

IPPD 1
EGN 4951 Section 18710
Class Periods: T | Period 8 – 10 (3:00 PM – 6:00 PM)
Location: MCCC 100
Academic Term: Fall 2025

Instructors:

Dr. Edward Latorre-Navarro, IPPD Director

director@ippd.ufl.edu

(352) 846-3354

Office Hours: Wed 9am to 12pm or with appointment, online through Teams or in person at NSC 202.

Faculty Coaches: Weekly meetings to be agreed between team and coach.

IPPD Staff: Available at NSC 202 and our facilities, from 8 AM to 5 PM, except on class days (Tuesdays) when office hours will be from 8 AM to 12 PM. Appointments and walk-ins are welcome. Appointments recommended for longer tasks.

Course Assistant: Please contact the Course Assistant through Teams, Canvas or at course@ippd.ufl.edu.

Course Description

Credits: 3 hours for Fall and 3 hours for Spring. 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. This course is project-based, and therefore has no traditional exams. Students are evaluated on the quality and progress of their project, both as a team and as an individual.

Course Pre-Requisites / Co-Requisites

Requisites are unique for each academic program. Consult your program documentation and academic advisor for more information.

Agricultural and Biological Engineering (any two of the following three courses) ABE 3000C ABE 3612C ABE 3652C	Biomedical Engineering BME 3012	Chemical Engineering Co-requisite ECH 4504 ECH 4604 ECH 4824
Civil Engineering CES 3102 CGN 3501 Co-requisite CEG 4011	Computer & Information Science & Engineering CEN 3031 Co-requisite COP 4600	Computer Engineering CEN 3031 EEL 4744C Co-requisite COP 4600

Electrical Engineering EEL 3112 EEE 3308C EEL 3701C one Breadth Elective course Co-requisites EEL 3923C	Environmental Engineering ENV 4453	Aerospace Engineering Degree EGM3520 and for EAS4700: EAS 4510 & EML 4312 EAS4710: EAS 4101 & co-req EAS 4400 Mechanical Engineering Degree EGM 3401 (min grade C) EGN 3353C EML 3005 *EML4140 (cohort 2026)
Material Science & Engineering Maximum 30 semester hours remaining for graduation Expected graduating date by the spring or summer of the same academic year	Industrial & Systems Engineering EIN 3354	Nuclear Engineering ENU 4103 ENU 4800 ENU 4133 or ENU 4144

Enrollment procedure for the IPPD program

- 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 requisites. 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.

Course Objectives

- Employ effective product and process design elements on a real-life project:** Function & Producibility; Cost (within budget); Schedule; Reliability; Customer Preference; Product Life Cycle.
- Execute successfully in multidisciplinary teams:** four to seven student members, faculty coach, and sponsor liaisons from multiple fields; Classroom & laboratory experiences; Practical project development experience; Professional team experience.
- Demonstrate Professionalism:** Leadership, management and people skills; Multi-criterion decision-making techniques; Effective business meetings with remote clients; Professional presentation and writing skills; Professional communication
- Demonstrate 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.
- Complete your academic program's 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 that completing student's proposed work will comply with the expectations.

Materials and Supply Fees

None

Professional Component (ABET):

An ability to function on multidisciplinary teams; An ability to communicate effectively.

Relation to Program Outcomes (ABET Engineering Criterion 3. Student Outcomes):

Outcome	Coverage*
3. An ability to communicate effectively with a range of audiences	High
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	High

*Coverage is given as high, medium, or low. Outcomes not listed are not assessed in the course.

Required Textbooks and Software

All required lecture materials are provided through Canvas (provided at no additional charge to IPPD students), including our IPPD developed manuals:

1. 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.
2. IPPD 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.
3. IPPD 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.

Recommended Materials

The following textbook will be used for lectures, mostly during IPPD 1. All relevant materials will be provided. Students are encouraged to obtain this book or a similar reference. Previous versions are acceptable.

- Product Design and Development
- Ulrich, Karl T., Eppinger, Steve D., and Yang, Maria C.
- 7th Edition, 2020
- ISBN10: 1260043657

Required Computer

Recommended Computer Specifications: <https://it.ufl.edu/get-help/student-computer-recommendations/>
HWCOE Computer Requirements: <https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/>

Software

Students will be added to the course MS Teams channel, which will be required for events, evaluations and storage.

Lab Work

Some projects will require teams to work on hardware developments at locations inside or outside our UF campus. Inside locations include the HWLEE Prototyping Laboratory, our (temporary) lab at NSC 343, our conference rooms at Reed Laboratory Building and other UF teaching and research laboratories.

