PURDUE UNIVERSITY | College of Engineering

Engineering Faculty Document
No.: 69-25
November 15, 2024

TO: The Engineering Faculty

FROM: The Faculty of the Experiential Learning Committee

RE: New Engineering Certificate

The Faculty of the Experiential Learning Committee has approved the following new Certificate from the College of Engineering. This action is now submitted to the Engineering Faculty with a recommendation for approval.

TITLE:

Innovation for Public Service

DESCRIPTION:

The Innovation for Public Service Certificate program is designed to increase the number of engineering graduates entering the public service sector, contributing as technology leaders and innovators. The 16+ hour certificate is available to students from various STEM majors.

RATIONALE:

The new **Innovation in Public Service Certificate** at Purdue University closely aligns with and supports the host department's and college's mission by enhancing their focus on preparing students for leadership roles in government, non-profits, and the public sector. The program strengthens the department's commitment to public service education by offering a forward-looking curriculum emphasizing the practical skills needed for future challenges, such as data-driven decision-making, technological innovation, and organizational change management. Additionally, the certificate encourages interdisciplinary collaboration, bringing together fields like public administration, political science, economics, and technology, which enriches the educational experience and promotes cooperation within the college. By focusing on innovation, the certificate helps maintain the department's and college's relevance in a rapidly changing public service landscape, enhancing their reputation as leaders in the field.

This certificate stands out from other available programs' clear emphasis on innovation rather than traditional public service competencies such as leadership or ethics. Unlike more public administration or policy certificates, it equips students with relevant tools for implementing new technologies and practices that improve efficiency in public service. The certificate offers applied learning opportunities with the internship or co-op requirements as well as project-based courses, allowing students to engage directly with real-world public service challenges. Moreover, the focus on leveraging technology, including data analytics and digital governance, gives students specialized knowledge that

further differentiates this certificate from broader public service programs. With customizable pathways for students to pursue specific areas of interest, such as public health innovation or environmental sustainability, this certificate provides a unique, adaptable approach that prepares students for the future of public service.

Head/Director of the Experiential Learning Committee

Innovation for Public Service Certificate

Originating/Sponsoring Unit: College of Engineering

The Innovation for Public Service will be open to students from various STEM majors who are interested in a career in the public sector in local, state and federal agencies.

The new undergraduate certificate program, Innovation for Public Service is a partnership with the College of Engineering and the Noble Reach Foundation. The program's key objective is to increase the number of STEM degree graduates entering public service careers, contributing as technology leaders and practical problem solvers. The 16-plus credit hour certificate in Innovation for Public Service will be available to students from various STEM majors. Participating students will be connected to unique opportunities for co-ops and internships in the public sector — with the federal government, congressional delegations of the states they are from, and federal agencies. Students participating in the Innovation for Public Service Certificate program will be exposed to various career paths and opportunities affecting public policy. They will build connections with individuals from local and national government, policy research centers, and government agencies like the Department of State, Department of Defense, Department of Homeland Security, Department of Energy, the National Security Agency, and NASA, and many more. Students will be supported in connecting with meaningful professional experiences, which will enhance their resume and set them up for careers positively impacting the citizens of our nation and the world.

Requirements for the Certificate

Undergraduate students seeking to earn the Innovation in Public Service Certificate shall take a minimum of 16+ credits in this distribution:

I. 1 credit hour of orientation seminar:

- ENGR 10305 Innovation for Public Service

II. Experiential Learning in Public Service: at least 6 credit hours or equivalent of in any combination of the following:

A. Full-time internship or co-op in areas relevant to public service.
   - Internship with a public service entity. The internship should be full-time for a duration of 8-12 weeks, totaling 320+ hours of work experience. Students must register for a 0-credit internship course during their experience. The course requires student reflection and a performance evaluation completed by their supervisor

B. Full-time summer research experience related to public service with a minimum duration of 8 weeks totaling 320 hours of work. Student must register for a 0-credit experiential learning course requiring reflection and a performance evaluation completed by their supervisor

