Mahidol University
International College

ICIR 324 Society and Technology in the Modern World

Course description and aims:
This course will examine how technology and science impact society in economic, political and cultural dimensions, and how social forces, in turn, shape the development of scientific research and technological applications. The course analyzes the impact of new forms of media and technology upon the politics, economics and societies of countries around the world and the global order itself. Students will explore concepts and tools for the social scientific study of science and technology and then apply those ideas to different aspects of contemporary life, including digitization, mobile media, internet activism, artificial intelligence at the workplace, surveillance, biotech and cyborg technologies. Students will be able to analyze the ways in which technology and society influence each other, appreciate and evaluate ethical and social concerns about certain technologies and develop recommendations.

The social impact of science and technology up to c. 1900; the early 20th century: transportation, the technology of warfare, the 'new physics' of Einstein and Bohr; developments since World War II: computers, satellite communications, the Internet, genetic engineering, and medical advances. Students will analyze; assess; evaluate impacts of new media in international affairs.

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Assessment

Classroom participation	10%
Two quizzes	10%
Group debate	10%
Group presentation	30%
Final essay	40%

Course Learning Outcomes

At the completion of the course the student will be able to:

1. Students will be able to understand and explain the ways technology shapes social life and the ways social environments give rise to particular technological innovation.
2. Students will be able to analyze the dynamics of scientific controversies and formulate an informed opinion on a debatable science or technology policy issue.
3. Students will successfully engage in interdisciplinary discussions with their peers.
4. Students will be able to reflect on how scientific agendas or technological designs could be constructed differently with different social aims in mind.

Topic No.	Topic
1	Introduction: Science and Technology in the Modern World
2	The Social Life of Things
3	Automobility
4	Mobile Media
5	The Internet and Civil Society
6	The Internet and Social Isolation
7	Automation and Artificial Intelligence at the Workplace
8	Prosumption and the Platform Economy
9	Privacy and Surveillance
10	Fake News and Truth Claims
11	Cyborg Technology and the Enhanced Body
12	Biotechnology and Patenting

Assessment Methods and Criteria

1. **Classroom Participation 10%**
   Participation is based on attendance, preparation for class and the quality of students' participation in class discussions and in-class exercises.
2. **Quizzes 10%**
   In the quizzes, students will be asked to briefly explain key concept and ideas related to Science, Technology and Society studies, which they have discussed in the class.
3. **Group Debate 10%**
   In week 10, the students will form two groups. After individual preparation at home, they have circa 30 minutes to prepare a position on a set debate topic and will then engage in a debate for circa 45 minutes. Afterwards, they will critically reflect on the debate and the different arguments made. Students will be assessed on their participation, the quality of their contributions, their ability to team work, and their reflection on the debate.
4. **Group Presentation 30%**
   Students are expected to identify and explain a potentially controversial technological innovation/project/policy/program, which is either currently in use or currently proposed. They will then present their evaluation of the technology to the class within 20 minutes. Afterwards, they are expected to answer questions from the audience and trigger and moderate a discussion about the technology with regard to ethical, social or environmental implications.
5. **Final Essay 40%**
   The final essay is a response of 3000 to 5000 words to one of four proposed essay questions. The paper should be well-organized, make a clear and compelling argument, contain a thesis statement, and fully cite all sources. Students should incorporate course readings as sources and adhere to academic conventions when writing their paper. Students can come up with individual essay questions, but need to seek approval from the instructor first.

Introduction: Science and Technology in the Modern World

Topic description: In the first week, students will critically engage with broader questions such as: "What is science? How do scientists generate knowledge? Do scientific innovations drive social change? What is the role of society and social institutions for technological innovation? How does society construct scientific research?" and learn about same basic social scientific approaches to the study of technology and science.

Expected Leaning outcome: Students will become aware of the interplay of social and technological change. They will be able to identify and explain some fundamental social scientific perspectives on technological development.

Readings and sources:

- Youtube clip: Science and Technology Studies: Opening the Black Box https://www.youtube.com/watch?v=D9o2B47CArw (14 July 2018)
- Selection from Thomas Kuhn. 1962. *The Structure of Scientific Revolutions*.
- Bruno Latour. 1988. *Science in Action: How to follow Scientists and Engineers through Society*. Cambridge, MA: Harvard University Press.

Student Activity 1:
Students will draw a Venn Diagram illustrating the connections between Science and Technology.

Student Activity 2:
Students will describe some of the interconnections between science, technology, and society, using at least three specific examples.

The Social Life of Things

Topic description: Students will explore how things and objects are part of society, just as people, and how material objects and technical artifacts play a specific part in it.

