

Cover Sheet: Request 10621

Engineering Innovation Certificate

Info

Process	Certificate New Ugrad/Pro
Status	Pending
Submitter	Whitney,David dwhitney@ufl.edu
Created	12/11/2015 5:07:43 PM
Updated	1/31/2017 8:55:43 AM
Description of request	The Engineering Innovation Certificate is offered to undergraduate students from all Herbert Wertheim College of Engineering departments and disciplines. The Certificate develops a comprehensive skill set that is applied in innovation-driven enterprises and within larger organizations. The Certificate's core themes involve the study of innovation, entrepreneurship, leadership, and ethics.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Engineering - General 011940001	Caple, Elizabeth		1/5/2016
No document changes					
College	Approved	ENG - College of Engineering	Caple, Elizabeth		1/20/2017
No document changes					
Office of Institutional Planning and Research	Approved	PV - Office of Institutional Planning and Research	Zeglen, Marie	CIP code 14.2701 is approved for this certificate.	1/20/2017
No document changes					
University Curriculum Committee	Comment	PV - University Curriculum Committee (UCC)	Case, Brandon	Added to the February agenda.	1/24/2017
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			1/24/2017
No document changes					
Office of the Registrar					
No document changes					
OIPR Notified					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					

Step	Status	Group	User	Comment	Updated
Academic Assessment Committee Notified					
No document changes					
College Notified					
No document changes					

Certificate | New for request 10621

Info

Request: Engineering Innovation Certificate

Description of request: The Engineering Innovation Certificate is offered to undergraduate students from all Herbert Wertheim College of Engineering departments and disciplines. The Certificate develops a comprehensive skill set that is applied in innovation-driven enterprises and within larger organizations. The Certificate's core themes involve the study of innovation, entrepreneurship, leadership, and ethics.

Submitter: van Oostrom, Hans oostrom@ufl.edu

Created: 12/10/2016 4:27:49 PM

Form version: 4

Responses

Certificate Name Engineering Innovation

Transcript Title Engineering Innovation

Credits 9

Level Baccalaureate

CIP Code 14.2701

Degree Name Industrial and Systems Engineering

Effective Term Earliest Available

Effective Year Earliest Available

Certificate Description The Engineering Innovation Certificate is offered to undergraduate students from all Herbert Wertheim College of Engineering departments and disciplines. The Certificate develops a comprehensive skill set that is applied in innovation-driven enterprises and within larger organizations. The Certificate's core themes involve the study of innovation, entrepreneurship, leadership, and ethics.

Requirements for Admission Undergraduate student in good standing in the Herbert Wertheim College of Engineering. Students cannot complete both the Engineering Innovation Certificate and the Engineering Innovation Minor

Requirements for Completion To receive the Engineering Innovation Certificate, undergraduate students must pass the following three courses with a grade of B or better in each course:

EGN 4643: Engineering Innovation, 3 credits; letter graded

EGN 4641: Engineering Entrepreneurship, 3 credits; letter graded

EGS 4038: Engineering Leadership, 3 credits; letter graded

Rationale and Place in Curriculum To achieve success, current and future generations of leaders require a strong engineering foundation. This foundation comprises technical competency combined with leadership, ethics, innovation, and entrepreneurial excellence. Furthermore, the foundation for achieving professional excellence consists of strong analytical competence; it involves practical ingenuity, problem-solving creativity, proactive leadership, and mental agility and dexterity. Professional excellence is built upon the practice of effective communication skills and an understanding of business and managerial concepts; professional excellence demands that engineering practitioners possess the highest standards of professional and ethical behavior. In addition, professional excellence relies on engineering practitioners' skill in leading teams to make

informed, ethical decisions when addressing strategic, tactical, and crisis-related situations.

Student Learning Outcomes Undergraduate engineering students are taught and evaluated in numerous ways. Student learning objectives associated with the Engineering Innovation certificate include the following from each of the three required courses:

Engineering Innovation (EGN 4643) – Feedback to students is provided via instructor assessment and the grading of course assignments which are highlighted by a capstone deliverable, the Innovation Playbook. Students who successfully complete EGN 4643 will be able to:

1. Learn about innovation's creative best practices and processes. Students will develop new, and deepen existing, creative skills and problem-solving techniques. In addition, students will be able to leverage these skills and techniques in determining how creative processes and innovation outcomes are linked to entrepreneurial ventures and intrapreneurial activities.
2. Gain insight into, and knowledge of, how innovation processes and practices contain various types and levels of failure and risk. Students will learn how to evaluate and quantify risk by identifying which problem-solving innovation solutions possess the highest (and lowest) probability of achieving commercialization success.
3. Learn how multi-disciplinary teams can succeed by using iteration techniques and rapid prototyping activities. Students will discover how these best practices methods contribute to producing commercially viable products and services that are both innovative and problem-solving.

Engineering Entrepreneurship (EGN 4641) – Feedback to students is provided via instructor assessment and the grading of course assignments which are highlighted by a capstone deliverable, the Business Model Canvas. Students who successfully complete EGN 4641 will be able to:

1. Learn about entrepreneurship's origins and the crucial role entrepreneurial ventures play in today's increasingly technology-dependent global economy.
2. Develop new, and enhance existing, problem-solving skills and techniques. Students will acquire these skills and techniques by using problem identification methods and frameworks in order to identify the form, function, and benefit of a product or service.
3. Form teams and learn how to plan the launch of an entrepreneurial venture. Students will perform both primary and secondary marketplace research in order to best understand the differences between what currently exists in the market versus what prospective customers want in the future.
4. Learn to effectively speak in public and to apply best practices methods for delivering professional-caliber presentations and producing professionally business-related written materials.

Engineering Leadership (EGS 4038) – Feedback to students is provided via instructor assessment and the grading of course assignments. Students who successfully complete EGS 4038 will be able to:

1. Learn about the concepts, theories, and practices of engineering leadership by tracing leadership's evolution from its origins to the present day.
2. Learn of the various characteristics of effective engineering leadership including individual differences and one's own self-awareness. Skills learned will be applied on how to best select and build teams, manage change, and effectively navigate conflict and crises.
3. Learn how to successfully perform leadership roles in professional careers as engineers. Students will gain insight and instruction on how to apply lessons learned for careers in the private, public, academic, or non-profit sectors.

Certificate
Engineering Leadership

The engineering leadership certificate reflects a comprehensive set of industry-preferred competencies that prepares students for leadership roles in their engineering careers. The certificate's core studies include engineering leadership, advanced engineering leadership development, and one of the courses engineering project management, engineering entrepreneurship, or engineering innovation.

College: Herbert Wertheim College of Engineering

Credits: 9, completed with minimum grades of B

Prerequisites:

Undergraduate Engineering student, junior or senior status

Required Courses

Courses	Credits
EGS 4038 Engineering Leadership	3
EGS 4680 Advanced Engineering Leadership Development	3
and one of the following courses:	
EGS 4625 Fundamentals of Engineering Project Management or	3
EGN 4641 Engineering Entrepreneurship or	3
EGN 4643 Engineering Innovation	3