EPICS SPRING 2019 SYLLABUS

COURSE & PROGRAM WEBSITE: HTTPS://ENGINEERING.PURDUE.EDU/EPICS/

For general questions, email: epics@purdue.edu.

Address: EPICS Program
Armstrong Hall of Engineering
701 W. Stadium Avenue
West Lafayette, IN 47907-2045

COURSE PERSONNEL:

EPICS Position	Staff Member	Office	Phone	E-mail
Director	Dr. William Oakes	ARMS 1211	49-43892	oakes@purdue.edu
Academic Administrator	Andrew Pierce	ARMS 1209	(765) 414-2107	pierce1@purdue.edu
Program Coordinator	Pam Brown	ARMS 1207	49-40639	pamb@purdue.edu; epics@purdue.edu
Lab Manager	Jorge Martinez	ARMS 1210	49-40629	mart1419@purdue.edu
Continuing Lecturer	Tim Strueh	ARMS 1213	49-62113	tstrueh@purdue.edu
Continuing Lecturer	Nusaybah Abu-Mulaweh	ARMS 1212	49-48332	nabumula@purdue.edu
Secretary	Anna Rainwater	ARMS 1200	49-61068	arainwat@purdue.edu epics@purdue.edu
ECN IT support for EPICS: epicsite@ecn.purdue.edu or ECN trouble report				

ADVISORS

Instructors in EPICS are called Advisors. Their role is to advise and mentor the teams on their projects and to assess student progress and assign grades. Your advisor is indicated as the instructor in myPurdue and also in the myEPICS system (https://engineering.purdue.edu/MyEpics/).

TAs   ROOM: ARMS 1130 AND 1132   PHONE: 49-66017

A TA is assigned to each EPICS team; however, all TAs have office hours to work with students from any team. Collectively, they form a TA Consulting Pool from which any student or team is encouraged to seek expertise relevant to their project. The office hour schedule can be found at:

https://engineering.purdue.edu/EPICS/purdue/resources/schedules

UGTAS

Undergraduate TAs (UGTAs) are available during evening and weekend hours to assist students working in the lab. See the website for a schedule.

Name	Position	Office	Phone	E-mail
Charese Williams	*EPICS K12 Coordinator*	ARMS 1214	49-61889	charese@purdue.edu
Heather Fabries	*EPICS University Coordinator*	ARMS 1216	49-40039	hfabries@purdue.edu

COURSE DESCRIPTION

EPICS is a service-learning design course in which teams of students from across campus work together on long-term projects that benefit the community. Project work centers around the engineering, technology, and computing needs of a community partner, but interdisciplinary team interaction is an integral element for project success. Students may participate in EPICS multiple semesters and participation for multiple consecutive semesters on a project team is encouraged. Teams are composed of first year students through seniors from any disciplines, as well as graduate students in a few select disciplines.

Most EPICS projects last at least one-year, though partnership with the community organization continues for several years. Projects are intended to solve real problems, are defined in partnership with their community partners, and span the complete design process cycle [problem identification - specification development - conceptual design - detailed design - production - service/maintenance – retirement].

You receive academic credit for participating in EPICS. How academic credits are applied to your major depends on your degree program and is determined by your department and/or advisor. See https://engineering.purdue.edu/EPICS/purdue/epics-purdue/credit.

IN EPICS, YOU WILL LEARN AND EXPERIENCE:

Multidisciplinary Design: Learn how to be better designers, gain design knowledge and skills; learn how to apply disciplinary knowledge to real and possibly ill-defined problems; learn how to identify and acquire new knowledge; learn to collaborate with people from other disciplines and develop an appreciation for cross-disciplinary contributions in design.

Professional Preparation: Develop the broad set of skills needed to be successful in the changing global workplace and world:

Service-Learning: Provide significant service to the community while learning; gain an understanding of the role that engineering (and their discipline) can play in society and the broader issues related to the needs we are addressing.

