RTU Course "The History of Technical Sciences"

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General data

Code	HSP700
Course title	The History of Technical Sciences
Course status in the programme	Compulsory/Courses of Limited Choice; Courses of Free Choice
Responsible instructor	Alīda Zigmunde
Volume of the course: parts and credits points	1 part, 2.0 Credit Points, 3.0 ECTS credits
Language of instruction	LV
Annotation	The history of development of the technical sciences and the engineering sciences in Latvia.The achievements of the engineering sciences in Latvia. Technological monuments. Personalities.
Goals and objectives of the course in terms of competences and skills	The goal is: To provide students the basic understanding of the history of engineering sciences their role and their development in Latvia and the world. Tasks: 1) To provide insight into the development of engineering sciences as a whole and into the development of its branches. 2) To be able to understand the most important questions in the history of engineering sciences. 3) To acquire knowledge of the development of engineering sciences in Latvia. 4) To learn how to work with historic sources of information concerning the history of engineering sciences.
Structure and tasks of independent studies	To choose subjects for lectures and to learn how to formulate them precisely.To study recommended literature and to select relevant material for a lecture; to collect analyze and to put together data and facts for a task; to analyze facts and literature, to find out flaws, to develop prposals and how to put them together; how to formulate a thesis for a lecture; to work independently and self-relying on lectures and to prepare discussions.
Recommended literature	Augstākās tehniskās izglītības vēsture Latvijā. 1. - 5. daļa. Rīga: RTU, 2002 - 2017 Zigmunde A. Ernst Nauck (1819 – 1875): der erste Direktor des Polytechnikums zu Riga. Ernst Nauck (1819 – 1875): the First Director of Riga Polytechnicum. Ernsts Nauks (1819 – 1875): Rīgas Politehnikuma pirmais direktors. Rīga: RTU, 2019 Krastiņš J., Bratuškins U., Treija S. Arhitektūras izglītībai Latvijā - 150. Architectural Education in Latvia - 150. Rīga, 2019 Sollinger G., Zigmunde A. From Airplanes to Rockets - Friedrich Zander and Early Aviation in Riga. Riga: RTU, 2018 Gudro I., Zigmunde A., Lapsa R., Lapsa E. Rīgas Tehniskā universitāte. Pusgadsimts Ķīpsalā = Riga Technical university. Half a century on Ķīpsala. Rīga : Rīgas Tehniskā universitāte, 2018 Scientific Journal of RTU Research Centre for Engineering History. History of Engineering Sciences and Institutions of Higher Education. 2017 - 2019. Liepiņš E. Esejas par Rīgas auto. Rīga, 2019 Liepiņš E. Rīgas auto : pages from Latvian automobile history. Riga, 2018 Liepiņš E. Augusts Krastiņš un viņa automobilis.August Krastin and his automobile. Riga, 2016 Biedriņš A., Liepiņš E. Rīgas sabiedriskais transports no 19. gs. vidus līdz mūsdienām. Rīga, 2015 Altbergs T. An Illustrated History of Railways in Latvia, 1861-2016. Riga, 2017. Altbergs T. Dzelzceļš Latvijai.Latvijas dzelzceļam Rīga- Daugavpils 150. Rīga: Jumava, 2011. Brūvelis E.. Latvijas aviācijas vēsture, 1919- 1940. Rīga: Jumava, 2003. Klētnieks J. Ģeodēzijas izglītība un zinātne Latvijā, 1862 – 1990. Rīga: RTU, 2012 Ķīmiskās ražošanas attīstība Latvijā (8500 g. pr. Kr.-1918). Rīga: RTU, 2008. Nezūdošās vērtības : VEF - 100. Rīga, 2019 Ķīmija Rīgas Politehnikumā un Rīgas Politehniskā institūtā. Rīga: LĶVM, 2001. Ķīmija Latvijas Universitātē (1919.-1944.). Rīga: LĶVM, 2005. Ķīmiskās ražošanas attīstība Latvijā, (1918-1944). Rīga:RTU, 2011. J. Ločmelis. Daugavpils telefona tīkla simts gadi. Rīga: Lattelekom, 2000. Ločmelis J.. Telekomunikāciju vēsture. 1. – 3. sēj. Rīga: LU, 2000- 2005.
Course prerequisites	The basic course of Latvia and world history, foundation of physics, chemistry and geography

Course contents

Content	Full- and part-time intramural studies		Part time extramural studies	
	Contact Hours	Indep. work	Contact Hours	Indep. work
Research in the field of the history of sciences in Latvia and in the World, important researcher, problems in this fiel	2	2	1	4
The history of the engineering sciences in Latvia.	3	2	1	5
The history of chemistry and of the chemical industry.	4	4	1	4
The history of physics, astronomy and geodasy.	2	2	1	5
The history of electrotechnic and electroenergetic.	3	3	1	5
The history of transport by air, water and on roads.	3	3	1	5
The history of electronic and telecommunication.	3	3	2	6
The history of oeconomy and oeconomy for technical professions.	2	2	1	5
The history of architecture and construction.	4	4	1	5
The history of aviation.	3	3	1	4

The history of shipbuilding and maritime sciences.	3	3	1	4
The history of automobile construction.	3	3	1	5
Technical monuments.	3	3	1	4
Evaluation and notes.	2	3	2	3
Total:	40	40	16	64

Learning outcomes and assessment

Learning outcomes	Assessment methods
The student is capable to evaluate the role of the engineering sciences in the development of the modern world	Test
The student is capable to formulate his opinion and to name the facts, information and sources in law on which his opinion are founded	Evaluation of the level of discussion in the seminar
The student is capable to evaluate the role of engineering sciences in the world, in his country and in his personal life	Discussion and acting in a professional environment
The student has learned to formulate his views in a written statement and to argue with facts from the history of engineering sciences and the history of technology	Lecture
The student is able to analyze fundamental questions in the history of engineering sciences and knows to argue with facts from the history of engineering sciences and the present sciences. The student has learned what the knowledge of the history of a science is good for.	Lecture, taking part in discussions, evaluations

Evaluation criteria of study results

Criterion	%
Attendence of lectures	20
Practical works	50
Making of presentation	30
Total:	100

Study subject structure

Part	CP	Hours per Week			Tests			Tests (free choice)		
		Lectures	Practical	Lab.	Test	Exam	Work	Test	Exam	Work
1.	2.0	1.0	1.0	0.0		*		*		