	**4**		**8**	**1**	**2**		**4**	
13.	RTWFC1AMNF	Fashion Collection Development	*4*	*5*	B					0	4	e	5									
14.	RTWMG1AMNF	Modelling and Grading (blended)	*3*	*4*	B									1	2	e	4					
15.	RTWDI1AMNF	Design for Impact (blended)	*3*	*4*	B									1	2	tm	4					
16.	RTWSP1AMNF	Sustainability and PLCM in TCFL Industry (blended	*3*	*4*	B													1	2	e	4	
Compulsory optional subjects all:			***34***	***42***		**0**	**0**		**0**	**1**	**2**		**4**	**1**	**10**		**14**	**1**	**19**		**24**	
17.	RTWPC1AMNF	Product Construction and Design	*3*	*4*	B					1	2	e	4									
18.	RTWMT1AMNF	Manufacturing Technologies I.	*3*	*4*	B									1	2	tm	4					
19.	RTWMT2AMNF	Manufacturing Technologies II.	*4*	*4*	B													1	3	e	4	
20.	RTDTH1AMNF	Thesis	*24*	*30*	B									0	8	tm	10	0	16	tm	*20*	
Differentiated professional subjects, Compulsory optional subjects			**47**	***59***		**0**			***0***	**7**			***9***	**17**			***22***	**23**			***28***	
Compulsory fundamentals, professional core subjects			**41**	***53***		**23**			***29***	**12**			***16***	**6**			***8***	**0**			***0***	
Elective courses			**4**	***6***		**0**			***0***	**2**			***3***	**0**			***0***	**2**			***3***	
Elective course 1.																		**2**	**0**	**tm**	*3*	
Elective course 2.										2	0	tm	*3*									
Compulsory subjects all:			2	2		1			1	1			1									
21.		Physical education I.	1	1		0	1	a3	1													
22.		Physical education II.	1	1						0	1	a3	1									Physical education I.
Total:			**94**	***120***		**1**			***30***	**1**			***29***				***30***				***31***	
		Weekly hours				24				22				23				25				
		Term mark						2				2				3				2		
		Exam:						4				5				3				2		

Number of theoretical classes: **24** **26%**
Number of practical classes: **70** **74%**

László Koltai Habil Ph.D.
Dean

Óbuda University
Rejtő Sándor Faculty of Light Industry and Evironmental Engineering

MSc Sample curriculum
Full time training
Light Industry Engineering Programme
Elective courses

Weekly teaching hours (Lecture (L), Classroom work (Cw), Laboratory work (Lw). ; Requirements (R; e-exam, tm-term mark, s-signature, a3: 3 step assessment), Credits (Cr

	Code	Subjects	sem. hour	*Credit*	Semester																Required prelineary knowledge
					1.				2.				3.				4.				
					L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	Code
Elective courses																					
1.	OE	Introduction to print media	2	3					2	0	tm	*3*									
2.	OE	Introduction to packaging technologies	4	3					2	2	tm	*3*									
3.	OE	Security printing	4	3					2	2	tm	*3*									
4.	OE	Food packaging	4	3									2	2	tm	*3*					
5.	OE	Prepress- Image Editing with Adobe Photoshop	4	3									2	2	tm	*3*					
6.	OE	Handmade paper making and manufacturing	4	3									2	2	tm	*3*					
7.	OE	Introducing to Graphic Communication	4	3									2	2	tm	*3*					
8.	OE	Lean and Green Printing online	4	3									2	2	tm	*3*					
9.	OE	Sustainable Green Printing online	4	3									2	2	tm	*3*					
10.	OE	Project Work I.	2	3									0	2	tm	*3*					
11.	OE	Project Work Practice	2	3									0	2	tm	*3*					

The above list may change due to the decision of the Faculty Council.

László Koltai Habil Ph.D.
dean

CORRESPONDENT

Óbuda University
Rejtő Sándor Faculty of Light Industry and Evironmental Engineering

MSc Sample curriculum
Part-time training
Light Industry Engineering Programme
Head of programme: Ákos Borbély Ph.D

Valid from:01.09.2024.
Decision number: RKK-KT-CIII/203/202
Date of decision: 16.05.2024

Weekly teaching hours (Lecture (L), Classroom work (Cw), Laboratory work (Lw). ; Requirements (R; e-exam, tm-term mark, s-signature, a3: 3 step assessment), Credits (Cr)																							Required prelineary knowledge code
	Code	Subjects	weekly hour	*Credit*	Type	Semester																	
						1				2.				3.				4.					
						L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*		
Natural sciences (20-25 credit)			**72**	***20***		**36**	**36**		***20***	**0**	**0**		***0***	**0**	**0**		***0***	**0**	**0**		***0***		
1.	RMXAM1EMLF	Applied Mathematics and Statistics	20	5	A	10	10	e	5														
2.	RMXME1EMLF	Modelling in engineering (blended)	16	5	A	8	8	e	5														
3.	RMXAP1EMLF	Applied physics	20	5	A	10	10	e	5														
4.	RMEAC1EMLF	Applied chemistry (blended)	16	5	A	8	8	e	5														
Economy and human subjects (10-15 credit)			**55**	***12***		**0**	**0**		***0***	**15**	**20**		***8***	**10**	**10**		***4***	**0**	**0**		***0***		
5.	RMXFT1KMLF	Financial, accounting and tax studies	20	4	A					10	10	e	4										
6.	RMXLO1KMLF	Leadership and organisation (blended)	15	4	A					5	10	e	4										
7.	RMXPM1LMLF	Production and process management in light industry	20	4	A									10	10	e	*4*						
Light industry subjects (18-24 credit),			**56**	***21***		**4**	**24**		***9***	**8**	**12**		***8***	**8**	**0**		***4***	**0**	**0**		***0***		
8.	RMXEI1KMLF	Electronics and information technology	12	4	A					8	4	e	4										
9.	RMXLI1KMLF	Logistics in light industry	12	4	A	4	8	tm	4														
10.	RMXCA1KMLF	Computer aided product design	8	4	A					0	8	tm	4										
11.	RMXTS1KMLF	Technological measurements	16	5	A	0	16	tm	5														
12.	RMXPS1LMLF	Product security (blended)	8	4	A									8	0	e	4						
			183	*53*		*40*	*60*		*29*	*23*	*32*		*16*	*18*	*10*		*8*	*0*	*0*		*0*		
					Exam (e)			4				3				2				0			
					Term mark (tm)			2				1				0				0			

A requirement of the diploma is the completion of at least 4 weeks of work experience.

László Koltai Habil Ph.D.
Dean

Subjects of the final exam:

1. **Modelling in engineering**

2. Subject depending on specialisation:

Packaging technology specialization: Packaging technology and design

Printing and media technology specialisation: Print media technologies and materials

Quality management specialization: Quality management and management systems

Fashion design and technology specialization: Fashion collection development and manufacturing technologies

Óbuda University
Rejtő Sándor Faculty of Light Industry and Evironmental Engineering

MSc Sample curriculum
Part-time training
Light Industry Engineering Programme
Packaging technology specialisation
Head of profession: László Koltai Habil Ph.D.

Valid from:01.09.2024.
Decision number: RKK-KT--CIII/203/2024
Date of decision: 16.05.2024

Weekly teaching hours (Lecture (L), Classroom work (Cw), Laboratory work (Lw). ; Requirements (R; e-exam, tm-term mark, s-signature, a3: 3 step assessment), Credits (Cr)																										
	Code	Subjects	weekly hour	*Credit*	Type	Semester																				Required prelineary knowledge
						1				2.				3.				4.								
						L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	Code
Differentiated professional subjects (min. 10 Cr) all:			**52**	***17***		**0**	**0**		***0***	**4**	**12**		**5**	**4**	**8**		**4**	**4**	**20**		**8**					
13.	RMWPM1CMLF	Packaging machines (blended)	12	*4*	B													4	8	tm	4					
14.	RMWPS1CMLF	Packaging materials (blended)	16	*5*	B					4	12	e	5													
15.	RMWPD1CMLF	Package design I.	12	*4*	B									4	8	e	4									
16.	RMWPD2CMLF	Package design II.	12	*4*	B													0	12	tm	4					
Compulsory optional subjects all:			**64**	***42***		**0**	**0**		***0***	**4**	**8**		***4***	**4**	**20**		**14**	**4**	**24**		**24**					
17.	RMWPT1CMLF	Packaging technologies I.	12	*4*	B					4	8	tm	4													
18.	RMWPT2CMLF	Packaging technologies II.	16	*4*	B									4	12	e	4									
19.	RMWPE1CMLF	Packaging ergonomy (blended)	12	*4*	B													4	8	e	4					
20.	RMDTH1CMLF	Thesis	24	*30*	B									**0**	**8**	**tm**	**10**	**0**	**16**	**tm**	***20***					
Differentiated professional subjects, Compulsory optional subjects			**116**	***59***		**0**			***0***	**28**			***9***	**36**			***18***	**52**			***32***					
Compulsory fundamentals, professional core subjects			**183**	***53***		**100**			***29***	**55**			***16***	**28**			***8***	**0**			***0***					
Elective courses			**16**	***6***		**0**			***0***	**8**			***3***	**8**			***3***	**0**			***0***					
Elective course 1.										8	0	tm	*3*													
Elective course 2.														8	0	tm	*3*									
Compulsory subject all:			12	2		6			1	6			1													
21.		Physical education I.	6	1		0	6	a3	1																	
22.		Physical education II.	6	1						0	6	a3	1													Physical education I.
		Total:	**327**	**120**					***30***				***29***				***29***				***32***					
		Total per semester				100				91				72				52								
		Term marks:						2				3				2				3						
		Exams:						4				4				4				1						

László Koltai Habil Ph.D.
Dean

Number of theoretical classes: **105** **32%**
Number of practical classes: **222** **68%**

Óbuda University
Rejtő Sándor Faculty of Light Industry and Evironmental Engineering

MSc Sample curriculum
Part-time training
Light Industry Engineering Programme
Print and media technology specialisation
Head of Profession: Csaba Horváth Habil Ph.D.