SPECIFIC COURSE LEARNING OBJECTIVES ARE AS FOLLOWS:

- **Discipline Knowledge**: ability to apply material from their discipline to the design of community-based projects
- **Design Process**: an understanding of design as a start-to-finish process
- **Lifelong Learning**: an ability to identify and acquire new knowledge as a part of the problem-solving/design process
- **Customer Awareness**: an awareness of the customer
- **Teamwork**: an ability to function on multidisciplinary teams and an appreciation for the contributions from individuals from multiple disciplines
- **Communication**: an ability to communicate effectively both orally and written with widely-varying backgrounds
- **Ethics**: an awareness of professional ethics and responsibility
- **Social Context**: an appreciation of the role that their discipline can play in social contexts

GRADING

In EPICS, students work on teams and their final individual grade will reflect the quality and quantity of the student's documented:

- **Learning and skill development** per the course learning objectives
- **Individual accomplishments**
- **Team accomplishments**

For non-Senior Design students, the "Individual Evaluation Rubric" provides an overall description of the characteristics of the different grade levels of individual work and can be found at:
https://engineering.purdue.edu/EPICS/purdue/team-documents/ier

Grading guidelines for Senior Design Students can be found here:
https://engineering.purdue.edu/EPICS/purdue/individual-documents/senior-design

EPICS students may receive Grades of A+, A, A-, B+, B, B-, C+, C, C-, D+,D, D- or F.

All team members are responsible for the progress of the project. Teams will work together to identify team project goals for the semester. Individual roles and responsibilities within the team and projects will be identified. Formal assessment of the learning and accomplishments will be done at mid-semester, and then at the end of the semester for final grading. Evaluation will be based on the components listed in the Milestones schedule and summarized in myEPICS including: project progress, communication with project partner, individual accomplishments and documentation, lab and lecture attendance, project management and design documentation, design review presentations and documentation, team website, and informal lab presentations and demonstrations. Senior design students will also be graded on their specific requirements. Input into the assessment decisions will be collected from the project partner, advisors, TAs, and the team members themselves. Each student will be asked to critique both his/her own participation in the project and that of all team members (peer evaluations). Students will be allowed to propose modifications to the responsibilities if appropriate.

The mid-semester assessment is a formative assessment intended to provide more detailed and cumulative feedback on the learning and accomplishments to date in the semester. General feedback may be provided at Week 4, and if desired by student or required by advisor, at other times. Project documentation and team artifacts will be assessed during the semester per the Milestone schedule.

ATTENDANCE POLICY AND TIME REQUIREMENTS

Students are expected to attend **all** of the two hour lab sections each week throughout the semester. However, in accordance with Purdue's attendance policy, we recognize that it may be necessary for a student to be absent. When the absence can be anticipated, the student should notify their advisor and team as far as in advance as possible. In the case of emergency absences (e.g., illness, bereavement, family emergency), students should contact their advisor and team as soon as possible. Students are responsible for any work that they missed as a result of their absences and expected to minimize the impact on the team project work. Only advisors can excuse a student from a course requirement or responsibility. Unexcused absences will negatively impact the course grade. The University expects both students and their instructors to approach problems with class attendance in a manner that is reasonable. Additional meeting and work times are to be scheduled by the project team members. Students are expected to attend these meetings.

The typical expectations regarding time spent on EPICS are as follows, but like other courses on campus, you may need to spend more time than is typical to achieve a similar outcome:
2 credit hours= average 5 hours/week outside the lab on your EPICS project and/or learning activities
1 credit hour= average 3.5 hours/week outside the lab on your EPICS project and/or learning activities

Professional Development Hours (PDHs) are 50 minutes each, but requirements vary based on the number of credit hours you are registered for and if you are a new or returning student to EPICS. There are 5 required PDHs for new students**. Students enrolled for 1 credit hour must accumulate at least 5 PDHs. Students taking two or three credit hours are required to have a semester total of 10 PDHs**. A list of all scheduled learning activities and more information about making up missed activities can be found at on the EPICS website: EPICS -> Purdue -> Resources -> Schedules.

Professional Development Hours, including Skill Sessions, will be held throughout the semester and are designed to teach specific skills useful to project progress and the development of outcome related skill sets. Participation will count towards the requirement as specified in the Learning Activity or Skill session description. Scheduled skill sessions and attendance status will be posted in the myEPICS system. Students may also earn PDHs by completing an Advisor Approved Activity and submitting a form to document their participation and learning.

PDH Attendance Policy –Students who register for a PDH and do not attend without notifying EPICS administration will be penalized with a one PDH credit deduction. This policy has gone into effect to limit the number of registration slots for each PDH that are filled by students who fail to attend. Students who register for a PDH but later have a conflict develop can deregister for the PDH session up to 24 hours in advance of the scheduled session. Students with a valid excuse (sudden illness, etc.) after the 24 hour window will receive an excused absence but will receive zero PDH credits for the activity.

SEMESTER COURSE WORK

An overview of the semester activities can be found in the Milestone schedule on the EPICS website. Individual and team assignments are found in myEPICS. In addition, the website contains templates and guidelines for the following course documents

Week (Dates)	Assignments (Where to Turn In)
Week 1 (1/7 – 1/11)	• Lab Safety Awareness form (myEPICS) • Intro to EPICS PDH for First Time EPICS Students
Week 4 (1/28 – 2/1)	• Semester Plan/Gantt Chart (TA) • Team Budget (EPICS Office) • Team Website Update (Webmaster) • Notebook Review (TA)
Week 6 (2/11 – 2/15)	• Design Document (Sharepoint) • Required PDH Series for First Time EPICS Students Completed
Week 7 (2/18 – 2/22)	• Mid-Semester Design Review • Individual Evaluation Rubric (TA) • Notebook Review (TA) • Peer Evaluation (myEPICS)
Week 13 (4/1 – 4/5)	• If Delivering, Delivery Checklist (EPICS Office)
Week 14 (4/8 – 4/12)	• Design Document (Sharepoint)
Week 15 (4/15 – 4/19)	• Final Design Review
Week 16 (4/22 – 4/26)	• Individual Evaluation Rubric (TA) • Notebook Review (TA) • Peer Evaluation (myEPICS) • Final Reflection (TA) • Course Evaluations

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. For your EPICS course we will work to keep information flowing via email (see the list of contacts at the top of this syllabus) and on the EPICS website: https://engineering.purdue.edu/EPICS/ .

ALL STUDENTS:

- **Individual Evaluation Rubric:** Evaluation tool which can be used to document individual contributions and learning and facilitate both self- and advisor assessment. The document is completed by the student at mid semester and end of semester.
- **Individual Documentation:** All students are required to maintain Individual Documentation to demonstrate their individual accomplishments and thinking via a physical or online notebook. Please check with your advisor to see what format(s) are approved. All activities related to the project, including individual efforts and ideas, reflections, relevant material and discussions from lecture, contacts, team sessions, and conversations and meetings with the project partner, are to be date-recorded or referenced in the Individual Documentation. Individual documentation will be reviewed as indicated on Milestones schedule.
- **Peer Evaluation:** Students will complete a peer evaluation of their team members at mid-semester and at the end of the semester using the myEPICS system.
- **Final Reflection:** Individuals are to complete a final reflection at the end of the semester.
- **Course Evaluation:** Students are asked to provide proof of completion of the course evaluations that are done at the end of the semester. We need every student's feedback! Just turn in to your Advisor or TA the "Completed evaluations" page under "Evaluations," showing that you did it.

SENIOR DESIGN STUDENTS (ADDITIONAL REQUIREMENTS):

Students MUST obtain explicit approval from the team advisor before participating as a senior design student over the summer session.

