COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
TECHNOLOGY LAW	

Lecturer(s)	Department(s)
Coordinator: Dr. Mantas Rimkevičius **Other(s):** doc. dr. R. Simaitis	Department of Private Law, Vilnius University, Faculty of Law, Saulėtekio av. 9, Building 1, LT-10222, Vilnius, Room 311, phone (+370 5) 236 61 70, email: ptkatedra@tf.vu.lt

Study cycle	Type of the course unit (module)
Second	Compulsory (track – Tech Law)

Mode of delivery	Course unit delivery period	Language(s) of instruction
Face-to-face	1 (autumn) semester	English

Requirements for students	
Pre-requisites: None	**Co-requisites (if any):** None

Number of credits allocated	Total student's workload	Contact hours	Self-study hours
5	133	32	101

Purpose of the course unit (module): programme competences to be developed
The purpose of this course is to enhance students' knowledge related to various types of emerging technologies - so-called "main driving forces" of the 4th industrial revolution - as well as legal issues associated to them. Students will: ✓ develop the ability to analyse and assess the regulatory debates pertinent to each group of the emerging technologies;   ✓ be able to critically reflect on the controversial legal, ethical, societal topics related to the emerging technologies;   ✓ gain a systematic view of how different branches of law are being reshaped by innovations.

Learning outcomes of the course unit (module)	Teaching and learning methods	Assessment methods
Students will be able to analyse the existing regional and international legal standards for the outlined types of emerging technologies and will be able to provide suggestions on how the technology should (not) be regulated.	An interactive method of teaching during seminars (the analysis of problematic issues, presentations of reaction papers, group discussions), individual studies (search of information, critical literature studies and the analysis of theoretical and practical problems), regular written assignments (reaction papers)	Evaluation of the final written assignment, reaction papers and students' performance during seminar discussions
Students will be able to identify the connections between different types of technologies, adequately use the basic terminology related to their architecture.	An interactive method of teaching during seminars (the analysis of problematic issues, presentations of reaction papers, group discussions), individual studies (search of information, critical literature studies and the analysis of theoretical and practical problems), regular written assignments (reaction papers)	Evaluation of the final written assignment, reaction papers and students' performance during seminar discussions
Students will be able to systematically evaluate and explain theoretical, practical opportunities and risks arising at the intersection of law and technologies.	An interactive method of teaching during seminars (the analysis of problematic issues, presentations of reaction papers, group discussions), individual studies (search of information, critical literature studies and the analysis of theoretical and practical problems), regular written assignments (reaction papers)	Evaluation of the final written assignment, reaction papers and students' performance during seminar discussions
Students will be able to work individually, use electronic databases to research relevant topics, will practise critical, creative thinking skills while providing the interpretations and insights to the interdisciplinary content.	Preparation of reaction papers, individual studies (search of information, critical literature studies and the analysis of theoretical and practical problems)	Evaluation of the reaction papers and students' performance during seminar discussions

Students will be able to productively participate in cross-cultural group activities, will professionally communicate orally and in written, clearly present and discuss own conclusions and well-grounded arguments in a constructive dialogue with legal specialists and professionals of other fields.	An interactive method of teaching during seminars (the analysis of problematic issues, presentations of reaction papers, group discussions), individual studies (search of information, critical literature studies and the analysis of theoretical and practical problems), regular written assignments (reaction papers)	Evaluation of the reaction papers and students' performance during seminar discussions