Valid from:01.09.2024.
Decision number: RKK-KT-CIII/203/2024
Date of decision: 16.05.2024

Weekly teaching hours (Lecture (L), Classroom work (Cw), Laboratory work (Lw). ; Requirements (R; e-exam, tm-term mark, s-signature, a3: 3 step assessment), Credits (Cr)

	Code	Subjects	weekly hour	*Credit*	Type	Semester 1				2.				3.				4.				Required prelineary knowledge
						L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	Code
Differentiated professional subjects (min. 10 Cr) all:			***52***	***17***		**0**	**0**		***0***	**0**	**16**		**5**	**8**	**16**		**8**	**4**	**8**		**4**	
13.	RMWDP1NMLF	Design and editing of printed products	*16*	*5*	B					0	16	e	5									
14.	RMWPE1NMLF	Print media materials, environmental protection and quality assurance I. (blended)	*12*	*4*	B									4	8	tm	4					
15.	RMWPE2NMLF	Print media materials, environmental protection and quality assurance II. (blended)	*12*	*4*	B													4	8	e	4	
16.	RMWBF1NMLF	Binding and finishing technologies	*12*	*4*	B									4	8	e	4					
Compulsory optional subjects all:			***64***	***42***		**0**	**0**		***0***	**4**	**8**		**4**	**4**	**16**		**14**	**4**	**28**		**24**	
17.	RMWPM1NMLF	Print media technologies I.	*12*	*4*	B					4	8	e	4									
18.	RMWPM2NMLF	Print media technologies II.	*12*	*4*	B									4	8	tm	4					
19.	RMWPM3NMLF	Print media technologies III. (blended)	*16*	*4*	B													4	12	e	4	
20.	RMDTH1NMLF	Thesis	*24*	*30*	B									**0**	**8**	**tm**	**10**	**0**	**16**	**tm**	***20***	
Differentiated professional subjects, Compulsory optional subjects			**116**	***59***		**0**			***0***	**28**			***9***	**44**			***22***	**44**			***28***	
Compulsory fundamentals, professional core subjects			**183**	***53***		**100**			***29***	**55**			***16***	**28**			***8***	**0**			***0***	
Elective courses			**16**	***6***		**0**			***0***	**8**			***3***	**0**			***0***	**8**			***3***	
Elective course 1.																		8	0	é	*3*	
Elective course 2.										8	0	tm	*3*									
Compulsory subjects all:			12	2		6			1	6			1									
21.		Physical education I.	6	1		0	6	a3	1													
22.		Physical education II.	6	1						0	6	a3	1									Physical education I.
		Total:	**327**	***120***					***30***				***29***				***30***				***31***	
		Total per semester				100				91				72				52				
		Term marks:						2				2				3				1		
		Exams:						4				5				3				2		

Number of theoretical classes:	**105**	**32%**
Number of practical classes:	**222**	**68%**

László Koltai Habil Ph.D.
Dean

Óbuda University
Rejtő Sándor Faculty of Light Industry and Evironmental Engineering

MSc Sample curriculum
Part-time training
Light Industry Engineering Programme
Quality Management Specialization
Head of profession: Tibor Gregász Ph.D.

Valid from:01.09.2024.
Decision number: RKK-KT-CIII/203/2024
Date of decision: 16.05.2024

Weekly teaching hours (Lecture (L), Classroom work (Cw), Laboratory work (Lw). ; Requirements (R; e-exam, tm-term mark, s-signature, a3: 3 step assessment), Credits (Cr)

	Code	Subjects	weekly hour	*Credit*	Type	Semester 1.				2.				3.				4.				Required prelineary knowledge
						L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	Code
Differentiated professional subjects (min. 10 Cr) all:			**48**	**16**		**0**	**0**		**0**	**8**	**16**		**8**	**4**	**8**		**4**	**4**	**8**		**4**	
13.	RMWMS1QMLF	Management systems in practice I. (blended)	12	*4*	B					4	8	e	4									
14.	RMWMS2QMLF	Management systems in practice II. (blended)	12	*4*	B									4	8	tm	4					
15.	RMWMS3QMLF	Management systems in practice III. (blended)	12	*4*	B													4	8	e	4	
16.	RMWES1QMLF	Evaluation of subjective data	12	*4*	B					4	8	tm	4									
Compulsory optional subjects all:			**68**	**43**		**0**	**0**		***0***	**4**	**12**		**4**	**4**	**20**		**15**	**4**	**24**		**24**	
17.	RMWQM1QMLF	Quality management I.	16	*4*	B					4	12	tm	4									
18.	RMWQM2QMLF	Quality management II.	16	*5*	B									4	12	tm	5					
19.	RMWQM3QMLF	Quality management III.	12	*4*	B													4	8	e	4	
20.	RMDTH1QMLF	Thesis	24	*30*	B									0	8	tm	10	0	16	tm	*20*	
Differentiated professional subjects, Compulsory optional subjects			**116**	***59***		**0**			***0***	**40**			***12***	**36**			***19***	**40**			***28***	
Compulsory fundamentals, professional core subjects			**183**	***53***		**100**			***29***	**55**			***16***	**28**			***8***	**0**			***0***	
Elective courses all:			**16**	***6***		**0**			***0***	**0**			***0***	**8**			***3***	**8**			***3***	
Elective course 1.																	8	0	tm	*3*		
Elective course 2.													8	0	tm	*3*						
Compulsory subjects			12	2		6			1	6			1									
21.		Physical education I.	6	1		0	6	a3	1													
22.		Physical education II.	6	1						0	6	a3	1									Physical education I.
		Total:	**327**	***120***		**6**			***30***	**6**			***29***				***30***				***31***	
		Total per semester				100				95				72				48				
		Term marks:						2				3				3				1		
		Exams:						3				4				2				2		

László Koltai Habil Ph.D.
Dean

Number of theoretical classes:	**109**	**33%**
Number of practical classes:	**218**	**67%**

Obuda University
Rejtő Sándor Faculty of Light Industry and Evironmental Engineering

MSc Sample curriculum
Part-time training
Light Industry Engineering Programme
Fashion design and technology specialisation
Head of Profession: Dr. Edit Csanák DLA

Valid from:01.09.2024.
Decision number: RKK-KT-CII/199/2024
Date of decision: 14.03.2024.

Weekly teaching hours (Lecture (L), Classroom work (Cw), Laboratory work (Lw). ; Requirements (R; e-exam, tm-term mark, s-signature, a3: 3 step assessment), Credits (Cr)

	Code	Subjects	weekly hour	Credit	Type	Semester 1				2.				3.				4.				Required prelineary knowledge
						L	Cw	R	Cr	L	Cw	R	Cr	L	Cw	R	Cr	L	Cw	R	Cr	Code
Differentiated professional subjects (min. 10 Cr) all:			***52***	***17***		**0**	**0**		***0***	**0**	**16**		**5**	**8**	**16**		**8**	**4**	**8**		**4**	
13.	RTWFC1AMLF	Fashion Collection Development	*16*	*5*	B					0	16	e	5									
14.	RTWMG1AMLF	Modelling and Grading (blended)	*12*	*4*	B									4	8	e	4					
15.	RTWDI1AMLF	Design for Impact (blended)	*12*	*4*	B									4	8	tm	4					
16.	RTWSP1AMLF	Sustainability and PLCM in TCFL Industry (blended)	*12*	*4*	B													4	8	e	4	
Compulsory optional subjects all:			***64***	***42***		**0**	**0**		**0**	**4**	**8**		**4**	**4**	**16**		**14**	**4**	**28**		**24**	
17.	RTWPC1AMLF	Product Construction and Design	*12*	*4*	B					4	8	e	4									
18.	RTWMT1AMLF	Manufacturing Technologies I.	*12*	*4*	B									4	8	tm	4					
19.	RTWMT2AMLF	Manufacturing Technologies II.	*16*	*4*	B													4	12	e	4	
20.	RTDTH1AMLF	Thesis	*24*	*30*	B									**0**	**8**	**tm**	**10**	**0**	**16**	**tm**	***20***	
Differentiated professional subjects, Compulsory optional subjects			**116**	***59***		**0**			***0***	**28**			***9***	**44**			***22***	**44**			***28***	
Compulsory fundamentals, professional core subjects			**183**	***53***		**100**			***29***	**55**			***16***	**28**			***8***	**0**			***0***	
Elective courses			**16**	***6***		**0**			***0***	**8**			***3***	**0**			***0***	**8**			***3***	
Elective course 1.																		8	0	tm	*3*	
Elective course 2.										8	0	tm	*3*									
Compulsory subjects all:			12	2		6			1	6			1									
21.		Physical education I.	6	1		0	6	a3	1													
22.		Physical education II.	6	1						0	6	a3	1									Physical education I.
Total:			**327**	***120***					***30***				***29***				***30***				***31***	
		Total per semester				100				91				72				52				
		Term marks:						2				2				3				2		
		Exams:						4				5				3				2		

Number of theoretical classes:	**105**	**32%**
Number of practical classes:	**222**	**68%**

László Koltai Habil Ph.D.
Dean

Óbuda University
Rejtő Sándor Faculty of Light Industry and Evironmental Engineering

MSc Sample curriculum
Part-time training
Light Industry Engineering Programme
Elective courses

Weekly teaching hours (Lecture (L), Classroom work (Cw), Laboratory work (Lw). ; Requirements (R; e-exam, tm-term mark, s-signature, a3: 3 step assessment), Credits (Cr)

	Code	Subjects	sem. hour	*Credit*	Semester												Required preliminary knowledge
					1.				2.				3.				4.				
					L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	L	Cw	R	*Cr*	Code
Elective courses																					
1.	OE	Introduction to print media	8	3					8	0	tm	*3*									
2.	OE	Introduction to packaging technologies	16	3					8	8	tm	*3*									
3.	OE	Security printing	16	3					8	8	tm	*3*									
4.	OE	Food packaging	16	3									8	8	tm	*3*					
5.	OE	Prepress- Image Editing with Adobe Photoshop	16	3									8	8	tm	*3*					
6.	OE	Handmade paper making and manufacturing	16	3									8	8	tm	*3*					
7.	OE	Introducing to Graphic Communication	16	3									8	8	tm	*3*					
8.	OE	Lean and Green Printing online	16	3									8	8	tm	*3*					
9.	OE	Sustainable Green Printing online	16	3									8	8	tm	*3*					
10.	OE	Project Work I.	8	3									0	8	tm	*3*					
11.	OE	Project Work Practice	8	3									0	8	tm	*3*					

A szabadon választható tárgyak listája a Kari Tanács döntése alapján változhat.

Dr. habil Koltai László dékán

SUBJECT DESCRIPTIONS

Title of course: **Applied Mathematics and Statistics**	*NEPTUN-code:* RMXAM1EMNF	*Weekly teaching hours:* *l+cw+lw* 2+2+0	***Credit*:** 5 ***Exam type:*** tm
Course leader: Dr. Horváth-Szováti Erika	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

Constant coefficient second-order linear differential equations (Lagrange method, test function method). Solving differential equations by series expansion. Properties, derivatives, gradients of bivariate and trivariate functions. Local extreme value, conditional extreme value. Integration of bivariate functions in rectangular domain, normal domain, and circular domain (plane polar coordinate substitution). Integration of trivariate functions in rectangular domain, normal domain, cylindrical domain (cylindrical coordinate substitution), and spherical domain (spherical polar coordinate substitution). Applications of the integral calculus: volume, mass and centre of mass, surface area. Vector scalar functions, vector equation of a z-axis twist equation, direction vector and arc length of a curve of space. Vector-vector functions, differential, divergence, rotation, nabla operator, Laplace operator. Line integral.