Outside locations include sponsor facilities and off-campus locations for project research and development. All required outside travel will be managed by IPPD personnel following UF travel policies.

Course Schedule

Students must follow the detailed weekly schedule on Canvas. The following schedule is subject to change.

IPPD 1

Week 1:	IPPD intro, IPPD Staff presentations, Project Pitch presentations, Door Code Assignments Team Building Workshop on first Saturday after first class meeting
Week 2:	Scope of Work, Deliverables, Team Name and Logos, Stakeholders
Week 3:	Concept Design, Generation, Selection and Scoring
Week 4:	Preliminary Design Review (PDR) intro, Concept Selection & Concept Testing, House of Quality
Week 5:	Elevator Pitch, System Architecture
Week 6:	Concept Scoring, Product Architecture, Project Management and Roadmap, Project Business Case
Week 7:	Peer Review of the Preliminary Design Review (PR-PDR)
Week 8:	Professional Development Workshops (PDW)
Week 9:	Prototyping, Advanced Project Management, Test Planning, Design Report
Week 10:	Prototyping, Design of Experiments, Preparing for Prototype Evaluation
Week 11:	Ethics, Development Plans, Preparing for PID
Week 12:	Prototype Inspection Day (PID)
Week 13:	Preparing for PR-SLDR & SLDR events
Week 14:	Peer Review of the System Level Design Review (PR-SLDR) & SLDR draft due
Week 15:	System Level Design Review (SLDR)
Finals period:	Signed SLDR Report submission deadline one week after SLDR

Important Dates

Saturday* in September Six Sigma Quality Workshop (9:00am – 3:30pm, Reitz Union)

**Date subject to local Gator football games*

Last class meeting day Final presentations with IPPD sponsors (1:00pm – 6:00pm, Reitz Union)

Attendance Policy and Make-up Policy

- Attendance in class and team-related activities is an element of professionalism. Attendance is required for all lectures and events. Attendance will be taken on every occasion.
- Attendance may be taken in three forms:
 - Canvas Quiz
 - Sign-in sheet
 - Visual inspection
- Students may miss (unexcused) 1 class meeting without penalty. Each absence beyond 1 will reduce the overall grade by 1 percentage point.
- Absences will be excused under the following conditions if you have alerted course@ippd.ufl.edu and your coach, and received a confirmation of the approved excuse:
 - 24 hours ahead of time that you have a legitimate, unavoidable absence such as an exam conflict for a higher-numbered academic course, an interview, an official academic event or UF official sporting event (include the confirmation email of your participation in the event).
 - A verifiable medical or family emergency
 - Travel for a student conference—provided all excuse request forms are filled out and approved by your coach and the IPPD director 30 days prior to travel
 - Team has project team travel that has been pre-approved by the IPPD faculty

- Need to come to class late or leave early for a reason stated above or reasonable emergency
- Missed homework, quizzes or reports due to excused absences will be dealt on an individual basis.
- Excuses will not be provided for team evaluation events. Contact the Director in case of emergency.
- Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. Click here to read the university attendance policies:
<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>

Class Expectations

- Follow the syllabus and weekly schedule.
- Check e-Learning for class updates, assignments, announcements, lessons, calendar, and resources.
- Use the Git as instructed (uploads, and naming of folders and/or files).
- Backup all materials related to your in-class and out-of-class activities on your team's SharePoint drive.
- Electronic devices may be used in class only for class-related activities. When an IPPD staff asks you to put your device away, please do so.
- Recording the lecture is not allowed using any type of media. If you need special accommodations, please contact your instructor.

Canvas: Communications and File Management

- Canvas is used extensively in the IPPD course. Be sure to subscribe to the course notifications. You are responsible for following the site updates and communications from the IPPD staff, coach, teammates, and liaison engineer(s).
- E-mails to IPPD staff, coach, and liaison engineers must be written both respectfully and professionally.
- Emails, announcements, feedback, and any type of communication may occur outside business hours. Due to the time constraints of the project, you are expected to respond within 24 hrs.
- Each student is responsible for reviewing the coach, instructor, and liaison feedback after grade submission for each assignment.
- All assignments and quizzes are posted to the Canvas E-learning platform. All graded items are open at the start of the semester and close 10-days after the assignment is due, each day costing a 10% penalty. New submissions will not be accepted after this 10-day period. See the Late Assignment Policy below for more details.
- Each assignment has specific instructions on what and how to upload assignments for grading. Check each assignment on canvas for any special instructions.
- Templates, logos and example documents are located on each assignment page.
- File should be named according to the instructions given in the Engineering Design Handbook or the assignment page when applicable.
- Platforms for file storage and sharing (Must use **ONLY** these options for any project-related file storage)
 - IPPD SharePoint
 - IPPD Git Hub
 - Mandatory for teams that have any software coding in their project
 - Optional for all other teams
 - All course related e-mail must be sent through the UF e-mail services only
 - Use SharePoint links to share documents with the liaison engineers.