Content: breakdown of the topics	Lectures	Consultations	Seminars	Practical sessions	Laboratory activities	Internship/work placement	Contact hours	Self-study hours	Assignments
							Contact hours		**Self-study: hours and assignments**
1. Introduction to the course. Overview of the emerging technologies: definitions, societal effects, regulatory debate			2				2	6	**Compulsory readings:** ✓ ABBOTT, K. W. Introduction: the challenges of oversight for emerging technologies ✓ LESSIG, L., Code is Law ✓ MANDEL, G. N., Regulating Emerging Technologies ✓ MARCHANT, G. E., ALLENBY, B. Soft Law: New tools for governing emerging technologies
2. Big Data			2				2	6	**Compulsory readings:** ✓ BOYD, D., CRAWFORD, K. Critical Questions for Big Data ✓ WACHTER, S., MITTELSTADT, B. A right to reasonable inferences: re-thinking data protection law in the age of Big Data and AI
3. Artificial intelligence, machine learning, deep learning			4				4	12	**Compulsory reading:** LEHR, D., OHM, P., Playing with the Data: What Legal Scholars Should Learn About Machine Learning **Reaction paper** (from now on, **RP**) to **one** of the assigned readings*: **Reading No. 1** MASSARO, T. M., NORTON, H., KAMINSKI, M. E., SIRI-OUSLY 2.0 **Reading No. 2** BAROCAS, S., SELBST, A. D., Big Data's Disparate Impact *Requirements for the reaction papers can be found in the section "Assessment criteria".
4. Finding a way in different realities: virtual, augmented, mixed, extended			2				2	6	**Compulsory reading / RP** to the assigned **reading:** LEMLEY, M., VOLOKH, E., Virtual Reality and Augmented Reality
5. Myths and facts about robotics			3				3	11	**Compulsory reading:** CALO, R., Robotics and the Lessons of Cyberlaw **RP** to **one** of the assigned readings: **Reading No. 1** HARTZOG, W., Unfair and Deceptive Robots **Reading No. 2** CROOTOF, R., The Killer Robots Are Here: Legal and Policy Implications
6. Unmanned aerial and ground vehicles			3				3	9	**RP** to **one** the assigned readings: **Reading No. 1** MARCHANT, G. E., LINDOR, R. A. The coming collision between autonomous vehicles and the liability system

No. Topic									Readings
									Reading No. 2 TAKAHASHI, T. T., Drones and Privacy
7. Distributed ledger technologies, blockchain			3				3	9	**RP** to **one** of the assigned readings: **Reading No. 1** NABILOU, H., How to regulate bitcoin? Decentralized regulation for a decentralized cryptocurrency **Reading No. 2** WERBACH, K., CORNELL, N., Contracts Ex Machina
8. Internet of Things			3				3	9	**RP** to **one** of the assigned readings: **Reading No. 1** KIRTLEY, J., MEMMEL, S., Rewriting the "Book of the Machine": Regulatory and Liability Issues for the Internet of Things **Reading No. 2** WEBER, R. H., STUDER, E., Cybersecurity in the Internet of Things: Legal aspects
9. Information and Communications Technology (ICT)			3				3	12	**Compulsory readings:** ✓ WU, T., Network Neutrality, Broadband Discrimination ✓ HELBERGER, N. *et al.* Governing online platforms: From contested to cooperative responsibility **RP** to **one** of the assigned readings: **Reading No. 1** BOSHER, H., YEŞILOĞLU, S. An analysis of the fundamental tensions between copyright and social media: the legal implications of sharing images on Instagram **Reading No. 2** VOLOKH, E., What Cheap Speech Has Done: The Transformation of Libel and Privacy Law
10. Biotechnology			3				3	9	**RP** to **one** of the assigned readings: **Reading No. 1** KOPLIN, J. J., SAVULESCU, J. Time to rethink the law on part-human chimeras **Reading No. 2** NICOL, D. *et al.* International Divergence in Gene Patenting
11. Neuroscience technology			2				2	6	**Compulsory reading:** SHEN, F. X., Law and Neuroscience 2.0 **RP** to the assigned **reading:** IENCA, M., ANDORNO, R., Towards new human rights in the age of neuroscience and neurotechnology
12. Nanotechnology			2				2	6	**Compulsory reading:** OUELLETTE, L. L., Nanotechnology and Innovation Policy **RP** to the assigned **reading:** SODANO, V. *et al.* Regulating food nanotechnologies in the European Union: Open issues and political challenges
Total			32				32	101	