Literature:

- Horváth Jenő, Matematika II., NYME egyetemi jegyzet, 1998.
- Bronstejn–Szemengyajev, Matematikai zsebkönyv, 1987.
- Teaching materials uploaded in the e-learning system

Title of course: **Modelling in Engineering**	*NEPTUN-code:* RMXME1EMNF	*Weekly teaching hours:* *l+cw+lw* 2+2+0	***Credit*****:** 5 ***Exam type: e***
Course leader: Dr. Németh László	*Position:* associate professor	***Required preliminary knowledge: -***	

Curriculum:

Wireframe model, body model, surface model. Volume model. Transformations, projections. Description of curves. Interpolation, approximation, spline. Third-order curves. Hermite curve. Bézier curve, properties, representation, Bernstein polynomials. B-spline curve, properties. Rational curves (NURBS), their shape modifications. Surface types, description of Coons patches, offset, rotation, twist, second order and other surfaces, their computer modelling, representation. Regular polyhedra and their applications, geodesic domes. Bézier surfaces, B-spline surfaces. Creating composite surfaces and solids. Visibility algorithms. Illumination, shadows. Colors. Shaded visualisation. AutoCAD skills. For all theoretical material, practical exercises using CAD software.

Literature:

- Juhász Imre (1993): Számítógépi geometria és grafika, Miskolci Egyetemi Kiadó, Miskolc.
- Szirmay – Kallos László (2001): Számítógépes grafika, Computerbooks, Bp.
- Budai Attila (1999): A számítógépes grafika, LSI Oktatóközpont, Bp.
- Pintér Miklós (2008): AutoCAD Tankönyv és példatár, Computerbooks, Bp.
- Anald, V. B. (1993): Computer Graphics and Geometric Modelling for Engineers, John Wiley and Sons.

Title of course: **Applied Physics**	*NEPTUN-code:* RMXAP1EMNF	*Weekly teaching hours: l+cw+lw* 2+2+0	***Credit*: 5** ***Exam type: e***
Course leader: Dr. Tolvaj László	***Position:*** professor	***Required preliminary knowledge: -***	

Curriculum:

Electric state, electric field, motion of a charged particle in an electric field. Gauss' law and its application, electrostatic properties of conductors. Electric potential, capacitance, current, resistance. Kirchoff's laws. Magnetic field, Ampère's, Faraday's and Lenz's laws. Alternating current, power. Geometrical, physical optics. Black body radiation, photoelectric phenomenon. Solid state structure of atoms and molecules. Elements of nuclear and particle physics.

Literature:

Budó Ágoston: Kísérleti fizika II. III. Tankönyvkiadó, Budapest 1971, 1977

Title of course: **Applied Chemistry**	*NEPTUN-code:* RMEAC1EMNF	*Weekly teaching hours: l+cw+lw* 2+2+0	***Credit*: 5** ***Exam type: e***
Course leader: Dr. Hofmann Tamás	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

Production, chemical composition, structure and properties of natural and technical materials used in Light Industry. Carbohydrates. Proteins. Polymers. Silicates. Composites. Hazardous waste. Pollution and environmental protection for cleaner light manufacturing. Safety Engineering in Light Industry.

Literature:

- Markó László: Szerves kémia I-VI. Pannon Egyetemi kiadó. Veszprém, 2001.
- Albert Levente: Szervetlen és szerves kémia. Soproni Egyetem, 2004.
- Dr. Berecz Endre: Kémia műszakiaknak. Nemzeti tankönyvkiadó, Budapest, 1998.
- Papp Sándor, Rolf Kümmel: Környezeti kémia. Tankönyvkiadó, Budapest, 1992.
- Bándi Gy. (szerk.): Hulladékgazdálkodási kézikönyv. Környezetvédelmi kiskönyvtár sorozat. KJK KERSZÖV Jogi és Üzleti Kiadó Kft. 2001.

Economic and human knowledge:

Title of course: **Financial, accounting and tax knowledge**	***NEPTUN-code:*** RMXFT1KMNF	***Weekly teaching hours:*** *l+cw+lw* 2+2+0	***Credit*****:** 4 ***Exam type: e***
Course leader: Pakainé Dr. Kováts Judit	***Position:*** associate professor	***Required preliminary knowledge: -***	
Curriculum:			
In running a business, the ability to manage accounting policies is paramount. At the MSc level, the theoretical framework and practical application of accounting regulation are taught in detail. Topics. Accounting Law. Accounting Law. Accounting principles. Use of the balance sheet in analysis. Analysis of assets and financial position. The use of the balance sheet and the financial statements. Accounting for double-entry companies. Economic events and their accounting, rules for the valuation of assets. The asset accounting-built statements and their utilization in the analysis of the assets, financial and income situation of the enterprise.			
Literature:			
Korom Erik - Ormos Mihály - Veress Attila: Bevezetés a számvitel rendszerébe. Szemlélet és módszertan. Akadémia kiadó 2006			

Title of course: **Leadership and Organisation**	*NEPTUN-code:* RMXLO1KMNF	*Weekly teaching hours: l+cw+lw* 1+2+0	***Credit*: 4** ***Exam type: e***
Course leader: Dr. Takács Áron	*Position:* associate professor	***Required preliminary knowledge: -***	

Curriculum:

The aim of the course is to introduce students to management theory and practice, based on the knowledge of management methodology, which is suitable for the management of modern business organisations, institutions and non-profit organisations in market conditions. The course will cover the characteristics and operation of project management, and crisis management systems based on the principle of objectives, exceptions and project management. Students will learn about modern coaching methods and application techniques.

Professional competencies:

- Leadership skills and the ability to work in a team, knowledge to support the success of the group.
- Possess a wide range of skills for research and academic work analytical and problem-solving skills and techniques widely applicable to research and scholarship.
- Ability to understand laws and interrelationships, to apply acquired knowledge apply and put into practice the knowledge acquired, use problem-solving techniques.
- Ability to apply knowledge and understanding from disciplines related to light industry engineering new problems, new phenomena, new solutions to be found, and the ability to apply the knowledge and skills required to solve them, and to come up with original ideas.
- Ability to formulate a sound judgement or opinion and to make decisions, draw conclusions, constructive criticism.

Literature:

- Angyal Ádám: A vezetés mesterfogásai, Kossuth Kiadó Bp. 1999.
- Werner Vogelaner: Coaching a gyakorlatban, KJK-Kerszöv Bp. 2002.
- Chikán Attila-Wimmer Ágnes: Üzleti fogalomtár, Aula Bp. 2005.

Title of course: **Production Management and Process Organisation in the Light Industry**	*NEPTUN-code:* RMXPM1LMNF	*Weekly teaching hours: l+cw+lw* 2+2+0	***Credit*:** 4 ***Exam type: e***
Course leader: Dr. Csiszér Tamás	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

The aim of the subject is to show the professional characteristics of the Light Industry in the organisation of processes. The subjects of the subject are:

- Concepts of process modelling and simulation, examples of applications
- The principles of Lean and Six Sigma methods, and their comparison
- Lean Six Sigma to support the development of key business processes
- Process simulation exercise: agreeing simulation rules, running the simulation, and creating process description models. BPMN
- Jidoka principles and methods (zero defects, immediate shutdown, built-in quality, autonomation)
- Heijunka principles and methods (SMED, optimal product type mix)
- Principles and methods of Just in Time (one-piece flow, pulling system, kanban, time to time)
- Basic Flow-Chart, Swimlane, SIPOC, EPC, Spaghetti and VSM models
- Six Sigma DMAIC methodology, phase steps and techniques
- Qualitative and quantitative evaluation of the process
- Cost assessment of projects

Professional competencies:

A complex, high level of knowledge of the theoretical and practical aspects of light industry.
- Has a systematic knowledge of materials and technology in light industry.
- Knowledge of global social and economic processes related to the field of the profession.
- Ability to discuss in a broad but sufficiently scientific manner the various areas of light industry.

Literature:

Fehér Norbert: A LEAN SIX SIGMA folyamatfejlesztés kézikönyve, 2018.

Thomas Pyzdek, Paul Keller: The Six Sigma Handbook, McGraw-Hill Education 2014.

Bolya Árpád: Six sigma projektmenedzsment kézikönyv, 2011.

Daniel T. Jones, James P. Womack: LEAN szemlélet, HVG Kiadó 2009.

Teaching materials in the e-learning system

Professional knowledge in Light Industry Engineering:

Title of course: **Electronics and information technology**	*NEPTUN-code:* RMXEI1KMNF	*Weekly teaching hours:* *l+cw+lw* 2+1+0	***Credit*:** 4 ***Exam type: e***
Course leader: Dr. Mentes Gyula	*Position:* professor	***Required preliminary knowledge: -***	

Curriculum:

Students will learn about modern semiconductor devices (diodes, bipolar and field-effect transistors, etc.), basic analog devices (amplifiers, oscillators, multivibrators, etc.) and digital (gate circuits, storage, counters, microprocessors, memories, computer bus systems, I/O peripheral couplers) circuits, computer digital I/O, and the operation and application of analog-to-digital and digital-to-analog converters. The lecture will also cover interfaces for connecting standard computing and communication devices (RS232, RS422/RS485, Ethernet TCP/IP, UBS) and special industrial bus systems such as HP IL, Fieldbus or SERCOS

Literature:

- Mentes Gyula: Elektronika, kézirat
- Mentes Gyula: Elektronikai mérések, Mérési útmutató jegyzet NYME
- Titze, U. - Ch. Schenk: Analóg és digitális áramkörök, Műszaki Könyvkiadó, Budapest 1990
- Mentes Gyula: Digitális technikai alapismeretek, kézirat
- Andrew S. Tannenbaum: Számítógép architektúrák, Panem Könyvkiadó Kft. Budapest, 2001.

Title of course: **Logistics in the Light Industry**	*NEPTUN-code:* RMXLI1KMNF	*Weekly teaching hours:* *l+cw+lw* 1+2+0	*Credit*: 4 *Exam type:* tm
Course leader: Dr. Kocsis Zoltán	*Position:* adjunct professor	*Required preliminary knowledge: -*	

Curriculum:

The concept, task and purpose of logistics. Major trends in the development of logistics. Demand analysis and forecasting methods. Inventory management, inventory strategies. Practical application of ABC analysis. Methods for determining optimal order batch sizes (GRM). Purchasing strategies, and supplier evaluation systems. Logistics information and management systems. Logistics control. LEAN basics. Transportation logistics, distribution logistics. Material handling and warehousing. "Just in time (JIT) material supply. Logistics supply centres. Case studies.

Literature:

- Dr. Prezenszky József.: Logisztika I-II. Műegyetem Kiadó Budapest, 2001.
- Dr. Knoll I.: Logisztikai tanulmányok I.
- Dr. Knoll I.: Logisztika a 21. században. Képzőművészeti Kiadó, Budapest, 2001.
- Halászné Sipos E.: Logisztika. Magyar Világ Kiadó, Budapest, 1998.
- Rockstroh Ottó.: Csomagolástechnikai kézikönyv. Műszaki Könyvkiadó Budapest, 1979. 603 oldal.
- Wildemann H.: Das Just-in-Time-Konzept. TCW Transfer-Centrum GmbH, München, 1995

Title of course: **Computer-aided product design**	*NEPTUN-code:* RMXCA1KMNF	*Weekly teaching hours: l+cw+lw* 0+2+0	***Credit*:** 4 ***Exam type:*** tm
Course leader: Dr. Elek László	***Position:*** adjunkt professor	***Required preliminary knowledge: -***	

Curriculum:

The computer-aided design process. Life stages and product models. Basics of design based on sub-assets. 3D surfaces (analytical and non-analytical surfaces, translational surfaces, line surfaces, solid model) interpretation, editing, surface synchronisation. Processes for creating wireframe, solid and surface models, and an overview of their applications. The versatility of "B"-Splines, Bézier curves and surfaces, and their practical applications. Modern computer graphics and CAD methodology, computer-aided design methods for structures, and the continuum mechanics of finite element modelling in these areas and the specificities of the relevant disciplines. The role of 3-dimensional computer modelling in the development of design plans. Design support solutions, and integrated engineering calculations in CAD systems.