- **Senior Design Project Proposal:** Must be completed during the first semester of Senior Design
- **Senior Design Project Description:** Must be completed during the second semester of Senior Design.
- **Documentation:** The senior design project and individual student outcomes must be documented carefully throughout the senior design experience.
- **Senior Design Outcomes Matrix:** An index of how the course outcomes have been met over the year and where evidence for this mastery can be found (notebook, project documentation, etc.). It is also used by the advisor(s) and EPICS admin to approve the satisfaction of the course outcomes.

TEAMS:

- **Team Responsibilities:** Teams will maintain team roles in myEPICS. These can be updated by the Team Leader/Project Manager and TA.
- **Design Document:** Each project has a Design Document which provides a comprehensive and detailed description of the project design, as well as the project management information. It also contains the Project Charter, which establishes the goals of the project and the overall timeframe. The intended audience is future EPICS teams who need to continue the design the following semesters or teams that need to maintain and/or repair the project after it is fielded. The project management information includes the Semester Plan and Transition Report. The Design Document should be seen as a "living" document and posted on the team Sharepoint.
- **Design Reviews:** Formal reviews by reviewers external to the team completed mid-semester and the the end of the semester to get feedback on projects. Teams must prepare documentation prior to the review to send to the reviewers. After the review, teams are responsible for documenting what issues were raised and how they were addressed (some may resolved in following semester).
- **Delivery Review**: The delivery review will be held in conjunction with the Design Reviews for projects that are to be delivered this semester. A Delivery Checklist must be completed and returned by week 14.
- **Web Archive:** Teams must maintain a webpage about past and current projects, as well as team members.

ACADEMIC INTEGRITY AND PROFESSIONAL RESPONSIBILITY

The EPICS Program expects every member of the Purdue community to practice honorable, ethical, and professional behavior both inside and outside the classroom. In EPICS, students are encouraged to work together and share information. When indicated, students and teams are allowed to modify previous versions of documents to be submitted for the current assignment. However, it is unacceptable for students to claim individual work that is not their own or to use sources without appropriate citation. It is also unacceptable for students to misrepresent information to their instructional staff, their team, and/or their community partner. In addition, misuse of EPICS resources is considered dishonest. At the instructor's discretion, instances of academic dishonesty will result in a reduced score, a zero score, or a failing grade for the course. All occurrences of academic dishonesty will be reported to the Office of Students Rights and Responsibilities (OSSR) and copied to their school. If there is any question as to whether a given action might be construed as academic dishonesty, please see the instructor or the teaching assistant before you engage in any such action.

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breeches of this value by either emailing integrity@purdue.edu or by calling 765-494-8778. While information may be submitted anonymously, the more information that is submitted provides the greatest opportunity for the university to investigate the concern.

PURDUE HONOR PLEDGE:

"AS A BOILERMAKER PURSUING ACADEMIC EXCELLENCE, I PLEDGE TO BE HONEST AND TRUE IN ALL THAT I DO. ACCOUNTABLE TOGETHER - WE ARE PURDUE."

STUDENTS WITH DISABILITIES:

Students with all ranges of abilities are welcome and encouraged to participate fully in all aspects of the course. Any student who feels s/he may need an accommodation based on the impact of a disability should contact his/her team advisor privately to discuss your specific needs. Also, the Disability Resource Center in room 830 Young Hall can assist in coordinating reasonable accommodations for students with documented disabilities. Students may present a "Letter of Accommodation" to you at any point in the semester. Should you have questions about accommodations, please contact the DRC at: 494-1247. You may also visit the DRC at drc@purdue.edu .

Purdue University strives to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let your advisor and/or EPICS administration know so that we can discuss options. You are also encouraged to contact the Disability Resource Center at: drc@purdue.edu or by phone: 765-494-1247.

MENTAL HEALTH SYLLABUS STATEMENT

- o If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try WellTrack, https://purdue.welltrack.com/. Sign in and find information and tools at your fingertips, available to you at any time.
- o If you need support and information about options and resources, please see the Office of the Dean of Students, http://www.purdue.edu/odos, for drop-in hours (M-F, 8 am- 5 pm).
- o If you're struggling and need mental health services: Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at (765)494-6995 and http://www.purdue.edu/caps/during and after hours, on weekends and holidays, or by going to the CAPS office of the second floor of the Purdue University Student Health Center (PUSH) during business hours.

EPICS RESOURCES

EPICS PROJECT WORK LOCATIONS:

Type	Room
EPICS "Tools" Meeting Room*	ARMS 1098B (accessible thru 1098 labs)
EPICS "Ross" Meeting Room*	ARMS 1098C (accessible thru 1098 labs)
EPICS Meeting Room	ARMS 1101
EPICS Design-Build	ARMS B098
EPICS Computer Lab*	ARMS 1095
EPICS Electronic & Computing Hardware & Project Prototyping labs*	ARMS 1098
Bechtel Innovation Design Center	BIDC

*All students are expected to review the Lab Safety Awareness and Use Guidelines and complete the online form in myEPICS annually within the first two weeks of the semester to allow card swipe access to the EPICS labs and meeting rooms (ARMS 1098 lab, the 1098B-C meeting rooms, and the software lab in ARMS 1095) during evening and week-end hours via your PUID: https://engineering.purdue.edu/EPICS/purdue/resources/epics-labs

Forms should be submitted via myEPICS as soon as possible, but by Friday, January 22nd at 12:00 noon at the latest.

Laboratory facilities are for EPICS students only. EPICS students who fail to comply by allowing non EPICS students access to the facilities will forfeit their privileges.

All students and teams are responsible for keeping their project areas clean.

EPICS students are expected to use the equipment in the labs in a responsible fashion. Abuse of the lab facilities may result in loss of access, a failing grade for the course, and/or formal disciplinary action.

COMPUTER ACCOUNTS

Each EPICS student will need an ECN (Engineering Computing Network) account to use the EPICS computer resources. If you added the course late or otherwise do not have an ECN account, please complete the online ECN request form (https://engineering.purdue.edu/ECN/Support/Accounts/Request/) or by email (epicsite@ecn.purdue.edu).

TEAM COMPUTING RESOURCES

Each team has an email list serve. The format is: epics-<team name>@ecn.purdue.edu

(e.g., the IMS team is epics-ims@ecn.purdue.edu)

Please note that the team email is originally set up with only student team members, not the advisor or TA. However, the team can request to add the advisor and/or TA to the email by contacting Andrew Pierce (epichelp@ecn.purdue.edu).

In addition, students can generate an email with all of the team members in myEPICS. To do so, log into myEPICS, click "View Team Members" under the User & Team Management, then click "all" by the Email.

The address for team home pages is http://epics.ecn.purdue.edu/xxxxx, where xxxxx is the team acronym. The team home pages are also linked to the main EPICS home page.

Sharepoint is an integrated environment that allows collaboration and content management. Each EPICS team has its site that they can store and edit documents, assign tasks, have discussion groups, and create wikis. Teams have control over their individual site, but all EPICS members can search all of the other teams' documents to allow for better access of information across EPICS teams. The team Sharepoint link is: https://sharepoint.ecn.purdue.edu/epics/teams/default.aspx . For more information on accessing your team's computing resources, see EPICS -> Purdue -> Resources.

OTHER RESOURCES:

EPICS has a number of resources available to support your project work. Example resources: laptops, reference books, video cameras. Please see the EPICS Lab Manager to check out these resources.

