LAW, POLICY, AND ENGINEERING (LPE)

LPE 596: Individual Studies

1-9 Credits/Maximum of 9

Creative projects with a professional orientation, including nonthesis research, that are supervised on an individual basis and which fall outside the scope of formal courses.

LPE 597: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or semester

LPE 851: Foundations in Public Law

3 Credits

Students with non-legal backgrounds will develop a fundamental understanding of public law, meaning legislation and regulation, and the mechanisms by which public law regulates engineering, science and technology: how the executive, legislative, and judicial branches of government interact to form science and technology policy, how administrative agencies and regulations implement that policy, and how judicial review of legislation and regulation affects policies, regulations, and systems. Students will be exposed to the following legal topics: constitutional law, statutory passage and interpretation, administrative regulations, how administrative regulations are analyzed by the judicial branch, and the role of the Supreme Court of the United States. Case studies will be used to show examples of how legislation and regulation affect engineering and other non-law fields, including how agency regulations impact engineering work, business, and culture; the role of technical experts in agency activities, and how notice-and-comment allows for public feedback on proposed regulations. After successfully completing this course, students will have an in-depth understanding of how technical and scientific experts within the government can impact policy and how experts outside of the government are regulated by that policy.

LPE 852: Foundations in Private Law

3 Credits

Students with non-legal backgrounds will use case studies grounded in science, engineering, and other disciplines to develop understanding of the fundamentals of private law as they apply to engineering, science, and technology. Students will be exposed to the following legal topics: contracts, employment/labor law, mergers and acquisitions (M&A), anti-trust, intellectual property (IP), torts, fiduciary duties, and criminal law. Case studies will show how legal issues arise in engineering, science, and technology contexts and affect policy. This includes developing a better appreciation and understanding of various stakeholders including customers, companies, government agencies, and communities. Students will learn to better identify and anticipate legal issues in engineering, science, and technology and understand how to minimize legal risk.

LPE 853: Engineering, Law, and Policy Systems

3 Credits

This course provides a broad exploration of the relationship between engineering, policy, and law. From driverless cars to AI-powered systems, engineering is transforming public and private spaces. As these new technologies leave the lab and operate in new spaces, each new technology represents a system within that larger, higher-order system. The transformation of these spaces and the interaction of these once-separate systems will be shaped by, and in turn will shape, the public policies of local, state, national, and global policymaking systems. This interdisciplinary course has two objectives. First, it considers the classic engineering problem of integrating subsystems into a larger, higher-order system. In this class, the larger system includes not only other physical systems in the operating space, but also social, legal, and political systems. Second, it considers traditional legal and policymaking institutions as constrained optimization problems. This course identifies the legal and political constraints engineering solutions must satisfy in order to come online.

Cross-listed with: INTAF 853

LPE 854: Engineering, Law, and Technology Policy Practicum

3 Credits

In this class, we bridge technology theory with technology policy practice. We begin the semester by asking the "big" normative questions of innovation: what kinds of technology are we building? What engineering and ethical principles are we applying? Is this "progress"? How is law helping (or not helping)? Next, using case studies of "hot topics" in technology policy, we apply these ideas to current debates. Finally, through the development of an interdisciplinary team project, the lessons from the first two parts of the class are applied, and as the culminating experience of the Master of Engineering program in Engineering, Law and Policy (MELP), engineering students will apply and integrate their knowledge on strategic science and technology policy, regulatory concepts, and systems thinking to the real world policy issue chosen for the team project. The projects are tailored to meet the current research needs of particular federal and state lawmakers and agencies based on their legislative and regulatory agendas for the year. .Students will analyze technology and policy options and conceive, design, and execute a technology and policy research project, taking into consideration the political, social, and institutional context of technological systems. The deliverables of the course will be a formal oral presentation of the team project, a public-facing technology tool, and a policy research paper written for relevant policymakers, seeking to assist them in their policy decision-making process. This will require students to reconcile the engineering and technical realities and constraints of the projects as well as the legal implications, stepping into the shoes of a policymaker. Possible policy coverage and project areas include connected health; consumer/ investor protection in security and privacy; disinformation, governance, and tech literacy; internet availability and net neutrality; sustainability and ethics in computing design; the Internet of Things and the right to repair; machine learning/ AI suitability; tech competition; computing history; and tech workforce development.

LPE 855: Engineers and Scientists Shaping Policy

3 Credits

Policy influences and is influenced by science and technology. This course is designed to provide students with the knowledge and skills

necessary to integrate policy implications into their engineering and scientific research designs and to prepare students to become effective agents of change in both public and private policy as engineers and scientists. Students will explore policy for science and science for policy, examining position statements and guidance issued by the professional organizations and societies relevant to their engineering and scientific disciplines. Students will become familiar with theories of policy analysis, mechanisms that set science policy, and science policymaking bodies and influencers. Additionally, students will learn how to apply and communicate their technical expertise to address policy challenges at different scales (e.g., local, state, national, and global) and how to integrate ethical, legal, social, and policy considerations into their research. This course is designed to help engineers and scientists engage with the policymaking process and advance innovative research with a focus on its broad societal impacts.

LPE 896: Individual Studies

1-9 Credits/Maximum of 9

Creative projects with a professional orientation, including nonthesis research, that are supervised on an individual basis and which fall outside the scope of formal courses.

LPE 897: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject with a professional orientation that may be offered infrequently.