Literature:

- Solidworks oktató könyvek: Eurosolid Kft. David Pancoast Solidworks corporation
- Dr. Váradi Károly: Szimuláció a terméktervezésben (Oktatási segédlet) BME GSZI 2004.
- Kovács Zsolt: Termékek műszaki tervezése. Jegyzet kézirat Ny.M.E, Sopron, 2005. http://tgyi.fmk.nyme.hu
- N. F. M. Roozenburg, J. Eekels: Product design: Fundamentals and methods. 1996
- Nigel Cross: Engineering design methods John Wiley and Sons, 1996.
- BME GSZI: A korszerű terméktervezés számítógépes támogatása.. Készült az „Advanced Design Support” Delft University of Technology 2005. alapján Ny.M.E, Sopron, 2005.

Title of course: **Technological Measurements**	*NEPTUN-code:* RMXTS1KMNF	*Weekly teaching hours:* *l+cw+lw* 0+4+0	***Credit*:** 4 ***Exam type:*** tm
Course leader: Dr. Tolvaj László	***Position:*** professor	***Required preliminary knowledge: -***	

Curriculum:

Measurement techniques. Performance of standard measurements. Computer evaluation of measurement results. Function fitting. Mechanical properties and their measurement. Colour measurement. Structural testing of materials. Recording and evaluation of infrared, visible and ultraviolet spectra, and conclusions on material structure.

Literature:

- Mentes Gyula: Méréstechnika NyME, kézirat
- Aktuális szabványok
- Lukács: Színmérés, 1982, MKK, Budapest
- Tolvaj László: Színképelemzés, 2007, NyME, CD

Title of course: **Product security**	*NEPTUN-code:* RMXPS1LMNF	*Weekly teaching hours: l+cw+lw* 1+2+0	***Credit*: 4** ***Exam type: e***
Course leader: Dr. Gregász Tibor	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

The aim of the course is to familiarise students with the basic principles of the legal regulations on the safety of products and the aspects to be taken into account for different product areas. They should be familiar with the procedures that accompany the production, distribution and use of products in order to ensure that they are safe and reliable. Topics covered:

- Tasks and means of consumer protection, consumer rights, and consumer protection law. Warranty and guarantee rules.
- Safety and product liability
- EU directives on product conformity, old, new and global approach. Hungarian legislation on product liability.
- The meaning of CE marking and other conformity marks and symbols.
- Product certification modules for obtaining CE. The process of obtaining a certificate. The system of bodies and testing institutes for product conformity.
- System of alerts on dangerous products (RAPEX, TRAPEX, RASFF, ...)
- Safety of furniture and toys.
- Safety of machinery and equipment
- Product liability issues related to safe food.
- Technical requirements for electrical and electronic products.

Professional competencies:

- Knowledge, application and enforcement of technical and economic legislation and principles of engineering ethics.
- Knowledge of global social and economic processes relevant to the field.
- Ability to understand the laws and interrelationships, apply the knowledge acquired and practical application of knowledge and use of problem-solving techniques.
- Ability to formulate sound judgements or opinions, make decisions, draw conclusions make judgements, formulate conclusions and constructive criticism.
- In his/her work and communication, his/her approach is typically problem-solving and
- Decisions are taken carefully, taking into account other factors (in particular legal, economic, energy, environmental, etc.), takes responsibility.

Literature:

- Czitán G. - Gutassy A. – Ralf W.: Termékbiztonság az Európai Unióban, TÜV Rheinland Akadémia, 2006.
- 2012. évi LXXXVIII. törvény a termékek piacfelügyeletéről
- 2009. évi CXXXIII. törvény a megfelelőségértékelő szervezetek tevékenységéről
- 1993. évi X. Törvény a termékfelelősségről
- 2001/95/EK irányelv az általános termékbiztonságról
- A termékkörökre vonatkozó EU direktívák és szabványok
- Teaching materials uploaded in the e-learning system

PACKAGING TECHNOLOGIES SPECIALISATION

Title of course: **Packaging machines**	*NEPTUN-code:* RMWPT1CMNF	*Weekly teaching hours:* *l+cw+lw* 1+2+0	***Credit*:** 4 ***Exam type:*** tm
Course leader: Dr. habil Koltai László	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

The basics of packaging mechanisation. Machine packaging operations. Machine solutions for packaging systems. Binding and strapping machines. Tray loading and unloading machines.

Unit load forming machines. Machines for consumer packaging Interaction of packaging machines. Process control, organisation, and operation of packaging plants. Packaging machinery, basic aspects of setting up and automation of packaging plants. Design, construction and trial operation of packaging plants. Installation advice, coordination of warranty and service work. Forms of contracts for the construction of installations, relevant legislation, official regulations, and mechanical tests.

Professional competencies:

- A complex and high level of knowledge of the theoretical and practical aspects of light industry.
- Knowledge of computer communication and computer skills related to light industrial trades analysis.
- Knowledge of global social and economic processes related to the field.
- In addition to the knowledge of the subject area, the ability to train as specialists engineers whoare able to apply technical and scientific knowledge to product design, product and technology development and production.

Literature:

- Dr. Magyary-Kossa Béla – Tiefbrunner Anna: Csomagolásgépestés I. Papír-Press Egyesülés, 2001, Budapest
- Kerekes T. Bevezetés a csomagolástechnikába I.-II. PapírPress, 2003

Title of course: **Packaging materials**	*NEPTUN-code:* RMWPT2CMNF	*Weekly teaching hours: l+cw+lw* 1+3+0	***Credit*:** 5 ***Exam type: e***
Course leader: Tamásné Dr. Nyitrai E. Cecília	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

Testing and qualification of bags, sacks, and corrugated products.

Testing of polyethylene-coated paper and pressure-sensitive products. Testing of PVDC-coated papers. Printing processes, printing tests.

Types of boxes and their testing. Classification of other manufacturing products, with packaging materials and packaging devices in the focus.

Professional competencies:

- systematic knowledge of materials and technology in the light industry and technological know-how.
- Knowledge of the materials used in light industrial product design, their composition, properties, applications, material properties and processing.
- Ability to discuss in a broad but sufficiently scientific manner the various areas of light industry.

Literature:

- Dr. Koltai László: Csomagolóipari anyagismeret I. 2014. OE jegyzet
- Papíripari szaklexikon, PapírPress Kiadó, 2004.
- Dr. Koltai L.: Hullámtermékek és vizsgálataik – oktatási segédlet OE. 2011

Title of course: **Packaging design I.**	*NEPTUN-code:* RMWPE1CMNF	*Weekly teaching hours: l+cw+lw* 1+2+0	***Credit*: 4** ***Exam type: e***
Course leader: Dr. habil Németh Róbert	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

The technical basics of packaging design, the basic requirements for the Packaging Design, including paper-based packaging, and the methods of sizing and calculation. The practical training will provide students with basic knowledge of the use of software (Adobe Illustrator and Esko ArtiosCAD) and graphic design, and the rules for their application in packaging design. Based on the knowledge acquired, they will solve independent design tasks and then use the software to create 3D visual designs and animations.

In the first semester of the course, the main objective is to learn the basics of corrugated board packaging design and its practical application with ESKO ArtiosCAD. In the second semester, the students will design graphic solutions for packaging using Adobe Illustrator.

Professional competencies:

- Possession of innovative, detail-oriented design skills.
- Knowledge of materials used in light industrial product design, their composition, properties, applications, material properties and processing.
- Knowledge of computer communication and computer skills related to light industrial disciplines.
- Ability to design advanced and innovative products related to light industry.
- Ability to plan and execute tasks independently and to a high professional standard.

Literature:

- Dr. Németh R., Tiefbrunner A.: Csomagolástervezés, elektronikus jegyzet, ÓE, 2015.
- Ajánlott: Györgyi A., Tiefbrunner A., Varga J.: Csomagolástervezés, Papír-Press Egyesülés, Bp., 1999.
- Ajánlott: Tiefbrunner A.: Csomagolás – Trendek és kérdések, CompLex, 2010.

Title of course: **Packaging Design II.**	*NEPTUN-code:* RMDTH1CMNF	*Weekly teaching hours:* *l+cw+lw* 0+3+0	***Credit*:** 4 ***Exam type:*** tm
Course leader: Dr. habil Németh Róbert	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

The technical basics of Packaging Design, the basic requirements for Packaging Design, including paper-based packaging, and the methods of sizing and calculation. The practical training will provide students with basic knowledge of the use of software (Adobe Illustrator and Esko ArtiosCAD) and graphic design, and the rules for their application in packaging design. Based on the knowledge acquired, they will solve independent design tasks and then use the software to create 3D visual designs and animations.

In the first semester of the course, the main objective is to learn the basics of corrugated board packaging design and its practical application with ESKO ArtiosCAD. In the second semester, the students will design graphic solutions for the packaging using Adobe Illustrator.

Professional competencies:

- Possession of innovative, detail-oriented design skills.
- Knowledge of materials used in light industrial product design, their composition, properties, applications, material properties and processing.
- Knowledge of computer communication and computer skills related to light industrial disciplines.
- Ability to design advanced and innovative products related to light industry.
- Ability to plan and execute tasks independently and to a high professional standard.

Literature:

- Dr. Németh R., Tiefbrunner A.: Csomagolástervezés, elektronikus jegyzet, ÓE, 2015.
- Ajánlott: Györgyi A., Tiefbrunner A., Varga J.: Csomagolástervezés, Papír-Press Egyesülés, Bp., 1999.
- Ajánlott: Tiefbrunner A.: Csomagolás – Trendek és kérdések, CompLex, 2010.

Title of course: **Packaging Technologies I.**	*NEPTUN-code:* RMWPT1CMNF	*Weekly teaching hours:* *l+cw+lw* 1+2+0	***Credit*:** 4 ***Exam type:*** tm
Course leader: Tamásné Dr. Nyitrai E. Cecília	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

Technologies for the production of packaging materials. Paper packaging (production of bags and sacks, corrugated board boxes). Processes in glass production (production of bottles and cans). Production and corrosion protection of metal packaging based on fine sheet metal. Packaging made from cold-rolled sheet metal. Wood and wood substitutes in packaging. Textile packaging. Matching materials, machinery and technology in packaging systems to produce packaging with product characteristics. Packaging management. Inspection of finished packaging. Testing and qualification of packaging materials. Test methods for mechanical and climatic stresses.

