Endringsforslag i litteratur, hjelpemidler og læringskrav.

Med dette foreslås det at faget JUS5641 Electronic Communications Law nedlegges høsten 2018 og det opprettes ett nytt emne «Robot Regulation» samme semester. Faget inngår i LLM ICT law, og det tilbys også som valgfag i MiR (både bachelor og master).

Det er ønskelig å gjennomføre endringen allerede fra høsten 2018, av følgende grunner:

- Her erstattes det et fag preget av tradisjonelle forelesninger med et nytt tilbud som bruker varierte undervisningsmetoder basert på «flipped classroom» konseptet (inkludert studentpresentasjoner og audiovisuelle elementer, se under). Faget er ment å støtte opp under fakultetets planlagte satsning på et senter for fremragende undervisning.

- Sammenlignet med «Electronic Communications Law» er «Robot Regulation» bedre forankret i pågående og planlagt forskning ved Senter for rettsinformatikk og fakultetet forøvrig. Det er også mulig at faget kan ha større interesse blant studenter.

- Ansvarlig faglærer har ikke undervist «Electronic Communications Law» de siste 2 årene, pga. forskningstermin og sykdom. I en slik situasjon er det bedre å investere arbeidstiden i å bygge opp et fremtidsrettet fag, fremfor å oppdatere et fag opprettet på 1990-tallet.

- Dersom fokuset på Electronic Communications Law skulle opprettholdes i emnet, ville det kreve omfattende endringer før semesterstart. Det ventes at EU vedtar et nytt regelverk til sommeren, og dette kommer antagelig på et tidspunkt som gjør det vanskelig å integrere det i undervisning og eksamen. Det er lite hensiktsmessig å gjennomføre en slik oppdatering av emnet nå, dersom faget ikke skal videreføres. Det finnes p.t. heller ikke litteratur som fokuserer på det nye regelverket. Derfor er det bedre å skifte fokus nå.

- Forslaget er primært et tiltak for å oppdatere innholdet i LLM ICT law. Det er ikke meningen at forslaget skal foregripe den pågående evalueringen av valgfagsporteføljen i MiR. Det legges til grunn at valgfaget vil bli vurdert på ordinær måte i den pågående søknadsprosessen.

- Ansvarlig faglærer har diskutert den foreslåtte eksamensformen med Axel Hjelme og Kristin Steen Slåttå ved eksamensavdelingen, og det er ingen store administrative hindringer. Den nye eksamensformen vil også være rimeligere enn dagens eksamen på emnet (som består av mid-term paper pluss skoleeksamen).

- Det gjennomføres en siste eksamen i Electronic Communications Law høsten 2018 for eventuelle studenter som ønsker å gjenta emnet. (Det er mindre enn 1/3 overlapp mellom JUS5641 og det nye emnet).

Emnekode: JUS5xxx/JUR1xxx	Fagområde: ~~Electronic communications law~~ **Robot Regulation**
Navn på ansvarlig faglærer: Tobias Mahler og Kristin B. Sandvik	

Forslag til endring i læringskrav (må beskrives i kategoriene: kunnskap, ferdigheter og generell kompetanse):

Knowledge

- Overview of key regulatory issues raised by emerging developments in robotics, including autonomous vehicles, autonomous weapons, human-robot interaction, and cyborgs.

- Knowledge of how the law regulates robots and cyber-physical systems with respect to safety and regulatory oversight, liability, privacy and security.

- Knowledge of regulatory issues raised by artificial intelligence, including discrimination, transparency, privacy, and use for law enforcement.

- Good knowledge of a specific sub-set of regulatory issues in a focus area selected by student groups in agreement with the teacher.

Skills

- Ability to discuss regulatory issues in light of ethical, gender and technical perspectives in robotics.

- Ability to reflect over the need for regulation of robotics and artificial intelligence.

- Ability to participate in policy debates about emerging issues in robotics and their regulation at domestic, European and international level.

General competence

- Understanding how the emergence of robotics may affect society, including in sectors such as transport, health, employment, and public security.

- Understanding of weaknesses and strengths of regulation, and its effect on innovation.
- Development of oral presentation skills.

Exams:

Bachelor students

- <u>Compulsory activity</u>: Mandatory participation in working group. The group prepares an oral presentation, which forms the basis for a short film (20-30 minutes). All students must submit a short report (up to 1 page) describing how they contributed to group work done in this course. This report must be added to the individual term paper, but it is not graded.