TERMS TO KNOW:

ARMS	The map abbreviation for the Armstrong Hall of Engineering, the location for the EPICS offices and labs.
Design-Build Lab	Name of ARMS B089.
Human-Centered Design Process	A process a designer goes through in developing their design for problem solution in which the people the designer is designing for are considered throughout the process.
Design Documentation	All information vital to the project which would allow any new project member to determine why the project was started, design decisions/reasoning along the way, what specifications and restrictions are imposed on the project--any information that would allow them to start where you left off or to completely recreate the project.
Design Lead (Project Leader)	Role that oversees the project design and responsible for facilitating the project through all aspects of the design process.
Electronic & Computing Hardware Lab	Formal name of part of the EPICS Lab in Armstrong (ARMS 1098).
EPICS	Engineering Projects In Community Service, but we primarily go by the acronym now.
Financial Officer	Team role to manage team's budget and expenses.
Hardware Lab	The name used to refer to the project development/build space. The labs in Armstrong are officially titled the EPICS "Electronic & Computing Hardware & Project Prototyping labs," and have equipment and space for the physical construction of projects.
Individual Evaluation Rubric	Evaluation tool which can be used to document individual contributions and learning and facilitate both self- and advisor assessment.
Lab/lecture	The "lab" portion of the EPICS course is the 2 hour block designated in student's schedule to meet together with the whole team and to work on their projects.
myEPICS	An online tool allowing students to see Team Lists, sign up for Skill Sessions, submit make-ups, and check lecture attendance. Link is: https://engineering.purdue.edu/MyEPICS
Outcome	One of the eight broad learning goals of the EPICS courses that students who successfully participate in the course over multiple semesters will have demonstrated.

Peer Evaluation	The peer evaluation allows students to assess themselves and their peers. It completed at mid-semester and at the end of the semester. See "Semester Course Work" section for more info.
Project	An individual engineering/technology/computing need that an EPICS team hopes to meet.
Project Manager (Team Leader)	Team role responsible for the overall operation and effectiveness of the team and provides planning, direction, and guidance.
Project Partner	A community organization that communicates an engineering need that a team is created to meet in continued coordination with the EPICS program and students.
Project Partner Liaison	Team member selected to be the main point of contact between the team and the project partner.
Project Prototyping Lab	Formal name of part of the EPICS Lab in Armstrong (ARMS 1098).
Project Evaluation Rubric	Evaluation tool which can be used to document project progress and accomplishments and facilitate both self- (project) and advisor assessment.
Role	Word used to describe one of the positions held by students on each team.
Ross Meeting Room	ARMS 1098C: Room dedicated in honor of Donald J. Ross and Phyllis E. Ross by Jerry and Karen Ross.
Senior Design	An intensive engineering design experience required of all senior engineering students to graduate. The EPICS coursework currently can fill this requirement for ECE, MDE and CS students. See "Semester Course Work" section for more info.
SharePoint	Sharepoint is an integrated environment that allows collaboration and content management. Each EPICS team has its site that they can store and edit documents, assign tasks, have discussion groups, and create wikis.
Skill session	A learning activity intended to help develop skills and knowledge needed for project work and related course outcomes. Counts towards required number of lectures.
Software Lab	This refers to the computer lab used by EPICS students. An ECN account is needed to log into the computers in the lab and in the meeting rooms.

Web (epics) and Team File (epics-shares) Shares	The team file share (epics-shares) is a shared hard drive space. In the past, teams used this for collaboration, but it has been replaced by the Sharepoint. Now, only videos are files too large for sharepoint will be hosted there. New for Fall 2015: the web files have been moved to an ECN web share (epics). An ECN account is required to access the Web and Team File Share.
Team	A group of people who partner with the same organization(s) & share a lab time (e.g. SVAT, ODOS); the terms Project Team or sub-team are sometimes used to describe the group of people working together on a specific project.
Tools Meeting Room	ARMS 1098B: Room made possible by "Purdue Tools", a group of friends and Purdue graduates.
Webmaster	Team member selected to post updated team member information and progress on the team website for the semester.