Economic Packaging Design. Interpretation of optimum packaging (protection of goods and economic optimum). Maximum stress and minimum sensitivity as determinants of inputs. General issues of packaging organization. Development of packaging technology. Determining the degree of mechanization. Environmental aspects of packaging design. Harmonization of technical and advertising design.

Classification of printing processes, characteristics, types of production, sheet sizes, and special finishing requirements. Text and image processing operations, colour separation, film processing, mounting, and plate making. Adjustment of the printing press, copy numbering, operations of binding technologies, and folding systems. Book structure, types of binding, magazines, newspapers, and other printed products.

Professional competencies:

- A complex and high level of knowledge of the theoretical and practical aspects of light industry practical aspects.
- Knowledge of the global social and economic processes related to the field.
- In addition to the knowledge of the subject area, the ability to train, as a specialist, engineers, who are able to apply technical and scientific knowledge to product design, product and technology development and production.

Literature:

- Kerekes T.: Ipari termékek csomagolása (GTE 1989)
- Kerekes T.: Csomagolás és minőségbiztosítás (GTE 1991)
- Kertész B.: Műanyag csomagolószerek (Műszaki Könyvkiadó1985)
- Szenes E.: Fém- és fémtartalmú csomagolószerek (Műszaki Könyvkiadó 1989)
- Kerekes T.: Bevezetés a csomagolástechnikába I.-II. (Papírpress Egyesülés 1996)
- Györgyi Adrienne – Tiefbrunner Anna – Varga József: Csomagolástervezés, Papír-Press Kiadó 1999.
- Magyary-Kossa Béla: Csomagolásszervezés és -szabályozás, Papír-Press Kiadó 1998.
- Halmos Ede: Csomagolás és logisztika, Papír-Press Kiadó 2002.

Title of course: **Packaging technologies II.**	*NEPTUN-code:* RMWPT2CMNF	*Weekly teaching hours: l+cw+lw* 1+3+0	***Credit*: 4** ***Exam type: e***
Course leader: Tamásné Dr. Nyitrai E. Cecília	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

Packaging systems. Vacuum and modified atmosphere packaging. Skin, blister and vacuum skin packaging. Form fill seal and fill seal technologies. Carton packaging systems for liquid and solid products. Shrink and stretch film consumer packaging. Bag in box and bag in drum systems. Aseptic food packaging. Wrap-around packaging. Climatological knowledge, corrosion protection. Materials and solutions for motion damping. Tools and methods of unit load formation. Pallets and containers. Product identification and tracking.

Control tests of packaging and finished packaging in the laboratory.

Typical components of printing machines, principles of operation and components of inking, wetting, printing, sheet-fed and web-fed printing machines. Dryers, solvent recovery, exhaust systems.

Professional competencies:

- A complex and high level of knowledge of the theoretical and practical aspects of light industry practical aspects.
- Knowledge of the global social and economic processes related to the field.
- In addition to the knowledge of the subject area, the ability to train, as a specialist, engineers, who are able to apply technical and scientific knowledge to product design, product and technology development and production.

Literature:

- Tiefbrunner A.: Könnyűipari enciklopédia II/3. Csomagolástechnológia, BMF RKK jegyzet, 2003.
- Moodle rendszerben található oktatási segédletek, jegyzetek
- Kerekes T.: Bevezetés a csomagolástechnikába II., Papír-Press Egyesülés, Budapest, 2000.
- Kerekes T., Borbély E.-né: Csomagolószerek vizsgálata, minősítése, Papír-Press Egyesülés, Budapest, 1998.
- Tiefbrunner A.: Csomagolás – Trendek és kérdések, CompLex, Budapest, 2010.

Title of course: **Packaging Ergonomy**	*NEPTUN-code:* RMWPE1CMNF	*Weekly teaching hours: l+cw+lw* 1+2+0	***Credit*:** 4 ***Exam type: e***
Course leader: Dr. habil Németh Róbert	***Position:*** ass professor	***Required preliminary knowledge: -***	

Curriculum:

Overview of basic Ergonomics and Anthropometry. Overview of packaging basics. The role of packaging design in product design and product development. The relationship between packaging and ergonomics. The relationship between ergonomics and logistics. Human-centered Packaging Design tools. Ergonomic design of transport packaging. Storage packaging and ergonomics. Consumer (user) packaging and ergonomics. Analysis of other special packaging. Case studies.

Professional competencies:

- A complex and high level of knowledge of the theoretical and practical aspects of light industry.
- Ability to discuss in a broad but sufficiently scientific manner the various areas of light industry.

Literature:

- Kerekes Titusz 1996: Bevezetés a csomagolástechnikába I-II. Papír-Press Egyesülés Budapest.
- Fischl G.-Pandula A.: Akadálymentesség eszméje
- Szabó Gyula: Termékek Ergonómiai Fejlesztése BME, 2002
- Dr. Suhai Ferenc: Ergonómia. SZIE, 1996

PRINT AND MEDIA TECHNOLOGIES SPECIALISATION

Title of course: **Design and Editing of Printed Products**	*NEPTUN-code:* RMWDP1NMNF	*Weekly teaching hours: l+cw+lw* 0+4+0	***Credit*:** 5 ***Exam type: e***
Course leader: Dr. Németh Róbert	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

The aim of the course is to introduce students the possibilities of modern text processing and publication editing and to show the basics of typographic and software applications. To introduce the typographic design process, the laws of typographic elements and the integration of image and text. The development and evolution of writing, the main historical types of printed type, their basic characteristics and structure. The typographic scale. Process and rules of publication design.

Introduction of the interface of the design software (Adobe Indesign). Introduction of the software settings (software and colour settings, synchronisation of colour spaces in Adobe programs). Entering and formatting text, basic typographic tasks. Clarification of basic concepts (master pages, reference, placement, frames, styles, special characters, flow, index and table of contents). Module grid, type area and margin settings.

Design and text editing tasks (flyer, DVD cover, drama and poetry typography design). PDF export (print and interactive).

Professional competencies:

- Innovative, detail-oriented design skills.
- Knowledge of materials and their composition used in light industrial product design, properties, application areas, the relationship between material properties and processing.
- Knowledge of computer communication and analysis related to light industrial disciplines.
- Ability to design advanced and innovative products related to light industry.
- Ability to plan and carry out tasks independently and to a high professional standard.

Literature:

- Miklósi I.- Nagy S.: Szövegszerkesztés – feldolgozás és tipográfia. Papír-Press Egyesülés, 2001
- Teaching materials uploaded in the e-learning system
- Virágvölgyi P.: A tipográfia mestersége számítógéppel. Osiris, 2002

Title of course: **Print Media Materials, Environmental Protection and Quality Assurance I.**	*NEPTUN-code:* RMWPE1NMNF	*Weekly teaching hours:* *l+cw+lw* 1+2+0	***Credit*:** 4 ***Exam type:*** tm
Course leader: Dr. Horváth Csaba	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

Printing materials and their properties: printing substrates (paper, plastic, other) inks, varnishes, dryers, wetting fluids and other materials.

Methods and tools for planning, managing and controlling the resources needed for printing and packaging production. Introduction to the elements of production management and the applications of management information systems in the printing and packaging industry.

Historical overview of production management and corporate strategies. Characteristics of production processes, structure and operating conditions of printing and packaging enterprises.

Selection criteria for printing systems and printing technologies. Printing production systems, production preparation, and production schedule.

Professional competencies:

- A complex, high level of knowledge of the theoretical and practical aspects of light industry.
- Has a systematic knowledge of materials and technology in the light industry.
- Knowledge of the materials and their composition used in light industrial product design, properties, application areas, the relationship between material properties and processing.
- In the course of the work, tends to comply with safety, health and environmental (SHE) and quality assurance and control (QA/QC) requirements.

Literature:

- Dr. Horváth Csaba: Nyomdaipari termelés menedzsment I. OE jegyzet
- W Wells, N. (ed): Print: seen lean & green! (1-2), PrintCity GmbH & Co. KG, Gröbenzell, Germany, 2012.

Title of course: **Print media materials, environmental protection and quality assurance II.**	*NEPTUN-code:* RMWPE2NMNF	*Weekly teaching hours: l+cw+lw* 1+2+0	***Credit*:** 4 ***Exam type: e***
Course leader: Dr. Horváth Csaba	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

Printing materials and their properties: printing substrates (paper, plastic, other) inks, varnishes, dryers, wetting fluids and other materials.

Commercial, supplier and subcontractor relations of printing and packaging enterprises.

Planning, management and control of resources for the production of printed packaging materials. History of production management in the printing industry, traditional information system model. Material flow process in the production process of printed packaging production. Logistics systems in the machine room, logistics processes in printing and packaging enterprises. Process of data flow in printing production.

Lean management, lean printing and packaging. Environmental management and the legislative environment. "Green" management. Environmentally friendly design, production, distribution and life cycle planning for printed packaging.

Professional competencies:

- A complex, high level of knowledge of the theoretical and practical aspects of light industry.
- Has a systematic knowledge of materials and technology in the light industry.
- Knowledge of the materials and their composition used in light industrial product design, properties, application areas, the relationship between material properties and processing.
- In the course of the work, tends to comply with safety, health and environmental (SHE) and quality assurance and control (QA/QC) requirements.

Literature:

- Dr. Horváth Csaba: Nyomdaipari termelés menedzsment II. Óbudai Egyetem, RKK, elektronikus jegyzet, 2013, Budapest
- W Wells, N. (ed): Print: seen lean & green! (1-2), PrintCity GmbH & Co. KG, Gröbenzell, Germany, 2012.

Title of course: **Binding and Finishing Technologies**	*NEPTUN-code:* RMWBF1NMNF	*Weekly teaching hours: l+cw+lw* 1+2+0	***Credit*: 4** ***Exam type: e***
Course leader: Dr. Horváth Csaba	*Position:* associate professor	***Required preliminary knowledge: -***	

Curriculum:

The aim of the course is to discuss the post-print processing of traditional and digital print products, focusing on the theoretical and practical issues of modern robotic technologies, computer-controlled complete process systems, and JIT (just in time) solutions. A separate chapter deals with specific post-processing issues related to digital printing: book on demand.

Professional competencies:

- Possesses systematic knowledge of light industrial materials and technology.
- Knowledge of the materials and their composition used in light industrial product design, properties, applications, the relationship between material properties and processing.
- Knowledge of global social and economic processes related to the field.

Literature:

Kipphan, H.: Handbuch der Printmedien, Springer, Berlin, 2000.
Schulz, P. – Endrédy I.: Angol magyar nyomdaipari értelmező szótár, Mérnök és Nyomdász Kft., Budapest, 2006.
Szalai, S.: Nagyüzemi könyvgyártás, Magyar Nyomdász Kiadó, Budapest, 2003.