- Individual term paper (2000 words)

Master students

- <u>Compulsory activity</u>: Mandatory participation in working group. The group prepares an oral presentation, which forms the basis for a short film (20-30 minutes). All students must submit a short report (up to 1 page) describing how they contributed to group work done in this course. This report must be added to the individual term paper, but it is not graded. Each student must also submit three questions that would be suitable for the oral examination.

  Exams
- Individual short paper (2000 words) – counting 50 %
- Group exam, based on the short film created by the group during the course and individual questions/discussions with each of the group members - counting 50 %

Hver gruppeeksamen kan vare opp til 30 min (filmvisning) + 45 min (diskusjon/eksaminasjon med gruppemedlemmene), sensorene har i tillegg 15 min til å diskutere karakterfastsettelsen, sensoruttellingen vil da bli 1,5 t per gruppe på mellom 4-5 studenter. Karakteren settes på basis av filmen som gruppen har

utarbeidet, gruppemedlemmene kan videre gis ulik karakter på gruppeeksamen basert på deres individuelle presentasjon i diskusjonen/eksaminasjonen. Det settes en samlet individuell karakter for hvert gruppemedlem på gruppeeksamen.

Forslag til endring i litteratur (både hovedlitteratur, støttelitteratur og tilleggslitteratur. Merk at det kun er hovedlitteratur som omfattes av sidetallsnormen. Antall sidetall må fylles inn)**:**

Mandatory reading

Leenes, R.E., and others, "Regulatory challenges of robotics: Some guidelines for addressing legal and ethical issues", *Law, Innovation and Technology*, (2017) *9*(1), 1 (44 pages)

European Parliament Resolution of 16 February 2017 with Recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)), P8_TA (2017) 005, (23 pages).

Neil M. Richards and William D. Smart, "How should the law think about robots?", in Ryan Calo, A. Michael Froomkin and Ian Kerr (ed.), *Robot Law,* Edward Elgar Publishing 2016, 3 (20 pages)

Trevor N. White, Seth D. Baum, "Liability for Present and Future Robotics Technology", in Patrick Lin, Keith Abney, and Ryan Jenkins (ed.), *Robot Ethics 2.0: From Autonomous Cars to Artificial Intelligence*, Oxford University Press, 2017, DOI:10.1093/oso/9780190652951.003.0005 (18 pages)

F. Patrick Hubbard, "Allocating the risk of physical injury from 'sophisticated robots': Efficiency, fairness, and innovation", in Ryan Calo, A. Michael Froomkin and Ian Kerr (ed.), *Robot Law,* Edward Elgar Publishing 2016, 25 (25 pages)

Curtis E.A. Karnow, "The application of traditional tort theory to embodied machine intelligence", in Ryan Calo, A. Michael Froomkin and Ian Kerr (ed.), *Robot Law,* Edward Elgar Publishing 2016, 51 (26 pages)

Joanna J. Bryson, Mihailis E. Diamantis, Thomas D. Grant, "Of, for, and by the people: the legal lacuna of synthetic persons", *Artificial Intelligence and Law*, 25(3) (2017), 273-291 (18 pages)

Meg Leta Jones and Jason Millar, "Hacking Metaphors in the Anticipatory Governance of Emerging Technology: The Case of Regulating Robots", in Roger Brownsword, Eloise Scotford, and Karen Yeung, *the Oxford Handbook of Law, Regulation and Technology*, Oxford University Press, 2017, 596-619 (23 pages)

Peter Asaro, Jus nascendi, robotic weapons and the Martens Clause, in Ryan Calo, A. Michael Froomkin and Ian Kerr (ed.), *Robot Law,* Edward Elgar Publishing, 2016 (19 pages)

Total: 216 pages.
NB! Further literature must be read in connection with individual and group research conducted during this course.

Further reading (starting points for group work)
Legal approaches to robotics:
Calo, Ryan, "Robots in American Law "(2016). University of Washington School of Law Research Paper No. 2016-04, available at SSRN: https://ssrn.com/abstract=2737598

Ryan Calo, *Robots as Legal Metaphors*, 30 Harvard J. Law & Technology, 209-37 (2016).

Ryan Calo, *Robotics and the Lessons of Cyberlaw*, 103 Calif. L. Rev. 513-63 (2015).