Expected learning outcome: Students will become familiar with different disciplinary approaches within the social scientific study of technology. In particular, they will be able to explain and apply actor-network approaches.

Readings and Sources:

- Jane Bennett. 2010. *Virtual Matters: A Political Ecology of Things.* Durham and London: Duke University Press. pp. 20-39 ("The Agency of Assemblages").
- Malcolm Gladwell. 'The Social Life of Paper: Looking for Method in the Mess'. *The New Yorker,* 25 March 2002, https://www.newyorker.com/magazine/2002/03/25/the-social-life-of-paper (14 July 2018)
- **Bruno Latour. 1992. 'Where are the Missing Masses? The Sociology of a Few Mundane Artifacts.' In Wiebe E. Bijker and John Law (eds.). 1992. *Shaping Technology/Building Society: Studies in Sociotechnical Change.* Cambridge MA: MIT Press. pp. 225-258.**
- **Langdon Winner. 1980. 'Do Artifacts Have Politics?' *Daedalus.* Vol. 109. No. 1. Modern Technology: Problem or Opportunity?. pp. 121-136.**

Student Activity:
Students will apply Actor-Network theory to things in their daily lives, such as books, computers, bikes, roads, etc.

Technology and Mobility: Automobility

Topic description: In this week, students will discuss the impact of automobility on social life and look at different ways the automobile features in the social imagination. In the second part of the class, students will examine the impact of autonomous vehicle technology and critically analyze the development of autonomous weapons systems and military robots.

Expected learning outcome: Students will become aware of how mobility has changed social relations, identity, and communication. They will be able to assess advantages and limitations of the new 'mobilities paradigm' in the social sciences.

Readings and sources:

- Tim Edensor. 2004. 'Automobility and National Identity: Representation, Geography and Driving Practice.' *Theory, Culture and Society.* Vol. 21. No. 4-5. pp. 101-120.
- Maurie J. Cohen. 2012. 'The future of automobile society: a socio-technical transitions perspective'. *Technology Analysis and Strategic Management.* Vol. 24. No. 4. pp. 377-310.
- Richard Randell. 2018. 'No paradigm to mobilize: the new mobilities paradigm is not a paradigm.' *Applied Mobilities.* DOI: 10.1080/23800127.2018.1493063 (1 April 2019).
- **Mimi Sheller and John Urry. 2016. 'Mobilizing the new mobilities paradigm'. *Applied Mobilities.* Vol. 1. No. 1. pp. 10-25.**
- **John Urry. 1999. *Automobility, Car Culture and Weightless Travel: A discussion paper.* Published by the Department of Sociology, Lancaster University, Lancaster LA1 4YN, UK, at http://www.comp.lancs.ac.uk/sociology/papers/Urry-Automobility.pdf (1 April 2019).**

Student activity: Students will formulate a position paper arguing for or against the use of military drones.

Mobile Media

Topic description: This week's classes will take a critical look at the role of mobile communication in social life and its significance for issues such as social interaction, identity, privacy, sense of place, and surveillance. During the class examples of mobile media applications and services will be introduced by students. They are expected to explain what the application does, give a brief history of it, and how it connects to the course discussions.

Expected learning outcomes: Students will be able to demonstrate understanding of basic concepts of mobile technology and its functions and analyze the impact these technologies have on society.

Readings and sources:

- **Leopoldina Fortunati. 2005. 'Mobile Telephone and the Presentation of Self'. In R. Ling and P.E. Pedersen (eds.). *Mobile Communications: Re-negotiation of the social sphere.* London: Springer. pp. 203-218.**
- --- . 2014. 'Understanding the role of mobile media in society. In Gerard Gaggin, Larissa Hjorth (eds.). *The Routledge Companion to Mobile Media.* London and New York: Routledge, pp. 21-31.
- Rich Ling and Scott W. Campbell (ed.). 2012. *Mobile Communication: Bringing Us Together and Tearing US Apart.* London and New York: Routledge. pp. 1-17.

The Internet and Society: The Internet and Civil Society

Topic description: This class explores the relationships between offline and online modes of association and discusses to what extent the internet facilitates civil society activities by offering new possibilities for participation, and to what extent it may limit or even undermine those possibilities.

Expected learning outcomes: Students will be able to debate and engage with the concept of 'civil society' and relate it to the internet. They will be able to explain and analyze the links between the internet and social organizations and dynamics of civil society.