C. 6 credits of part-time research related to public service

D. Boilers to go to D.C. Maymester Course

E. EPICS related to public service (2 Credits required)

F. Vertically Integrated Projects related to public service
G. Spring Break Study Away in D.C.
H. Approved project-based learning experience

III. At least 9 credit hours of courses selected from the **humanities/social sciences/policy area** and **the technical area**, with at least one course in each area**.**

Humanities/Social Sciences/Policy Courses

ANTH 30800 Critical Data Studies
ASEC 48500 Environmental Communication
COM 22400 Communicating in the Global Workplace
COM 25300 Introduction to Public Relations
COM 37800 Introduction to Health Communication
COM 44400 Introduction to Communication and Social Entrepreneurship
ECON 25200 Macroeconomics
ENGL 42100 Technical Writing
HIST 30701 History of artificial intelligence: minds and machines
HIST 30705 History of data: How data become big
HIST 30902 History of biotechnology
HIST 31305 Medical devices and innovation
HIST 33205 History of the Nuclear Age
HIST 38505 Media, politics, and popular culture
ILS 23000 Data Science and Society: Ethical Legal Social Issues
ILS 30000 Information, Culture, and Society
ILS 30100 Data Foundations, Tools, and Applications
LC 32300 Global Sustainable Engineering
MGMT 47900 Data Visualization
MGMT 48400 Management of Entrepreneurial Ventures
PHIL 20700 Ethics for Technology, Engineering, and Design
PHIL 20800 Ethics of Data Science
POL 12000 Introduction to Public Policy and Public Administration
POL 22300 Introduction to Environmental Policy (FNR 22310)
POL 22800 Data Science and Public Policy
POL 32300 Comparative Environmental Policy
POL 32700 Global Green Politics
POL 42800 The Politics of Regulation
POL 52101 Applied Public Policy: Institutions, Processes, and Practices
POL 52601 Technology, AI, and Ethics in Public Policy and Public Administration
POL 52901 Policy and Program Evaluation
SOC 33900 Sociology of Global Development
SOC 38100 Data and Society

Technical Courses

ABE 32500 Soil and Water Resource Engineering
ABE 42500 Water Quality Engineering
ABE 51200 Good Regulatory Practices

AGEC 20400	Introduction to Resource Economics and Environmental Policy
AGEC 41000	Agricultural Policy
AGEC 52500	Environmental Policy Analysis
AGRY 12000	Water and Food Security
AGRY 12500	Environmental Science and Conservation
ASEC 35500	Controversial Science and Media in The Public Sphere
ASEC 38500	Communication Strategies for Controversial Issues in ANR
ASEC 48500	Environmental Communication
ASM 23600	Environmental Systems Management
ASM 51200	Managing Resources and Applications for Homeland Security
BIOL 48300	Great Issues: Environmental and Conservation Biology
BME 56200	Regulatory Issues Surrounding Approval of Biomedical Devices
CE 29202	Contemporary Issues in Civil Engineering
CE 35500	Engineering Environmental Sustainability
CE 36100	Transportation Engineering
CE 39201	Technical Communication in Civil Engineering
CE 59801	Breakthrough Thinking for Complex Challenges
CIT 20300	Information Security Fundamentals
CNIT 32000	Policy, Regulation, and Globalization in Information Technology
CNIT 37100	Cyberlaw and Ethics
CNIT 53600	IT Policy, Law, and Ethics
CMGT 38000	Infrastructure Planning, Engineering, and Economics
EAPS 36400	Natural Hazards: Science and Society
ECE 40100	Engineering Ethics and Professionalism
FS 16100	Science of Food
HSCI 20100	Principles of Public Health Science
HSOP 55600	Healthcare Economics and Public Policy
NUTR 54100	Food Policy and Nutrition
PUBH 10001	Introduction to Public Health
PUBH 38000	Public Health Policy
TECH 32000	Technology and The Organization