Title of course: **Print media technologies I.**	*NEPTUN-code:* RMWPM1NMNF	*Weekly teaching hours: l+cw+lw* 1+2+0	***Credit*:** 4 ***Exam type: e***
Course leader: Dr. Horváth Csaba	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

Grouping of printing processes, characteristics, types of production, sheet sizes, and special finishing needs. Text and image processing operations, colour separation, film processing, mounting, and plate making. Adjustment of the printing press, copy numbering, operations of binding technologies, and folding systems. Book structure, types of binding, magazines, newspapers, and other printed products. Typical components of printing machines, principles of operation and components of inking, dampening, printing units, sheet-fed and web-fed presses. Dryers, solvent recovery, exhaust systems.

The aim of the course is to provide a summary of the characteristics and operating conditions of digital workflow systems for the production of printed media products, digital workflow systems, digital printing processes without printing plates (CtPrint systems), CtPlate and Ctpress technologies using printing plates, which provide simple and fast information changeability. The aim of the course is to provide graduates with the skills to become effective engineers in the face of the opportunities offered by the digital revolution.

Professional competencies:

- Possesses systematic knowledge of light industrial materials and technology.
- Knowledge of the materials and their composition used in light industrial product design, properties, applications, the relationship between material properties and processing.
- Knowledge of global social and economic processes related to the field.

Literature:

- Szentgyörgyvölgyi R.,: Nyomdaipari technológiai ismeretek I. BMF RKK 6019, Budapest, 2008
- Schulz P., Endrédy I., Nagy S.: Könnyűipari enciklopédia II/2, Budapest, 2002, BMF-RKK-6000/IV
- Moodle rendszerben található oktatási segédletek, jegyzetek
- H. Kipphan: Handbook of Print Media, 2000, Springer
- Schulz P., Endrédy I.: Angol – magyar nyomdaipari értelmező szótár, P&E, 2005

Title of course: **Print Media Technologies II.**	*NEPTUN-code:* RMWPM2NMNF	*Weekly teaching hours:* *l+cw+lw* 1+2+0	***Credit*:** 4 ***Exam type:*** tm
Course leader: Dr. Horváth Csaba	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

The course will introduce the concepts of printing theory, the printing characteristics of the different printing processes and the standardisation of printing. The processes involved in the production of printed media products, developments in printing technologies and changes in the printing industry in the country, the EU and the world will be covered. Areas of traditional and digital print production. Basic principles of traditional (offset, gravure, flexographic, screen, pad printing) and digital printing technologies, factors influencing the technologies. Specific printing processes and product-specific applications. Printing of packaging materials. Production process and characteristics of security forms.

Professional competencies:

- Possesses systematic knowledge of light industrial materials and technology.
- Knowledge of the materials and their composition used in light industrial product design, properties, applications, the relationship between material properties and processing.
- Knowledge of global social and economic processes related to the field.

Literature:

- Dr. Schulz P.: Nyomdaipari technológiai ismeretek II. BMF RKK 6020, Budapest, 2009
- Moodle rendszerben található oktatási segédletek, jegyzetek
- H. Kipphan: Handbook of Print Media, 2000, Springer
- Schulz P., Endrédy I.: Angol – magyar nyomdaipari értelmező szótár, P&E, 2005

Title of course: **Print Media Technologies III.**	*NEPTUN-code:* RMWPM3NMNF	*Weekly teaching hours:* *l+cw+lw* 1+3+0	***Credit*:** 4 ***Exam type: e***
Course leader: Dr. Horváth Csaba	*Position:* associate professor	***Required preliminary knowledge: -***	

Curriculum:

Describes the production of printed media products based on the characteristics of print binding operations. Classification of binding processes, technological principles and characteristics of operations, and bookbinding symbols. Large-scale book production processes and equipment. Surface finishing technologies and characteristics. Achieving special surface effects. Innovative printing options, creative solutions, print and electronic applications.

Students will also learn about the properties of digital raw materials (text, image, sound, moving image), methods of processing and editing of multimedia materials and their use in complex applications. During the practical sessions, they will gain the experience necessary for the development of modern multimedia applications through the implementation of simple practical applications. Concepts: analogue-to-digital conversion, basics of digital audio engineering, sound systems, digital media compression and storage, digital image and motion picture applications, colour image processing, the relationship between print and electronic communication, internet and mobile applications.

Professional competencies:

- Possesses systematic knowledge of light industrial materials and technology.
- Knowledge of the materials and their composition used in light industrial product design, properties, applications, the relationship between material properties and processing.
- Knowledge of global social and economic processes related to the field.

Literature:

- Schulz P., Endrédy I., Nagy S.: Könnyűipari enciklopédia II/2, Budapest, 2002, BMF-RKK-6000/IV
- Tóth Gy.: Nyomdaipari feldolgozás-technika, Ipari Minisztérium, Bp., 1990
- Moodle rendszerben található oktatási segédletek, jegyzetek
- Hütte: Szalai S.: Nagyüzemi könyvgyártás, Nyomdász Kiadó Bp., 2001

QUALITY MANAGEMENT SPECIALISATION

Title of course: **Management Systems in Practice I.**	*NEPTUN-code:* RMWMS1QMNF	*Weekly teaching hours: l+cw+lw* 1+2+0	***Credit*:** 4 ***Exam type: e***
Course leader: Dr. Gregász Tibor	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

Topics of the subject:

- Quality, quality management system and its meaning.

- Stakeholders, product, process, regulation, externally supplied product and service, requirements, contract, ...

- The structure, relationship logic and certification system of a supply system (automotive, food).

- Logical structure and "use" of the ISO 9001:2015 standard.

- ISO 9001:2015 standard requirements, knowledge of the standard.

- IATF 16949, ISO 14001, ISO 45001, ISO 22000-IFS-BRC, ISO 50001, ISO 17025, ISO 26000, GMP, GLP, etc.

Professional competencies:

- Knowledge of safety, health, environmental (SHE) and quality assurance and quality assurance (QA/QC) requirements.
- Possess a wide range of applicable skills for research and scientific work analytical and problem-solving skills and techniques.
- Ability to understand and apply knowledge of laws and relationships and practical application of knowledge and use of problem-solving techniques.
- Ability to use information from disciplines related to light engineering, new problems, new phenomena, understanding of the problems to be solved, and solve the problems to be solved, and to come up with original ideas.
- Ability to formulate sound judgements or opinions, make decisions, draw conclusions, make judgements, draw conclusions, formulate constructive criticism.
- Ability to plan and carry out tasks independently and to a high professional standard.

Literature:

MSZ EN ISO 14001:2015 Környezetközpontú irányítási rendszerek

ISO/IEC 27001:2013 Információbiztonság irányítási rendszer

IATF 16949:2016 Autóipari irányítási rendszerek

MSZ EN ISO 9001:2015 Minőségirányítási rendszerek. Követelmények

Demeter Krisztina, Szász Levente: Ellátásilánc-menedzsment, Akadémiai Kiadó 2017.

Teaching materials uploaded in e-learning system

Title of course: **Management Systems in Practice II.**	*NEPTUN-code:* RMWMS2QMNF	*Weekly teaching hours: l+cw+lw* 1+2+0	***Credit*:** 4 ***Exam type:*** tm
Course leader: Dr. Gregász Tibor	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

Topics of the subject:

- Assessments in the organisation, data collection and processing, and feedback. Process and project evaluation, analysis of effectiveness & efficiency
- BSC, indicator system
- Benchmarking
- Performance evaluation
- Self-assessment
- Employee satisfaction measurement, 360˚ feedback

Professional competencies:

- Knowledge of safety, health, environmental (SHE) and quality assurance and quality assurance (QA/QC) requirements.
- Possess a wide range of applicable skills for research and scientific work analytical and problem-solving skills and techniques.
- Ability to understand and apply knowledge of laws and relationships and practical application of knowledge and use of problem-solving techniques.
- Ability to use information from disciplines related to light engineering, new problems, new phenomena, understanding of the problems to be solved, and solve the problems to be solved, and to come up with original ideas.
- Ability to formulate sound judgements or opinions, make decisions, draw conclusions, make judgements, draw conclusions, formulate constructive criticism.
- Ability to plan and carry out tasks independently and to a high professional standard.

Literature:

ISO 9004:2018: A szervezet tartós sikerének irányítása.

Robert C Camp: Üzleti folyamat - BENCHMARKING, Műszaki Könyvkiadó 1998.

Anne Evans: Benchmarking, Közgazdasági És Jogi Kiadó, 1997.

The EFQM Model, EFQM 2019.

Gyökér Irén (szerk.): Humánerőforrásmenedzsment 2001.

Teaching materials uploaded in e-learning system

Title of course: **Management Systems in Practice III.**	*NEPTUN-code:* RMWMS3QMNF	*Weekly teaching hours: l+cw+lw* 1+2+0	***Credit*:** 4 ***Exam type:*** tm
Course leader: L	*Position:* s	***Required preliminary knowledge: -***	

Curriculum:

- Topics of the subject:
- Organizational culture, Organizational ethical intelligence, Organizational culture and organizational intelligence,
- Coaching
- Student organization and its principles
- Organizational conflicts, sources of the conflicts, unraveling, tracing, managing and resolving conflicts

Professional competencies:

- Knowledge of safety, health, environmental (SHE) and quality assurance and quality assurance (QA/QC) requirements.
- Possess a wide range of applicable skills for research and scientific work analytical and problem-solving skills and techniques.
- Ability to understand and apply knowledge of laws and relationships and practical application of knowledge and use of problem-solving techniques.
- Ability to use information from disciplines related to light engineering, new problems, new phenomena, understanding of the problems to be solved, and solve the problems to be solved, and to come up with original ideas.
- Ability to formulate sound judgements or opinions, make decisions, draw conclusions, make judgements, draw conclusions, formulate constructive criticism.
- Ability to plan and carry out tasks independently and to a high professional standard.

Literature:

Babak Kaweh: Coaching kézikönyv, Bioenergetic Kiadó 2019.

Peter Bluckert: Gestalt-coaching, Z-Press Kiadó 2022.

Mészáros Aranka: Kommunikáció és konfliktusok kezelése a munkahelyen, ELTE Eötvös Kiadó Kft. 2007.

Balázs László: Érzelmi intelligencia - A szervezetben és a képzésben, Z-Press Kiadó, 2014.

Teaching materials uploaded in e-learning system

Title of course: **Evaluation of Subjective Data**	*NEPTUN-code:* RMWES1QMNF	*Weekly teaching hours: l+cw+lw* 1+2+0	***Credit*:** 4 ***Exam type:*** tm
Course leader: Prof. Dr. Halász Mariann	***Position:*** professor	***Required preliminary knowledge: -***	

Curriculum:

The educational objective is to introduce students to the characteristics of subjective measurement methods and the criteria for their development. Topics covered:

- The concept of subjective testing, its scope, and characteristics of sensory testing.

- The concept, definition, characteristics and use of subjective tests. Test methods. The life cycle of the test

- Requirements for opinion polling

- IT support for opinion surveys, software used for opinion surveys

- Errors in questionnaire surveys (sampling and non-sampling errors), data evaluation options

Professional competencies:

Possess the broad range of skills needed for research and scientific work analytical and problem-solving skills and techniques.
- Ability to understand and apply knowledge of laws and relationships and practical application of knowledge and use of problem-solving techniques.
- Ability to use information from disciplines related to light engineering, new problems, new phenomena, understanding of the problems to be solved and solve the problems to be solved, and to come up with original ideas.
- Ability to formulate sound judgements or opinions, make decisions, draw conclusions, formulate constructive criticism.
- Ability to plan and carry out tasks independently and to a high professional standard.

Literature:

Dr. Koczor Z. (szerk.): 8. Vevői elégedettség, Minőségfejlesztés, Raabe Kiadó, 2003.

Lengyelné Molnár Tünde: Online mérés-értékelés, Eszterházy Károly Főiskola 2013.

Dr. Kövér György és Bareith Tibor: Kérdőívek kiértékelésének módszertana 2016.

Teaching materials uploaded in e-learning system

Title of course: **Quality Management I.**	*NEPTUN-code:* RMWQM1QMNF	*Weekly teaching hours: l+cw+lw* 1+2+0	***Credit*:** 4 ***Exam type:*** tm
Course leader: Dr. Gregász Tibor	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

The aim of the course is to familiarize students with the practical aspects of the operation of quality management systems and the tools for their implementation in the various regulatory areas. Topics covered:

- The system, regulation and documentation principles of control processes, regulatory plans

- Statistical sampling

- Principles and main indicators of SPC, Practices for the introduction of control cards, classification of cards, general rules for their use

- Preparation of control charts for rating and measurement characteristics

- SPC IT support

Professional competencies:

Possess leadership skills and the ability to work successfully in a team ,knowledge that supports the success of the group.
- Knowledge of safety, health, environmental (SHE) and quality assurance and control (QA/QC) requirements.
- Possesses knowledge of the rules for preparing production and product documentation.
- Possess a wide range of applicable skills for research and scientific work analytical and problem-solving skills and techniques.
- Ability to understand and apply knowledge of laws and relationships and practical application of knowledge and use of problem-solving techniques.
- Ability to carry out condition assessment and risk analysis, and on the basis of these to evaluate and make recommendations to solve complex light industrial tasks, to organise processes and understanding and solving problems, and to generate original ideas.
- Ability to self-learn, self-develop, deepen and extend individual knowledge and skills.

Literature:

Kemény-Papp-Deák: Statisztikai minőség- (megfelelőség-) szabályozás, Műszaki könyvkiadó 2001.

Statisztikai folyamatszabályozás (SPC) – AIAG autóipari referencia kézikönyv 2005.

Teaching materials uploaded in e-learning system

Title of course: **Quality management II.**	*NEPTUN-code:* RMWQM2QMNF	*Weekly teaching hours: l+cw+lw* 1+3+0	***Credit*:** 5 ***Exam type:*** tm
Course leader: Dr. Gregász Tibor	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

Topics of the subject:

- Risk assessment and management techniques (event tree analysis, failure mode, effect and criticality analysis, fault tree analysis, operability and hazard analysis, checklists ...)

- Risk management, risk assessment and management (ISO 31000), risk assessment procedures (EN 31010)

- HAZOP analysis, risk matrix, protection barriers

- Problem-solving techniques, A3/PDCA/PDSA / Toyota's 8-step problem-solving

- Kaizen and problem-solving

- Visual tools for the exploration of problems

Professional competencies:

Possess leadership skills and the ability to work successfully in a team ,knowledge that supports the success of the group.
- Knowledge of safety, health, environmental (SHE) and quality assurance and control (QA/QC) requirements.
- Possesses knowledge of the rules for preparing production and product documentation.
- Possess a wide range of applicable skills for research and scientific work analytical and problem-solving skills and techniques.
- Ability to understand and apply knowledge of laws and relationships and practical application of knowledge and use of problem-solving techniques.
- Ability to carry out condition assessment and risk analysis, and on the basis of these to evaluate and make recommendations to solve complex light industrial tasks, to organise processes and understanding and solving problems, and to generate original ideas.
- Ability to self-learn, self-develop, deepen and extend individual knowledge and skills.

Literature:

Szeder Zoltán: Problémamegoldó folyamat a minőségért és a hatékonyságért, BBS-E 1999.

Jim Lancaster-Emily Adams: A menedzsment munkája, Lean Enterprise Institute Hungary, 2017

Art Smalley: Lean problémamegoldók kézikönyve, LEI Hungary, 2019

FMEA – AIAG, VDA autóipari referencia kézikönyv 2017.

MSZ ISO 31000: 2015. Kockázatfelmérés és -kezelés. Alap- és irányelve

Teaching materials uploaded in e-learning system

Title of course: **Quality Management III.**	*NEPTUN-code:* RMWQM3QMNF	*Weekly teaching hours: l+cw+lw* 1+2+0	***Credit*: 4** ***Exam type: e***
Course leader: Dr. Gregász Tibor	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

Topics of the subject:

- Quality management aspects of measurement and monitoring instruments and systems
- Measurement system variations and effects
- Measurement systems and measurement tools and techniques
- Selection and development of test procedures
- Experimental design models
- Experimental design preparation, experimental set-ups, factor effects, cross-effects analysis

Professional competencies:

Possess leadership skills and the ability to work successfully in a team ,knowledge that supports the success of the group.
- Knowledge of safety, health, environmental (SHE) and quality assurance and control (QA/QC) requirements.
- Possesses knowledge of the rules for preparing production and product documentation.
- Possess a wide range of applicable skills for research and scientific work analytical and problem-solving skills and techniques.
- Ability to understand and apply knowledge of laws and relationships and practical application of knowledge and use of problem-solving techniques.
- Ability to carry out condition assessment and risk analysis, and on the basis of these to evaluate and make recommendations to solve complex light industrial tasks, to organise processes and understanding and solving problems, and to generate original ideas.
- Ability to self-learn, self-develop, deepen and extend individual knowledge and skills.

Literature:

Mérési rendszerek elemzése (MSA), AIAG autóipari referencia kézikönyv 2010.

VDA, VDA5 - Capability of Measurement Processes, Verband der Automobilindustrie e.V. (VDA), 2010.

Johanyák Zsolt Csaba: Bevezetés a kísérletmódszertanba, Kecskeméti főiskola, 2002

Dr. Kemény Sándor, Dr. Deák András, Lakné Dr. Komka Kinga, Kunovszki Péter: Kísérletek tervezése és értékelése, Typotex, Budapest, 2017.

George E.P. Box, William G. Hunter, J. Stuart Hunter: Statistics for Experimenters, John Wiley&Sons 1978

Teaching materials uploaded in e-learning system

FASHION DESIGN AND TECHNOLOGY SPECIALISATION

Title of course: ***Fashion Collection Development***	***NEPTUN-code:*** RTWFC1AMNF RTWFC1AMLF	***Weekly teaching hours:*** *l+pr+lab* 0+4+0 0+16+0	***Credit: 5*** ***Exam type: v***
Course leader: Dr. Edit Csanák DLA	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

The aim of the course is to introduce students to the principles of fashion collection design and development, as well as its practical implementation. Course topics include Fashion and the Fashion Industry; The concept and function of a fashion collection; Trend research and inspiration gathering; The significance of style and fashion trends and their impact on collection development; Analysis of fashion and style trends; Concept creation and design process; Defining the target audience; Types of collection development; Designing garments within a collection; Pattern making and technical design; Material selection and textile application; Collection realisation process and presentation; Sustainability and ethical fashion design; Application of digital tools and technologies; Practical exercises in collection development.

Professional competencies:

- Understands the operational mechanisms of fashion and the professional fields of the fashion industry.
- Follows style and fashion trends.
- Possesses the necessary skills to understand phenomena in the garment industry and the ability to process information practically.
- Knows the fundamental concepts and professional functions of fashion collection development.
- Identifies the conditions related to different collection creation types and has the knowledge to solve industry-specific problems.
- Understands the process and practical conditions of fashion collection design.
- Possesses the knowledge and skills required for collection design and can practically apply and utilise the acquired knowledge.
- Familiar with the techniques of fashion collection development and the characteristics of various collection types.
- Capable of formulating original ideas.
- Able to independently and professionally design a fashion collection in style and form and execute all tasks related to the collection development process.
- Possesses fundamental knowledge and skills to design and develop fashion products and collections with sustainability principles.
- Has a comprehensive understanding of the entire collection development process, from design to execution and market launch, and can independently oversee and manage all key steps.

Literature:

- Elinor Renfrew, Colin Renfrew: Developing a Fashion Collection (Basics Fashion Design) 2nd Edition, Fairchild Books, 2016. ISBN 978-2940496730
- Elinor Renfrew, Todd Lynn: Developing a Fashion Collection (Basics Fashion Design), Bloomsbury Visual Arts; 3rd edition, 2021, ISBN 978-1350132559

Teaching materials created by the lecturers uploaded to the Moodle System.

Notes:

Title of course: ***Modelling and Grading (blended)***	***NEPTUN-code:*** RTWMG1AMNF RTWMG1AMLF	***Weekly teaching hours:*** *l+pr+lab* 1+2+0 4+8+0	***Credit: 4*** ***Exam type: e***
Course leader: Orsolya Dr. Nagy Szabó	***Position:*** senior lecturer	***Required preliminary knowledge: -***	

Curriculum:

The course aims to introduce students to analogue modelling and grading processes, along with their digital tools, emphasising practical application. Throughout the course, students will learn the fundamental concepts of modelling and grading and the garment construction process; Explore grading techniques and their application; Gain knowledge of digital modelling and grading tools, including CAD software, modern technologies, virtual fittings, and 3D modelling; Understand the relationship between modelling, grading, and sustainability; Address technical challenges and solutions through practical exercises in modelling and grading.

Professional competencies:

- Understands the fundamental concepts of modelling and grading and the garment construction process.
- Knows and uses analogue and digital tools in modelling and grading and is familiar with grading techniques.
- Recognizes the connection between modelling, grading, and sustainability.
- Possesses the necessary knowledge and skills to address technical challenges and solutions in modelling and grading.
- Capable of applying the acquired knowledge in practice and independently executing modelling and grading tasks at a high professional level.

Literature:

- Winifred Aldrich: Metric Pattern Cutting for Women's Wear, Wiley, 2015. ISBN 978-1444335057
- Helen Joseph-Armstrong: Patternmaking for Fashion Design, Pearson India, 2009, ISBN 978-9332518117

Teaching materials created by the lecturers, and uploaded to the Moodle System.

Notes:

Title of course: ***Design for Impact (blended)***	***NEPTUN-code:*** RTWDI1AMNF RTWDI1AMLF	***Weekly teaching hours:*** *l+pr+lab* 1+2+0 4+8+0	***Credit: 4*** ***Exam type: tm***
Course leader: Dr. Dóra Papp-Vid DLA	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

The course introduces students to the latest trends, technologies, and innovations in fashion and apparel design, focusing on sustainability, digital tools, and interdisciplinary approaches. Topics Covered: Sustainable design; digital design and 3D technologies; parametric design, biomimicry, and nature-inspired design; technological innovations in design; interactive and modular design; the impact of cultural and social trends on design; experimental design and avant-garde movements; cooperative and interdisciplinary design processes; sustainable future perspectives in design.