Readings and sources:

- Mark Beissinger. 2017. "Conventional" and "Virtual" Civil Societies in Autocratic Regimes'. *Comparative Politics.* Vol. 49. No. 3. pp. 351-371.
- Eric Harwit. 2014. 'The Rise and Influence of Weibo (Microblogs) in China'. *Asian Survey.* Vol. 54. No 6. Pp. 1059-1087.
- **Marcus Michaelsen. 2017. 'Far Away, So Close: Transnational Activism, Digital Surveillance and Authoritarian Control in Iran'. *Surveillance & Society.* Vol. 15. Nos. 3-4. pp. 465-470.**

The Internet and Social Isolation

Topic description: This week, the students will critically discuss the alleged link between internet use and social isolation.

Expected learning outcome: Students will be able to analyze dimensions of social isolations and to identify and explain ways in which internet technologies can reduce or exacerbate social isolation.

Readings and sources:

- Pepita Hesselberth. 2018. 'Discourses on disconnectivity and the right to disconnect' *New Media and Society.* Vol. 20. No. 5. pp. 1994-2010.
- **Sherry Turkle. 2011. *Alone Together.* New York: Berie Books. "Introduction, pp. 1-22 and "always on", pp. 151-170.**
- Eva Vriens and Erik van Ingen. 2017. 'Does the internet bring erosion of strong ties? Analyses of social media use and changes in core discussion networks'. *New Media and Society.* Vol. 20. No. 7. pp. 2432-2449.
- Steve Woolgar. 2005. 'Mobile Back to Front: Uncertainty and Danger in the Theory-Technology Relation'. In R. Ling and P. E. Pedersen (eds.). pp. 23-43.

Technology and the Economy: Automation in the workplace

Topic description: Students will explore the sociological impact of the shifts in automation, robotics, and artificial intelligence, particularly with regard to work and employment.

Expected learning outcomes: Students will be able to evaluate the new working relationships between workers and technologies that robotics applications have created in different work environments and assess how robotics and artificial intelligence are changing the work/life balance of people, how they are creating new life opportunities and risks, and how they promote new forms of flexibility and mobility.

Readings and sources:

- **David H. Autor. 2015. 'Why are there still so many jobs? The history and future of workplace automation' *Journal of Economic Perspectives.* Vol. 29. No. 3. pp. 3-30.**

- W. Langeniesche. 2014. 'The Human Factor'. *Vanity Fair.*
- Luke Treddinick. 2017. 'Artificial intelligence and professional roles'. *Business Information Review.* Vol. 34. No. 1. pp. 37-41.

Prosumption and the Platform Economy

Topic description: Students will analyze the relationships between the emergence of digital technologies in the economy and larger scale political, social and economic dynamics. They will discuss how the emergence of the 'prosumer' may change our understanding of issues such as consumption, work, and exploitation and critically evaluate the merits and dangers of the so-called 'platform economy'.

Expected learning outcomes: Students will be able to identify and explain fundamental features of the digital economy and be able to predict the various opportunities and challenges that the globalization of the digital economy presents.

Readings and sources:

- **David Beer. 2017. 'The social power of algorithms'. *Information, Communication & Society.* Vol. 20. No. 1. pp. 1-13.**
- **Pasco Bilic. 2018. 'A Critique of the Political Economy of Algorithms: A Brief History of Google's Technological Rationality.' *tripleC.* Vol. 16. No. 1. pp. 315-331.**
- Donna. L. Hoffman, Thomas P. Novak and Randy Stein (eds.). 2013. 'The digital consumer'. In Russel W. Belk and Rosa Llamas (eds.). *The Routledge Companion to Digital Consumption.* London and New York: Routledge. pp. 28-38.

Technology and Truth Claims: Privacy and Surveillance

Topic description: This week takes the "selfie" as the starting point for a discussion of the changing social perspectives on privacy, private life and the notion of the self.

Expected Learning outcomes: Students will be able to apply the concept of the 'panopticon' to the digital age and assess how the rise of surveillance and "dataveillance' is related to changing understandings of self, privacy and rights.

Readings and sources:

- **Eliza Watts. 2017. 'The right to privacy and the future of mass surveillance'. *The International Journal of Human Rights.* Vol. 21. No. 7.**
- Mara Hvistendahl 2017. 'Inside China's Vast New Experiment of Social Ranking'. *Wired.* 14 December 2017.
- https://www.wired.com/story/age-of-social-credit (14 July 2018).

Film clip: Black Mirror, "Nose Dive"

Fake News

Topic description: This class will look at the effects of the digital on the ways in which information and knowledge is generated, consumed and distributed, and critically engage with the phenomena of fake news, filter bubbles, and 'alternative facts'.