Autonomous vehicles:
Jason Millar, "Ethics Settings for Autonomous Vehicles", in Patrick Lin, Keith Abney, and Ryan Jenkins (ed.), *Robot Ethics 2.0: From Autonomous Cars to Artificial Intelligence*, Oxford University Press, 2017, DOI:10.1093/oso/9780190652951.003.0002

Wulf Loh, Janina Loh, "Autonomy and Responsibility in Hybrid Systems, The Example of Autonomous Cars", in Patrick Lin, Keith Abney, and Ryan Jenkins (ed.), *Robot Ethics 2.0: From Autonomous Cars to Artificial Intelligence*, Oxford University Press, 2017, DOI:10.1093/oso/9780190652951.003.0003

Jeffrey K. Gurney, "Imputing Driverhood, Applying a Reasonable Driver Standard to Accidents Caused by Autonomous Vehicles", in Patrick Lin, Keith Abney, and Ryan Jenkins (ed.), *Robot Ethics 2.0: From Autonomous Cars to Artificial Intelligence*, Oxford University Press, 2017, DOI:10.1093/oso/9780190652951.003.0004

Drones:
Rufus Ballaster, Andrew Firman, Eleanor Clot, "A Practical Guide to Drone Law", Law Brief Publishing 2017

Privacy:

M. Ryan Calo, "Robots and Privacy", *in* Patrick Lin et al. (eds.) *Robot Ethics: The Ethical and Social Implications of Robotics,* MIT Press 2012, 187-202

Human-Robot Interaction:
Jesse Kirkpatrick, Erin N. Hahn, Amy J. Haufler, "Trust and Human–Robot Interactions", in Patrick Lin, Keith Abney, and Ryan Jenkins (ed.), Robot Ethics 2.0: From Autonomous Cars to Artificial Intelligence, Oxford University Press, 2017,DOI:10.1093/oso/9780190652951.003.0010

Kate Darling, "'Who's Johnny?' Anthropomorphic Framing in Human–Robot Interaction, Integration, and Policy", in Patrick Lin, Keith Abney, and Ryan Jenkins (ed.), *Robot Ethics 2.0: From Autonomous Cars to Artificial Intelligence*, Oxford University Press, 2017,DOI:10.1093/oso/9780190652951.003.0012

Kate Darling, "Extending legal protection to social robots: The effects of anthropomorphism, empathy, and violent behavior towards robotic objects", in Ryan Calo, A. Michael Froomkin and Ian Kerr (ed.), *Robot Law,* Edward Elgar Publishing 2016, 213 (26 pages)

Healthcare robots:

Aimee van Wynsberghe, *Healthcare robots: ethics, design and implementation*, Ashgate Publishing 2015

Human-robot interaction, gender and sex:
Nomura Tatsuya, "Robots and Gender", Gender and the Genome, Volume 1, Issue 1, 2017

Russell, Anna C. B. 2009. "Blurring the Love Lines: The Legal Implications of Intimacy with Machines." *Computer Law & Security Review* 25 (5): 455–63.

Ezio Di Nucci, "Sex Robots and the Rights of the Disabled", in John Danaher and Neil McArthur, *Robot Sex, Social and Ethical Implications,* MIT Press 2017

Litska Strikwerda, "Legal and Moral Implications of Child Sex Robots", in John Danaher and Neil McArthur, *Robot Sex, Social and Ethical Implications,* MIT Press 2017

Law enforcement:
Kristen Thomasen, "Examining the constitutionality of robot-enhanced interrogation", in Ryan Calo, A. Michael Froomkin and Ian Kerr (ed.), *Robot Law,* Edward Elgar Publishing 2016

Lisa A. Shay et al., "Confronting automated law enforcement", in Ryan Calo, A. Michael Froomkin and Ian Kerr (ed.), *Robot Law,* Edward Elgar Publishing 2016

Military robots and autonomous weapons:

Peter W. Singer, "Wired for War: The Future of Military Robots", Brookings Opinions blog post, August 28, 2009, available at https://www.brookings.edu/opinions/wired-for-war-the-future-of-military-robots/

Leonard Kahn, "Military Robots and the Likelihood of Armed Combat", in Patrick Lin, Keith Abney, and Ryan Jenkins (ed.), *Robot Ethics 2.0: From Autonomous Cars to Artificial Intelligence*, Oxford University Press, 2017, DOI:10.1093/oso/9780190652951.003.0018

Ian Kerr and Katie Szilagyi, "Asleep at the switch? How killer robots become a force multiplier of military necessity"; in Ryan Calo, A. Michael Froomkin and Ian Kerr (ed.), *Robot Law,* Edward Elgar Publishing 2016

Artificial intelligence:

Ryan Calo, "Artificial Intelligence Policy: A Primer and Roadmap", 2017, available at SSRN, http://dx.doi.org/10.2139/ssrn.3015350

Lawrence B. Solum, "Legal Personhood for Artificial Intelligences". *North Carolina Law Review*, Vol. 70, p. 1231, 1992, available at SSRN: https://ssrn.com/abstract=1108671

Shannon Vallor, George A. Bekey, "Artificial Intelligence and the Ethics of Self-Learning Robots", in Patrick Lin, Keith Abney, and Ryan Jenkins (ed.), *Robot Ethics 2.0: From Autonomous Cars to Artificial Intelligence*, Oxford University Press, 2017, DOI:10.1093/oso/9780190652951.003.0022

Frank Pasquale, *The black box society: The secret algorithms that control money and information*, Harvard University Press, 2015.

Lilian Edwards, Michael Veale, "Slave to the algorithm? Why a 'right to an explanation' is probably not the remedy you are looking for", *Duke Law & Technology Review*, 2017, 16, 18-84.

Sandra Wachter, Brent Mittelstadt, Luciano Floridi, "Why a right to explanation of automated decision-making does not exist in the general data protection regulation" *International Data Privacy Law*, 2017, 7(2), 76-99.

Nick Bostrom, *Superintelligence: Paths, Dangers, Strategies*, Oxford University Press, 2016

Forslag til endring i fagbeskrivelse:

Course content

This course addresses emerging regulatory issues related to robotics. The point of departure of the course is the increasing significance robots have in our society, which not only raises technical issues, but also regulatory and policy concerns.

Recent advances in robotics and artificial intelligence indicate that robots gradually become a reality in society, rather than just in science fiction. Applications include autonomous cars and other vehicles, autonomous weapons, as well as assistants in many fields, including healthcare. Thus, the forms and purposes of robots differ, so it may be impossible to develop one singular regulatory response to the broad field of robotics. On the other hand, there are certain recurring features of robots, which are relevant in a regulatory context.

Lawmakers are currently developing new concepts and definitions, concurrent with the potential drafting of a new legal framework. One of these attempts is the European Parliament's working definition of a "smart robot": Its characteristics include (i) the acquisition of autonomy through sensors or data exchange, (ii) potentially self-learning, (iii) at least a minor physical support, (iv) the adaptation of its behaviour and actions to the environment, as well as (v) absence of life in the biological sense.

Artificial intelligence (AI) technology is also relevant. Whether or not embodied in a physical robot, AI is increasingly deployed in a wide range of contexts. These include predictive policing, chatbots, and corporate decision-making. Amongst the challenges with AI has been the potential for bias in decision-making, which can contribute to discrimination, including for gender or race.

The analysis of regulatory issues takes particular account of ethical and gender perspectives. Ethical concerns arise, for example, when robots such as autonomous weapons or vehicles decide about life or death, and when they calculate risk. Moreover, ethical issues are crucial for all human-robot interaction, such as in the context of healthcare robots.

When humans and robots interact, there can be issues with respect to both human gender and robot gender. The clearest example of the latter is the development of sex robots.

This course examines how robots and artificial are regulated *de lege lata*, and tracks the discourse about the need for new law (*de lege ferenda*). It is far from clear how society should respond to the emergence of these technologies, and students should think creatively about these questions. The course also tracks the development of soft law, such as codes of conduct for robot engineers.

Relevant legal and regulatory issues include the following:

- Responsibility, accountability, liability and insurance
- Regulatory oversight by the proposed European Agency for Robotics and Artificial Intelligence
- Regulatory frameworks for safety, security, and privacy
- Robots and networks (network neutrality; cloud computing)
- Autonomous weapons systems and public international law
- Human dignity, gender issues and privacy in the context of healthcare robots, cyborgs and augmented humans
- Regulatory responses to emerging artificial intelligence

Forslag til internasjonale rettskilder og/eller fremmedspråklig litteratur:

Se over

Forslag til rettskilder/litteratur som vil bedre kjønnsmessig balanse i faget/emnet. Er det aktuelle kjønnsperspektiv som kan inkluderes i faget?:

When humans and robots interact, there can be issues with respect to both human gender and robot gender. The clearest example of the latter is the development of sex robots.

Forslag til endring i hjelpemidler: Ingen, men ny eksamensform (se over)

Totalt antall sider hovedlitteratur:

216 pages. NB! Further literature must be read in connection with individual and group research conducted during this course. See recommended reading.