Professional competencies:

- Understands the application of digital and 3D technologies in sustainable design.
- Familiar with parametric design in fashion and the integration of biotechnology and bio-based materials in the fashion industry and industrial design.
- Knows the technological innovations in design, including wearable technologies (smart clothing, integrated sensors, etc.), interactive design, Augmented Reality (AR) and Virtual Reality (VR) in the design process, as well as smart textiles and innovative materials that respond to environmental or user needs.
- Understands the potential of interactive and modular design.
- Recognizes the impact of cultural and social trends on design.
- Familiar with experimental design and avant-garde movements.
- Possesses knowledge of cooperative and interdisciplinary design processes and can apply this knowledge in practice.
- Understands the significance of digital and sustainable future perspectives in design, including integrating digital technologies and sustainability, as well as emerging future design trends in fashion and apparel design.
- With comprehensive knowledge, can independently and professionally execute tasks related to fashion collection development, prioritising cutting-edge trends and technological advancements that shape the contemporary design industry.

Literature:

- Abu Sadat Muhammad Sayem: Digital Fashion Innovations (Textile Institute Professional Publications) CRC Press, 2023. ISBN 978-1032207278
- Judah Clark: Virtual Reality in Fashion Design: Reimagining the Creative Process, Independently published, (Kindle) 2023. ISBN 979-8857503843
- Gaius Chinanu: Generative AI for Fashion: Revolutionizing Design and Innovation, (Kindle) 2024.
- Yael Helfman-Cohen: Wild Ideas: How Nature Inspires Groundbreaking Innovations, (Kindle) 2024.

Teaching materials created by the lecturers uploaded to the Moodle System.

Notes:

Title of course: ***Sustainability and PLCM in TCFL Industry (blended)***	***NEPTUN-code:*** RTWSP1AMNF RTWSP1AMLF	***Weekly teaching hours:*** *l+pr+lab* 1+2+0 4+8+0	***Credit: 4*** ***Exam type: e***
Course leader: Dr. Edit Csanák DLA	***Position:*** associate professor	***Required preliminary knowledge: -***	

Curriculum:

The subject discusses sustainability aspects of the textile, clothing, leather and footwear (TCLF) industry and product life cycle management. Topics: The basics of sustainability in light industry and product life cycle management. Sustainable materials and textiles. Environmentally friendly production processes. Green supply chain management. Circular economy in the TCLF industry. Sustainable design strategies. Product life cycle extension. The role of digital technologies and innovations in sustainability. Sustainability and consumer behaviour. Regulations and guidelines for sustainability. Practical examples and case studies.

Professional competencies:

- Understands the significance of sustainability in fashion design, including the application of eco-friendly materials and green technologies, ethical design approaches, and the relationship between circular economy and design.
- Knows the application possibilities of recycled, innovative, bio-based materials and organic textiles in the TCLF (Textile, Clothing, Leather, and Footwear) industry. Understands the importance of reducing raw material usage and introducing environmentally friendly alternatives.
- Familiar with sustainable manufacturing processes and the measures that can be taken to optimise product lifecycle.
- Understands the connection between digital design and 3D technologies used in the fashion industry and their impact on sustainability.
- Aware of international regulations and guidelines related to fashion industry sustainability and understands the correlation between consumer behaviour and sustainability.
- With systematic knowledge, can independently and professionally execute assigned tasks in the TCLF industry at a high level.

Literature:

- Subramanian Senthilkannan Muthu: Circular Economy in Textiles and Apparel: Processing, Manufacturing, and Design, Woodhead Publishing, 2018. ISBN 978-0-08-102630-4
- Subramanian Senthilkannan Muthu: Handbook of Life Cycle Assessment (LCA) of Textiles and Clothing, Woodhead Publishing, 2016. ISBN 978-1-78242-104-7
- Richard Blackburn: Sustainable Apparel: Production, Processing and Recycling, Woodhead Publishing, 2015. ISBN 978-1-78242-339-3
- Jennifer Farley Gordon: Sustainable Fashion: Past, Present, and Future, Bloomsbury Academic, 2014, ISBN-13: 978-0857851840
- Alison Gwilt: A Practical Guide to Sustainable Fashion, Bloomsbury Visual Arts, 2020. ISBN-13: 978-1350067042
- Alison Gwilt: Shaping Sustainable Fashion: Changing the Way We Make and Use Clothes, ISBN-13: 978-1849712422
- Assessing the Environmental Impact of Textiles and the Clothing Supply Chain by Subramanian Senthilkannan Muthu, 2014 Woodhead Publishing Limited, ISBN 978-1-78242-112-2

Teaching materials created by the lecturers uploaded to the Moodle System.

Notes:

Title of course: ***Product Construction and Design***	***NEPTUN-code:*** RTWPC1AMNF RTWPC1AMLF	***Weekly teaching hours:*** *l+pr+lab* 1+2+0 4+8+0	***Credit: 4*** ***Exam type: e***
Course leader: Orsolya Dr. Nagy Szabó	***Position:*** senior lecturer	***Required preliminary knowledge: -***	

Curriculum:

This course focuses on the technical and creative aspects of product design and the feasibility and market success of products. Topics Covered: Fundamentals of product construction in the apparel industry; Material selection and technological considerations; Design process of basic garments, product development, and prototyping; Pattern making and modelling techniques; Production planning and manufacturing processes; Sustainable product construction; Designing functional and specialised clothing.

Professional competencies:

- Understands the fundamentals of garment product construction, including material selection and technological considerations.
- Familiar with the garment construction process.
- Knows basic garment design, product development, and prototyping processes.
- Understand the fundamental pattern-making and modelling techniques.
- Recognizes the sustainability aspects of product construction and functional garments' specific design and structural requirements.
- Understands the relationship between the design process and garment construction and the interconnections of professional work.
- Possesses the knowledge and skills necessary for production planning and manufacturing preparation.
- Capable of applying acquired knowledge in practice and independently executing manufacturing preparation tasks at a high professional level.

Literature:

- Elinor Renfrew, Colin Renfrew: Developing a Fashion Collection (Basics Fashion Design) 2nd Edition, Fairchild Books, 2016. ISBN 978-2940496730
- Anette Fischer, Kiran Gobin: Construction for Fashion Design (Basics Fashion Design), Bloomsbury Visual Arts, 2017. ISBN 978-1472538758

Teaching materials created by the lecturers, and uploaded to the Moodle System.

Notes:

Title of course: ***Manufacturing Technologies I.***	***NEPTUN-code:*** RTWMT1AMNF RTWMT1AMLF	***Weekly teaching hours:*** *l+pr+lab* 1+2+0 4+8+0	***Credit: 4*** ***Exam type: tm***
Course leader: Orsolya Dr. Nagy Szabó	***Position:*** senior lecturer	***Required preliminary knowledge: -***	

Curriculum:

This course covers the fundamental knowledge of garment manufacturing technology, emphasising practical application and modern technological advancements. Topics Covered: Basic concepts and fundamental technological processes in garment manufacturing; Material science and textiles; Overview of manufacturing processes: technological aspects of garment design and production, including cutting, sewing, assembly, and ironing; Machine and hand sewing techniques; Cutting and sewing technologies; Quality control, standards, safety, and health regulations; Organization of manufacturing processes; Technological developments and innovations in the garment industry; Practical knowledge and case studies; Factory visits and hands-on projects.

Professional competencies:

- Understands the fundamental concepts and basic technological processes of garment manufacturing technology.
- Knows the types and properties of fabrics and textiles, including material behaviour during production (stretching, shrinkage, tensile strength).
- Capable of selecting raw materials based on functional and aesthetic criteria.
- Understands the technological processes involved in garment design and production, including cutting, sewing, assembly, and ironing, as well as machine and hand sewing techniques.
- Familiar with pattern-making and execution techniques, cutting machines and tools, modern sewing machine types, their functions, and various stitch types.
- Possesses the necessary knowledge of manufacturing process organisation, including production planning and scheduling, resource optimisation, cost-efficient production, and improving efficiency and productivity.
- Understands modern technologies used in the garment industry and is interested in technological advancements and innovations.
- Capable of systematically applying this knowledge at a high professional level in practice.

Literature:

- T. Karthik, P. Ganesan, D. Gopalakrishnan: Apparel Manufacturing Technology, CRC Press, 2016.
- Grace Kunz, Ruth Glock: Apparel Manufacturing: Sewn Product Analysis, 4th Edition, Pearson, 2004. ISBN 978-0131119826

Teaching materials created by the lecturers, and uploaded to the Moodle System.

Notes:

Title of course: ***Manufacturing Technologies II.***	***NEPTUN-code:*** RTWMT2AMNF RTWMT2AMLF	***Weekly teaching hours:*** *l+pr+lab* 1+3+0 4+12+0	***Credit: 4*** ***Exam type: e***
Course leader: Orsolya Dr. Nagy Szabó	***Position:*** senior lecturer	***Required preliminary knowledge:*** -	

Curriculum:

The course aims to give students a deeper understanding of advanced manufacturing technologies, including integrating automation, Industry 4.0, and sustainable technologies into garment production processes. Building on the foundations acquired in the previous semester, this course offers in-depth knowledge to enhance the understanding and application of advanced manufacturing technologies. Topics Covered: Advanced material science and textile analysis; Advanced pattern-making techniques; Specialized sewing technologies; Optimization of manufacturing processes; Automation and digitalisation in the garment industry; Quality control and defect correction in production; Manufacturing of specialised products; Research and development in garment manufacturing technologies. Practical knowledge and case studies: Hands-on projects for improving production processes; Case studies of successful manufacturing solutions in the fashion industry; Factory and plant visits to observe production workflows.

Professional competencies:

- Possesses advanced material knowledge and can independently conduct specific textile tests.
- Familiar with specialised sewing technologies and understanding their application areas.
- Knows the methods of manufacturing process optimisation and improving production line efficiency and can apply Lean manufacturing techniques in the garment industry.
- Has expertise in production management and process management within the garment industry.
- Understands automation and digitalisation processes in garment manufacturing and has up-to-date knowledge of technological research and developments in the field.
- Possesses advanced pattern-making knowledge.
- Knows the manufacturing technologies for specialised products (e.g., protective clothing, sportswear, and functional apparel) and the specific production requirements for fashion accessories (e.g., belts, bags, hats).
- Capable of systematically applying knowledge at a high professional level in practical settings.

Literature:

- Dr. Prabir Jana, Helmut Jung: Technology Evolution in Apparel Manufacturing, Apparel Resources Publication, 2020
- Praburaj Venkatraman, Steven George Hayes: Materials and Technology for Sportswear and Performance Apparel, CRC Press, 2017.
- Asis Patnaik, Sweta Patnaik: Fibres to Smart Textiles: Advances in Manufacturing, Technologies, and Applications, CRC Press, 2019.
- Abu Sadat Muhammad Sayem: Digital Fashion Innovations (Textile Institute Professional Publications) CRC Press, 2023. ISBN 978-1032207278

Teaching materials created by the lecturers uploaded to the Moodle System.

Notes: