Cover Sheet: Request 14816

EGN 4XXX Integrated Product and Process Design 1

Info

Process	Course|New|Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Johannes Van Oostrom oostrom@ufl.edu
Created	3/18/2020 11:34:50 AM
Updated	5/11/2020 9:54:49 AM
Description of request	Course proposal for an interdiciplinary capstone design course.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Engineering - General 011940001	Johannes Van Oostrom	Approved by EED curriculum committee on 3/20/2020	3/20/2020
No document changes					
College	Approved	ENG - College of Engineering	Heidi Dublin	Approved by the HWCOE curriculum committee and Faculty Council	4/13/2020
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			4/13/2020
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|New for request 14816

Info

Request: EGN 4XXX Integrated Product and Process Design 1
Description of request: Course proposal for an interdiciplinary capstone design course.
Submitter: Johannes Van Oostrom oostrom@ufl.edu
Created: 5/11/2020 9:57:08 AM
Form version: 4

Responses

Recommended Prefix EGN
Course Level 4
Course Number XXX
Category of Instruction Advanced
Lab Code None
Course Title Integrated Product and Process Design 1
Transcript Title IPPD 1
Degree Type Baccalaureate

Delivery Method(s) On-Campus
Co-Listing No

Effective Term Earliest Available
Effective Year Earliest Available
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 3

S/U Only? No
Contact Type Regularly Scheduled
Weekly Contact Hours 3
Course Description A two-semester-course sequence in which multidisciplinary teams of engineering students partner with industry sponsors to design and build authentic products and processes—on time and within budget. Working closely with industry liaison engineers and a faculty coach, students gain practical experience in teamwork and communication, problem solving and engineering design, and develop leadership, management and people skills.
Prerequisites Because this course is applicable to multiple engineering majors, prereqs are specific per major. Prereqs are the same for the departmental capstone courses.
Agricultural and Biological Engineering (any two of the following three courses)ABE 3612C, ABE 3652C, ABE 4231C
Biomedical Engineering: BME 4503 & BME 4503L
Chemical Engineering: ECH 3203 & ECH 4604
Civil Engineering: CES 3102 & CGN 3501
Computer & Information Science & Engineering: CIS 3020 & COT 3100 & CDA 3101 & COP 3530 & COP 4600
Computer Engineering: EEL 3111C & EEL 3701C & COP 3530
Electrical Engineering: EEL 3112C & EEL 3308C & EEL 3701C & 2 EE Breadth Electives
Environmental Engineering (two of the following four courses): ENV 4351, ENV 4121, ENV 4514C, ENV4561
Mechanical Engineering and Aerospace Engineering: EGM 3520 & EML 3301C
Industrial & Systems Engineering: EIN 4365 & EIN 4354

Co-requisites Civil Engineering: CEG 4011
Computer Engineering: (pick 2) EEL 4712C, EEL 3744C, EEL 4744C, COP 4600
Electrical Engineering: EEL 3923C
Aerospace Engineering: EAS 4101

Mechanical Engineering: EML 3005C
Industrial and Systems Engineering: ESI 4221C
Rationale and Placement in Curriculum Interdisciplinary capstone design course which replaces a student's required departmental capstone course. Contents has been taught for over 20 years, but typically in a variety of courses depending on the department. This proposal aims to offer the contents under one course number.

Course Objectives • Learn effective product and process design elements on a real-life project: Function & Producibility; Cost (within budget); Schedule; Reliability; Customer Preference; Life Cycle
• Function successfully in multidisciplinary teams: 4-8 student members, faculty coach, and sponsor liaison; Classroom & laboratory experience as a two semesters sequence totaling 6-credit; Students, coaches, sponsors, liaisons from different fields; Practical project experience; Teamwork; Professional practice experience
• Exercise Professionalism (please, check out the Expectations section of this syllabus): Leadership, management and people skills; Multi-criterion decision-making techniques; Effective business meetings with remote clients; Professional presentation and writing skills; Professional communication
• Satisfy the following ABET outcomes: An ability to communicate effectively with a range of audiences; An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.
• Meet Discipline Capstone Design Objectives: This course is replacing your academic program's design course(s) requirement. During the Fall Semester each student will submit to their Undergraduate Faculty Coordinator a Design Expectations Form to verify the student's work will comply with expectations.