Assessment strategy	Weight, percentage	Assessment period	Assessment criteria
Final written examination	10 %	End of the semester	The final written assignment will consist of one open-ended question that would allow to test students' knowledge and competencies acquired during the semester. Main assessment criteria: comprehensiveness of the analysis, clarity and correctness of argumentation, conclusion formulation.
Reaction papers	80 %	During the semester	✓ Throughout the course a student is expected to submit **5 reaction papers** (out of 17 available) containing his/her personal reflections and

			interpretation of the readings.
			✓ The reaction papers should reflect student's thorough understanding of **5 different topics** of the course (topics and readings will be assigned by the lecturers).
			✓ Maximum amount of words for one reaction paper: 500* (for students who will be leading a discussion – 700).
			✓ Papers must be submitted in a timely manner, before each week's seminar (as indicated by the lecturers). Late submissions will not be evaluated.
			✓ Each reaction paper will be assessed according to the following criteria: - content, - structure and style, - coherence, - persuasiveness. Each reaction paper will be graded in the scale from 1 to 10. Then, the average grade of 5 reaction papers shall be calculated and multiplied by 0.8.
Participation in class activities	10 %	During the semester	10 % of the overall grade will depend on the leadership criterion. Once per semester (or more, depending on a number of students), a student will be assigned a role of the "discussion leader". In the beginning of the seminar (s)he will have to present the reaction paper and direct a thought-provoking discussion around it.

Author	Year of publication	Title	Issue of a periodical or volume of a publication	Publishing place and house or web link
Compulsory reading				
ABBOTT, K. W.	2013	Chapter 1: Introduction: the challenges of oversight for emerging technologies (in "Innovative Governance Models for Emerging Technologies")	–	https://doi.org/10.4337/9781782545644.00006
BOYD, D., CRAWFORD, K.	2012	Critical Questions for Big Data	Information, Communication & Society, 15:5	https://doi.org/10.1080/1369118X.2012.678878
CALO, R.	2015	Robotics and the Lessons of Cyberlaw	California Law Review, Vol. 103, No. 3, University of Washington School of Law Research Paper No. 2014-08	Available at SSRN: https://ssrn.com/abstract=2402972 or http://dx.doi.org/10.2139/ssrn.2402972
HELBERGER, N., PIERSON, J., POELL, T.	2018	Governing online platforms: From contested to cooperative responsibility	The Information Society, 34:1	https://doi.org/10.1080/01972243.2017.1391913
LEHR, D., OHM, P.	2017	Playing with the Data: What Legal Scholars Should Learn about Machine Learning	51 U.C.D. L. Rev. 653	https://lawreview.law.ucdavis.edu/issues/51/2/Symposium/51-2_Lehr_Ohm.pdf
LEMLEY, M., VOLOKH, E.	2018	Virtual Reality and Augmented Reality	166 U. Pa. L. Rev. 1051	Available at: https://scholarship.law.upenn.edu/penn_law_review/vol166/iss5/1
LESSIG, L.	1999	Code is Law	The Industry Standard, 18	http://www.mba.intercol.edu/Entrepreneurship/UT%20Computer%20Science%20Course/Code_is_Law_Lessig.pdf
MANDEL, G. N.	2009	Regulating Emerging Technologies	Law, Innovation & Technology, Vol. 1, Temple University Legal Studies Research Paper No. 2009-18	Available at SSRN: https://ssrn.com/abstract=1355674

MARCHANT, G. E., ALLENBY, B.	2017	Soft Law: New tools for governing emerging technologies	Bulletin of the Atomic Scientists, 73:2	https://doi.org/10.1080/00963402.2017.1288447
OUELLETTE, L. L.	2015	Nanotechnology and Innovation Policy	Harvard Journal of Law and Technology, Vol. 29, No. 1, 2015	Available at SSRN: https://ssrn.com/abstract=2731943
SHEN, F. X.	2017	Law and Neuroscience 2.0	48 ARIZ. ST. L.J. 1043 (2017) (Symposium issue: Evolutionary Analysis in Law)	Available at SSRN: https://ssrn.com/abstract=2942499
WACHTER, S., MITTELSTADR, B.	2019	A right to reasonable inferences: re-thinking data protection law in the age of Big Data and AI	Columbia Business Law Review, 2019(2)	Available at SSRN: https://ssrn.com/abstract=3248829
WU, T.	2003	Network Neutrality, Broadband Discrimination	Journal of Telecommunications and High Technology Law, Vol. 2	Available at: https://scholarship.law.columbia.edu/faculty_scholarship/1281
Recommended reading				
BAROCAS, S., SELBST, A. D.	2016	Big Data's Disparate Impact	California Law Review 104, No. 3	www.jstor.org/stable/24758720
BOSHER, H., YEŞİLOĞLU, S.	2019	An analysis of the fundamental tensions between copyright and social media: the legal implications of sharing images on Instagram	International Review of Law, Computers & Technology, 33:2	https://doi.org/10.1080/13600869.2018.1475897
CROOTOF, R.	2015	The Killer Robots Are Here: Legal and Policy Implications	36 Cardozo L. Rev. 1837	Available at SSRN: https://ssrn.com/abstract=2534567
HARTZOG, W.	2015	Unfair and Deceptive Robots	74 Maryland Law Review 785	Available at SSRN: https://ssrn.com/abstract=2602452
IENCA, M., ANDORNO, R.,	2017	Towards new human rights in the age of neuroscience and neurotechnology	Life Sci Soc Policy 13, 5	https://doi.org/10.1186/s40504-017-0050-1
KIRTLEY, J., MEMMEL, S.	2018	Rewriting the "Book of the Machine": Regulatory and Liability Issues for the Internet of Things	19 MINN. J.L. SCI. & TECH. 455	Available at: https://scholarship.law.umn.edu/mjlst/vol19/iss2/5
KOPLIN, J. J., SAVULESCU, J.	2019	Time to rethink the law on part-human chimeras	Journal of Law and the Biosciences, Volume 6, Issue 1	https://doi.org/10.1093/jlb/lsz005
MARCHANT, G. E., LINDOR, R. A.	2012	The coming collision between autonomous vehicles and the liability system	52 Santa Clara L. Rev. 1321	Available at: https://digitalcommons.law.scu.edu/lawreview/vol52/iss4/6
MASSARO, T. M., NORTON, H., KAMINSKI, M. E.	2017	SIRI-OUSLY 2.0: What Artificial Intelligence Reveals About the First Amendment	101 Minn. L. Rev. 2481	Available at: https://scholar.law.colorado.edu/articles/717
NABILOU, H.	2019	How to regulate bitcoin? Decentralized regulation for a decentralized cryptocurrency	International Journal of Law and Information Technology, Volume 27, Issue 3, Autumn 2019	https://doi.org/10.1093/ijlit/eaz008
NICOL, D. *et al.*	2019	International Divergence in Gene Patenting	Annu Rev Genomics Hum Genet. 2019;20:519-541	https://pubmed.ncbi.nlm.nih.gov/30786226/
SODANO, V. *et al.*	2016	Regulating food nanotechnologies in the European Union: Open issues and political challenges	Trends in Food Science & Technology, Volume 54	http://www.sciencedirect.com/science/article/pii/S0924224416302254

TAKAHASHI, T. T.	2012	Drones and Privacy	72 COLUM. SCI. & TECH. L. REV. Vol. XIV	Available at SSRN: https://ssrn.com/abstract=2035575 or http://dx.doi.org/10.2139/ssrn.2035575
VOLOKH, E.	2018	What Cheap Speech Has Done: The Transformation of Libel and Privacy Law	–	https://administrativestate.gmu.edu/wp-content/uploads/sites/29/2018/01/What-Cheap-Speech-Has-Done-The-Transformation-of-Libel-and-Privacy-Law.pdf
WEBER, R. H., STUDER, E.	2016	Cybersecurity in the Internet of Things: Legal aspects	Computer Law & Security Review Volume 32, Issue 5, October 2016	https://doi.org/10.1016/j.clsr.2016.07.002
WERBACH, K., CORNELL, N.	2017	Contracts Ex Machina	67 Duke Law Journal 313	Available at SSRN: https://ssrn.com/abstract=2936294