Expected learning outcomes: Students will be able to assess the ways in which notions of authority, knowledge and power are shaped by new digital media and how they in turn influence the digital production and consumption of knowledge. Students will be able to apply the concept of social constructivism to digital knowledge production and critically assess truth claims in the digital age.

Readings and sources:

- Alex Hern. 2018. 'Cambridge Analytica: how did it turn clicks into votes?' *The Guardian.* https://www.theguardian.com/news/2018/may/06/cambridge-analytica-how-turn-clicks-into-votes-christopher-wylie (1 April 2019.
- Brian L. Ott. 2017. 'The age of Twitter: Donald J. Trump and the politics of debasement'. *Critical Studies in Media Communication.* Vol. 34. No. 1. Pp. 59-68.
- **John Corner. 2017. 'Fake news, post-truth and media-political change'. *Media, Culture and Society.* Vol. 39. No. 7. pp. 1100-1107.**
- **Jarred Pier. 2017. 'Commanding the Trend: Social Media as Information Warfare'. *Strategic Studies Quarterly.* Vol. 11. No. 4. pp. 50-85.**

Film clip: *Operation Infektion: How Russia Perfected the Art of War.* New York Times Opinion. 25 November 2018. https://www.youtube.com/watch?v=tR_6dibpDfo (1 April 2019).

Group Debate: Does fakes news online pose any serious threat to the nature of public discourse or can we trust people's ability to figure out what is true and what is fake? Is there a need for policing social media?

Biotechnology: Cyborg Technology and the Enhanced Body

Topic description: This week's topic addresses the concept of a 'posthumanist' sociology in the context of cyborg technology. Students will reflect on the connections between people and things and discuss what it might mean to be human in the presence of cyborg technologies.

Expected learning outcomes: Students will be able to critically engage with the concepts of 'subjectivity' and 'objectivity' and be able to critically assess the controversies surrounding cyborg technology and body enhancement technologies.

Readings and sources:

- **Ciano Aydin. 2017. 'The Posthuman as Hollow Idol: A Nietzchean Critique of Human Enhancement'. *The Journal of Medicine and Philosophy.* Vol. 42. No. 3. pp. 304-327.**
- **Woodrow Barfield. 2015. *Cyber-Humans: Our Future with Machines.* Zurich: Springer International Publishing. Ch. 7 "The Law of Looks and Artificial Bodies", pp. 215-258.**
- John Harris. 2010. *Enhancing Evolution: The Ethical Case for Making Better People.* Princeton: Princeton University Press.
- Bill Hughes. 2000. 'Medicalized Bodies'. In Peter Hankock et al. (eds.). *The Body, Culture and Society: An Introduction.* Buckingham and Philadelphia: Open University Press. pp. 12-28.
- Julian Savulescu and Nick Bostrom (eds.). 2009. *Human Enhancement.* Oxford: Oxford University Press.
- Deborah Heath, Rayna Rapp and Karen-Sue Taussig, "Genetic Citizenship," from A Companion to the Anthropology of Politics edited by David Nugent and Joan Vincent (pp. 152 – 167)

Biotech and Patenting

Topic description: Students will critically examine biotechnology in a wide variety of social contexts, including genetically modified food, cloning, genetic testing and the potential for discrimination, herbicide resistant seeds and the issue of biopatenting.

Expected learning outcomes: Students will be able to use the tools of the social sciences to analyze biotechnology critically and in an interdisciplinary fashion. They will be able to draw

connections between the technical side of biotech and its social, cultural and political dimensions.

Readings and sources:

- **Peter H. Feindt. 2012. 'The politics of biopatents in food and agriculture, 1950-2010: Value conflict, competing paradigms and contested institutionalization in multi-level governance. *Policy and Society.* Vol. 31. pp 281-293.**
- **Hallam Stevens. 2018. *Biotechnology and Society: An Introduction.* Chicago and London: University of Chicago Press. Excerpts.**
- Mark Perry. 2016. 'Sustaining Food Production in the Anthropocene: Influences by Regulation of Crop Biotechnology' In *Amanda Kennedy and Jonathan Liljeblad (eds.) Food systems governance: challenges for justice, equality and human rights.* London and New York: Routledge. pp. 127-142.
- Shane Greene. 2004. 'Indigenous People Incorporated? Culture as Politics, Culture as Property in Pharmaceutical Biosprospecting'. *Current Anthropology.* Vol. 45. No. 2. pp. 211-237.
- Daniel F. Robinson. 2012. 'Biopiracy and the Innovations of Indigenous Peoples and Local Communities'. In Peter Drahos and Susy Frankel. *Indigenous People's Innovation: Intellectual Property Pathways to Development.* Canberra: Australia National University Press. pp. 77-94.