Course Textbook(s) and/or Other Assigned Reading IPPD Engineering Design Handbook
Our core manual details the deliverables for the IPPD course, expectations for assignments, and details on the IPPD course. It covers the entirety of the integrated design process, from concept evaluation to manufacturing plans and business cases.
New Engineer's Professional Primer
Serves as a reference for the soft skills necessary to be an effective engineer. This manual also contains information on mandatory training programs required for all IPPD students.
PPD Administrative Manual
Explains common administrative functions of the IPPD program, such as purchasing and travel procedures, laboratory safety policies, and other interactions between IPPD staff and students.

Weekly Schedule of Topics Week 1: IPPD intro, Door Code Assignments, Project Pitch presentations
Saturday 8:30 AM – 3:00PM: Team Workshop
Week 2: Team Building, Scope of Work, Stakeholders
Week 3: Resume and Interviews Workshop, IPPD Staff presentations, Team Name and Logos
Week 4: House of Quality, Concept Design & Concept Generation, Preliminary Design Review (PDR) intro
Week 5: Concept Selection & Concept Testing, Functional Architecture, HoQ presentations
Week 6: Concept Scoring, Project Management and Roadmap, Elevator Pitch, PDR draft-review
Week 7: Peer Review of the Preliminary Design Review (PR-PDR)
Week 8: PDR review, advanced Project Management, Prototyping intro, Project Business Case
Week 9: Professional Development Workshops (PDW)
Week 10: Test Planning, Product Architecture, Design Report
Week 11: Prototyping, Design of Experiments, Prototype Inspection Day intro
Week 12: Ethics, Development Plans, Intro to PID, PR-SLDR & SLDR
Week 13: Prototype Inspection Day (PID)
Week 14: Peer Review of the System Level Design Review (PR-SLDR) & SLDR drafts submission
Week 15: System Level Design Review (SLDR)

Grading Scheme Door Code Assignments* 0%*
(safety related training to allow access to the lab)
Attendance 5%
(attendance is taken in classroom and lab activities)

Weekly Status Memos 3%
(weekly memos are written to the industry liaison and faculty coach)
Quizzes and Individual Assignments 3%
(individually graded assignments on the design process)
Group Assignments and Response Memos 3%
(design process documents and responses to comments)
Preliminary Design Review 4%
(initial design report)
System Level Design Review
Including minor, draft and final report and presentation 12%
(main report and presentation for the semester)
Coach Individual Assessment 30%
(assessment by the faculty coach assigned to the team)
Coach Team Assessment 40%
(overall team assessment by the faculty coach)
Total 100%

Instructor(s) Dr. Edward Latorre-Navarro, IPPD Interim Director
Each student team will have a faculty coach assigned
Attendance & Make-up Yes
Accomodations Yes
UF Grading Policies for assigning Grade Points Yes
Course Evaluation Policy Yes

IPPD registration instructions

- Students must apply to the program through the IPPD Student Application form available through our website http://ippd.ufl.edu.
- Each student application will be evaluated by the Undergraduate Academic Advisor from the students' department to verify student eligibility based on the academic standing and course prerequisites. This evaluation is followed with further evaluation by the Undergraduate Faculty Coordinator of the respective department. These two evaluations certify that the student is eligible to participate in IPPD to fulfill the design requirement courses of their respective academic program.
- From the pool of eligible students, IPPD will accept, waitlist or deny students based on the need of the available projects for the year. Accepted and waitlisted students are expected to attend the first day of class, during the drop-add period, to pre-select and rank interest in the projects. Finally, IPPD faculty will select students for each project based on project needs and student preferences. Waitlisted students are not guaranteed project placement but are still invited given the fluidity in this project placement process.
- Students who are not placed in a project or who reject participation need to enroll in the design course of their academic program. This happens during the drop-add period.