Evaluation of Grades

Throughout the fall and spring terms, students are required to complete several course evaluations. The evaluations are distributed in the form of automated emails and completed on SharePoint. There are between 6 and 10 evaluations each term which cover peer feedback for teammates, coaches, the instructor, and IPPD staff.

- Students must complete each requested evaluation.
- The feedback given in these evaluations is not used explicitly for a student's or team's grade. It is used for process improvement and to identify teams which are struggling.
- Evaluations are graded as a single assignment on canvas. Each survey is equally weighed in the assignment.

- Evaluations which have not been completed within one week of the notification email being sent will be assigned a score of zero.
- Each missed evaluation or survey beyond 1 will result in a 1% reduction in the final grade.

Grade Composition

This course is project-based, and therefore has no traditional exams. Students are evaluated on the quality and progress of their project, both as a team and as an individual. The total makeup of a student's grade is reflected in the assignment categories and weights on the Canvas e-learning site. IPPD faculty and the faculty coach are responsible for the grade a student receives in the class:

- **IPPD Instructor:** IPPD faculty track all items submitted to the Canvas e-learning platform and the course Teams channel, including but not limited to attendance, quizzes, response memos, status reports, group assignments, completion of evaluations and forms, posters, videos, reports, presentations, end-of-term final checklists. IPPD faculty also assesses all major deliverable reports for quality of the content and presentation. IPPD faculty may meet with students at set and unannounced points throughout the semester to provide performance feedback as needed. Grades are posted within two weeks of the assignment.
- **Faculty Team Coach:** The project coach assigns the team and individuals a grade at one or more points during the semester based on the quality of the project as well as input from the liaison engineer and team performance peer reviews. The individual and team grades are not necessarily the same, and no individual's grade may be higher than the coach's overall team grade for that term. The coach may elect to hold individual performance discussions at the end of each semester or other times as they see fit.
- **Door Code Assignments** are named by the fact that students will not gain access to the IPPD lab door code and course development software suite until these assignments are completed. Completion by all students is required before the second week of class. These assignments include signing the IPPD Legal Agreement on sponsor intellectual property, laboratory safety guidelines, UF Training Programs on harassment and safety, the UF-At-Risk training for students and other quizzes on IPPD program procedures.

The following table breaks down each component on the student's final grade, which can also be found on Canvas.

Evaluator	Category	Percent of Final Grade
<i>Instructor</i>	Door Code Assignments*	0%*
	Course Contributions (individual grade)	5%
	Weekly Status Memos (team grade)	5%
	Quizzes and Individual Assignments	5%
	Project Notebook (individual grade)	5%
	Group Assignments and Response Memos	10%
	Preliminary Design Review (team grade)	5%
	Prototype Inspection Review (team grade)	5%
	System Level Design Review (team grade)	5%
<i>Coach</i>	Coach Individual Assessment includes participation, reports & presentations	30%

	Coach Team Assessment includes deliverables and project assessment	25%
Total		100%

*Door code assignments include the IPPD Non-Disclosure Agreement, teamwork trainings and safety trainings, which are mandatory for all students during the first week of the semester. Students who fail to complete these assignments by the first week must be removed from the course.

Grading Policy

The following grading scale is applied, generally, to all graded work for IPPD.

Grade	Criteria
A	outstanding grade—must demonstrate initiative, be self-motivated, and go beyond what is asked for in the program. Your performance in a real-world job would exceed standards and warrant raise in pay, or advancement, and/or awards. You exhibit strong developmental growth with mentorship and teamwork.
B	above-average grade—requires that all assignments are completed on time, done with care, and done correctly. Your performance in a real-world job would achieve performance standards of your job but not exceed. You are responding to mentorship and teamwork to meet requirements.
C	average grade—awarded for work that is on time but demonstrates a lack of initiative. Your performance in a real-world job lacks timeliness, following guidelines to meet deadlines, and would require constant instructions, job performance evaluation, and possible job probation. You are having difficulty responding to mentorship and teamwork to meet requirements.
D	below-average grade—awarded for work that is late, only partly fulfills the requirements, and demonstrates no initiative. Your performance in a real-world job has unacceptable performance, does not meet deadlines, unprofessional practices, unwilling to work with others, and lacks effort for improvement and would result in demotion, job probation, suspension from projects, and possible termination of job. You do not involve yourself with the provided mentorship and teamwork to meet requirements.
E	failing grade—given for work that is missed and does not fulfill the requirements of the assignment. Your performance in a real-world job would achieve termination of job due to extreme unprofessionalism and performance insufficiencies. You are not interested in provided mentorship and teamwork.

The following scale is used for assigning letter grades at the end of the semester.

Percent	Grade	Grade Points	Percent	Grade	Grade Points
91.9 - 100	A	4.00	70- 74.2	C	2.00
88.5 - 91.8	A-	3.67	66.7- 69.9	C-	1.67
85.2 - 88.4	B+	3.33	63.3- 66.6	D+	1.33
81.8 - 85.1	B	3.00	60- 63.2	D	1.00
78.7 - 81.7	B-	2.67	56.7- 59.9	D-	0.67
74.3 - 78.6	C+	2.33	< 56.7	E	0.00

General Grading Notes

- Grades will not be curved; however, grades across teams will be compared and monitored for consistency. “-” and “+” grades will be assigned
- If the project is not complete at the end of the term, responsible team members, up to and including the entire team, are subject to incomplete/failing grades; examples of incomplete projects include unfinished or unprofessional final documentation, partially completed, untested or non-functional final prototypes, project data files that have not been organized for proper archiving, and incomplete final project checklists. Incomplete grades will be updated as soon as the work is finalized.
- Students participating on project teams that fail to produce an acceptable prototype in the Fall semester cannot earn an A for the semester.
- A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: The C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement.

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Design Reports

- The final reports will be written throughout the semester through a series of short submissions that also include the Minor Reports. Students will receive feedback from the IPPD faculty and the coaches, and are responsible for composing the final reports from these segments. A draft of the final report is due before the final of each semester. The final version of the report is due no later than the UF Registrar’s assigned day of the final exam. **Failure to obtain a minimum grade of 85% on the final report will result in an Incomplete (I*) grade for the whole team.** (<https://registrar.ufl.edu/catalog1011/policies/regulationgrades.html#incomplete>)
- Revisions and iterations of the final report are highly encouraged at least three business days before the due date, in order to guarantee the 85% grade. You must allow enough time for the revision cycles before this due date.
- All written reports MUST be completed using the template(s) provided on Canvas. Reports have unique templates, so check the assignment on Canvas for the template specific to that report.
- Any reports submitted not using the specified template or preapproved for an exception, will not be graded and the standard late assignment penalty will apply until an appropriate copy is submitted to canvas.
- Feedback for all design reports is provided by IPPD faculty.
- For deliverables which are given to the sponsor, you may be required to address comments and resubmit a copy of the deliverable for further review by IPPD staff.

Late Assignment Policy

- Penalties are given for all unexcused late submissions.
- Time Penalties for assignments submitted past the due date and time.

Time after due time	Penalty
First 24 hours after due time	10%

Every 24 hours thereafter	10%
Maximum Penalty	100%

- A Late Assignment Submission Request form is available on Canvas. This form is to be used in the event that a team knows of extenuating circumstance that will prevent them from submitting an assignment on-time. The following examples are justification for the acceptance of a late submission request:
 - The sponsor company has delayed a meeting or review of a major deliverable
 - A significant change in scope which requires a major rework of a previously completed project deliverable
 - Unavoidable delays in project work, such as lack of laboratory space, instrumentation availability, or other material needs which are not controlled by the team
 - An illness of a team member, coach, or liaison which delays a major milestone or meeting
 - Late Assignment Requests may be made for both group and individual assignments.
 - Information needed on the request includes: (1) Current assignment information, (2) Explanation on why extension is needed, (3) Proposed new due date.
 - Forms MUST be submitted at least 2 business days prior to the assignment due date/time. Forms submitted within 48 hours of the due date will not be considered. University of Florida policy for excused absences will still apply after this point.
 - The instructor will decide if a circumstance warrants the late submission request and notify the team if an adjusted due date was set for that team or individual on canvas, or if the request was denied.

Legal Policies: Seeking Outside Help on Projects

- You must contact your coach before seeking help from non-UF personnel. Examples include (but are not limited to): a professional expert in the topic field, off-campus fabrication businesses, off-the-shelf manufacturers or technical support agents, friends, family members, professional acquaintances, or internet message boards (even anonymous ones).
- Violations of the Non-Disclosure Agreement you signed at the beginning of Fall Semester (or as required by your sponsor company) may be punishable under University, local, state, federal, or international law. Potential punishment may include:
 - Basic Academic Penalties:
 - Terminated from IPPD class
 - Office of Student Conduct and Conflict Resolution hearing
 - Registration holds
 - Suspension from the University:
 - Prohibition from enrolling during suspension
 - Ineligibility to take classes or transfer credits to or from any public university.
 - Forced University re-enrollment
 - Law Enforcement:
 - Arrest, imprisonment, or investigation by local, state, or federal police.
 - Community service or fines

Professional Responsibilities Expected of You:

- Attend all extracurricular scheduled team meetings and contribute to team activities outside of normal class time.
- Respect the requests of IPPD staff at all times, especially in the IPPD labs and around tools and equipment.
- Unprofessional behavior is unacceptable during any IPPD activities. You may be able to solve some problems at the team level. However, you can report unresolved unprofessional behavior of a team member, liaison, IPPD staff, vendor, and people you come in contact with during IPPD activities to your coach prior to engaging the IPPD Director. If you are having problems with your coach, contact the IPPD Director.
- Report cases of unprofessional behavior of IPPD peers outside your team to IPPD staff or the Director.
- Speak professionally to IPPD staff, instructors, team members, coaches, and liaisons.
- Obey administrative guidance on travel, purchasing, safety, or other topics covered in the New Engineer's Professional Primer or Administration Manual at all times.

- All team travel costs are managed by IPPD; understand your budget for your prototype does not include travel costs.
- Keep tabs on your team prototype budget as you go. An Excel sheet will be posted on your team SharePoint site.

IPPD Professionalism Committee

Teams or team members that underperform or whose negative behaviors impact the success of the team or IPPD program will be contacted initially by their Coach for an in-person meeting to attempt to resolve any issues. In some cases, the IPPD director or staff may intervene if they observe troubling behavior or a lack of progress by a team or individual and hold an aside to try and address the issue. Teams or students who do not respond appropriately to the Coach and/or the IPPD Director will be referred to the IPPD Professionalism Committee. The IPPD Professionalism Committee may be comprised of IPPD faculty members, the team member's Coach, the IPPD Director, and a Counseling and Wellness Center member who will meet and formalize a plan for behavioral and professional improvement for the student or team. If the improvement plan goals are not met, then the Termination Policy will be put into effect.

Termination Policy:

- The Termination Committee is comprised of the same people as the Professionalism Committee. IPPD has a detailed procedure for terminating students whose participation or lack of participation on the project team jeopardizes the ability of the project team to successfully meet the academic goals of the IPPD program and/or the sponsored project goals.
- Detrimental team member behaviors include, but are not limited to, lack of participation in team activities, refusal to complete required deliverables on time, insubordination toward the current team leader, project coach, project sponsor, liaison engineer, IPPD Director or an IPPD staff member, unprofessional conduct during project travel, extremely poor team member evaluations, and poor attendance.
- Students who exhibit these behaviors or embody these characteristics will meet with their project coach and be provided with a written description of the unacceptable actions/behaviors and an action plan for correcting the unacceptable behavior. Progress on the action plan will be monitored and if satisfactory progress is made, then the student may continue with IPPD. Otherwise, the coach will collect peer feedback and consult with the IPPD Director to determine a course of action. The offending student will meet with the coach and IPPD Director to determine if the student can continue with IPPD. Fall semester: If the student is terminated, then the student will receive an appropriate grade, up to and including a failing grade, and will not be allowed to register for the following IPPD semester, nor have access to any of the IPPD facilities or project team resources. Spring semester: If a student is terminated, then the student will receive a failing grade and will have access to IPPD facilities and project team resources revoked.
- The complete termination policy will be available in the IPPD Professional Manual available on the IPPD e-Learning site.

Academic Policies & Resources

To support consistent and accessible communication of university-wide student resources, instructors must include this link to academic policies and campus resources: <https://go.ufl.edu/syllabuspolices>. Instructor-specific guidelines for courses must accommodate these policies.

Commitment to a Positive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

If you feel like your performance in class is being impacted, please contact your instructor or any of the following:

- Your academic advisor or Undergraduate Coordinator
- HWCoe Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu