

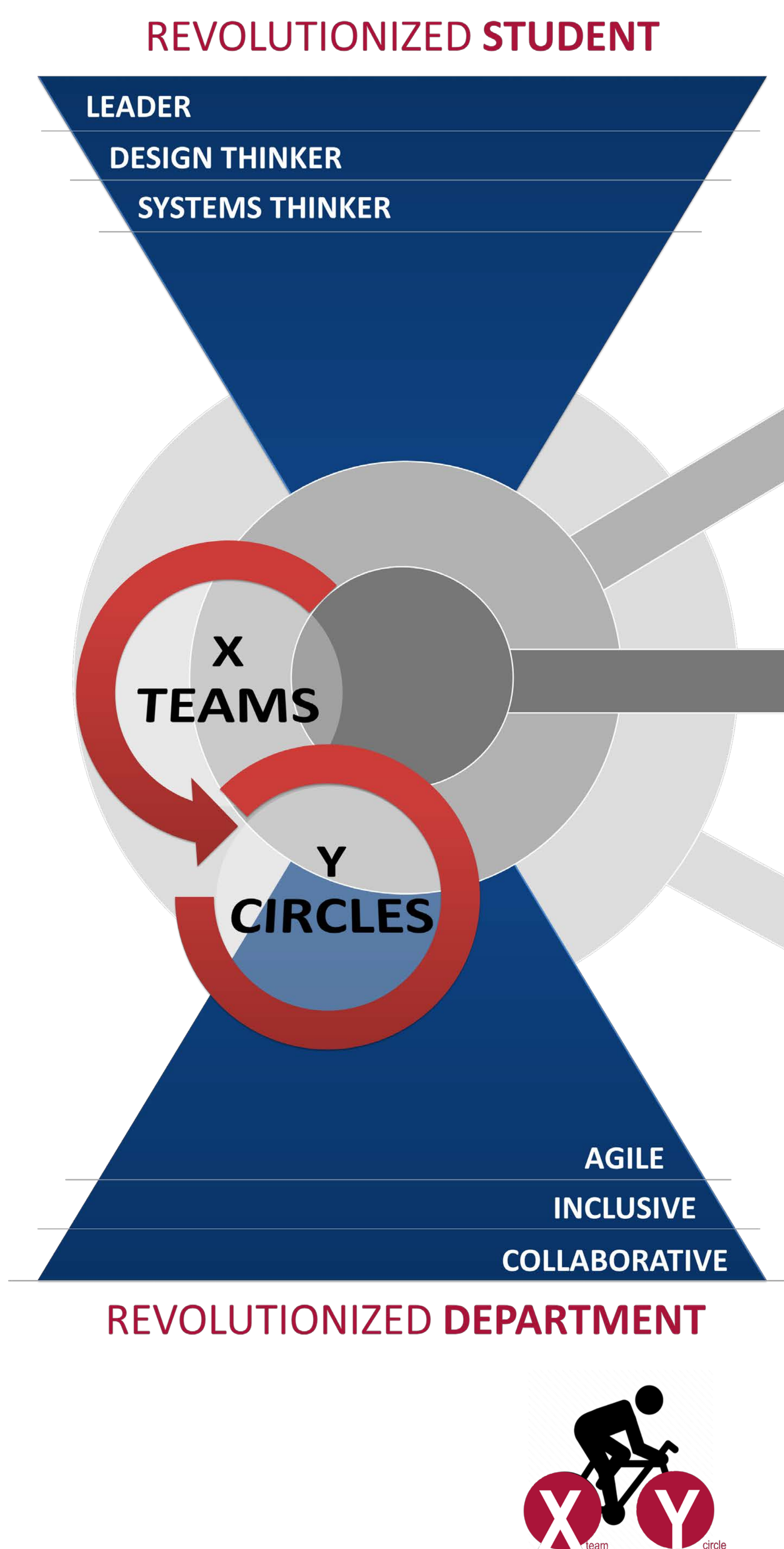


## IUSE/PFE:RED: Reinventing the Instructional and Departmental Enterprise (RIDE) to Advance the Professional Formation of Electrical and Computer Engineers



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Other Team Members: Benjamin Ahn, Gary Tuttle    Evaluator: Mari Kemis  
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Project Manager: Megan Heitmann

<https://ride.ece.iastate.edu>



### INNOVATION PROCESS

**FACULTY** ENGAGED WITH PFP AND DT

X-teams  
Instructional heuristics approach  
Faculty motivation research

**STUDENTS** ENGAGED WITH PFP AND DT

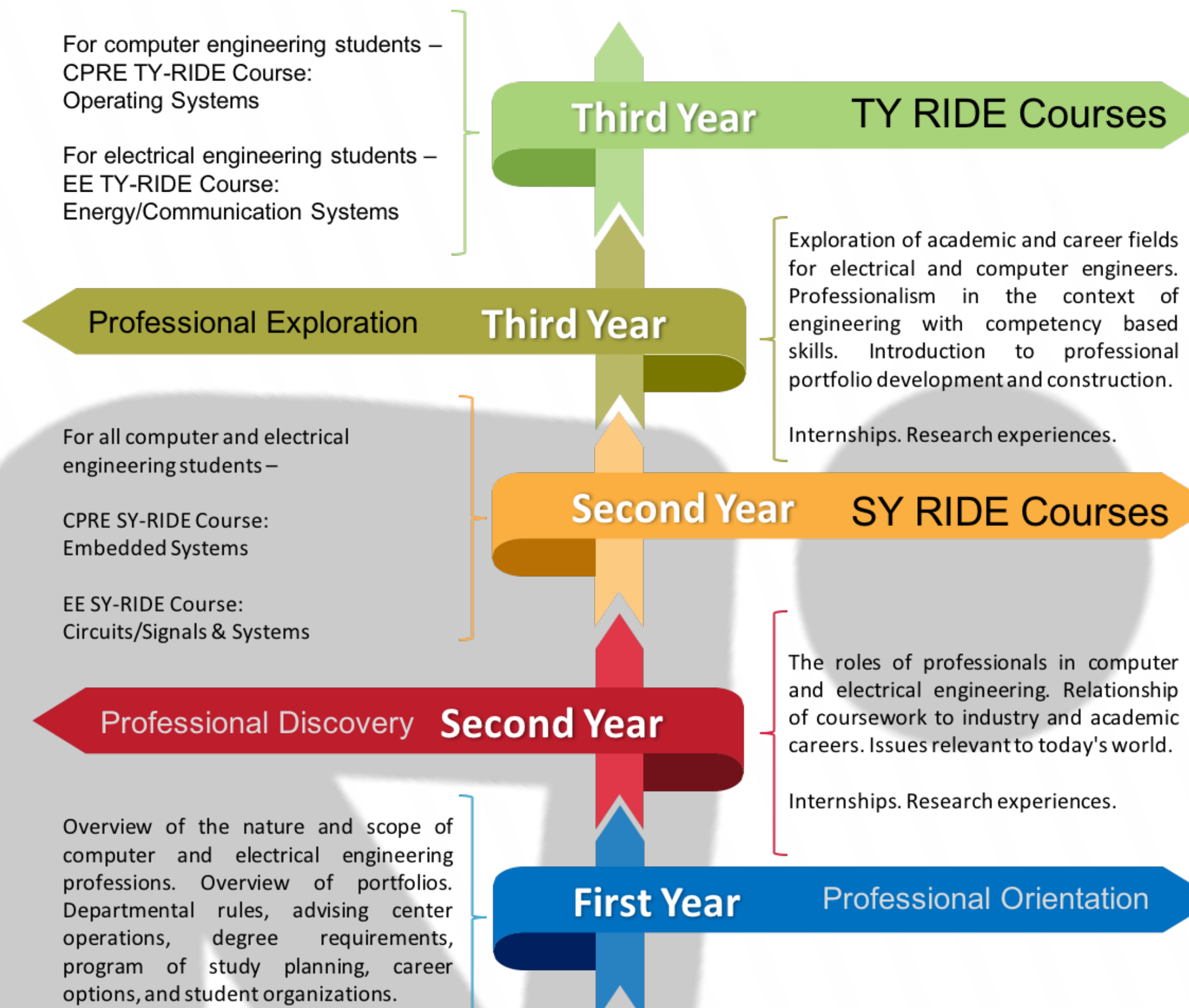
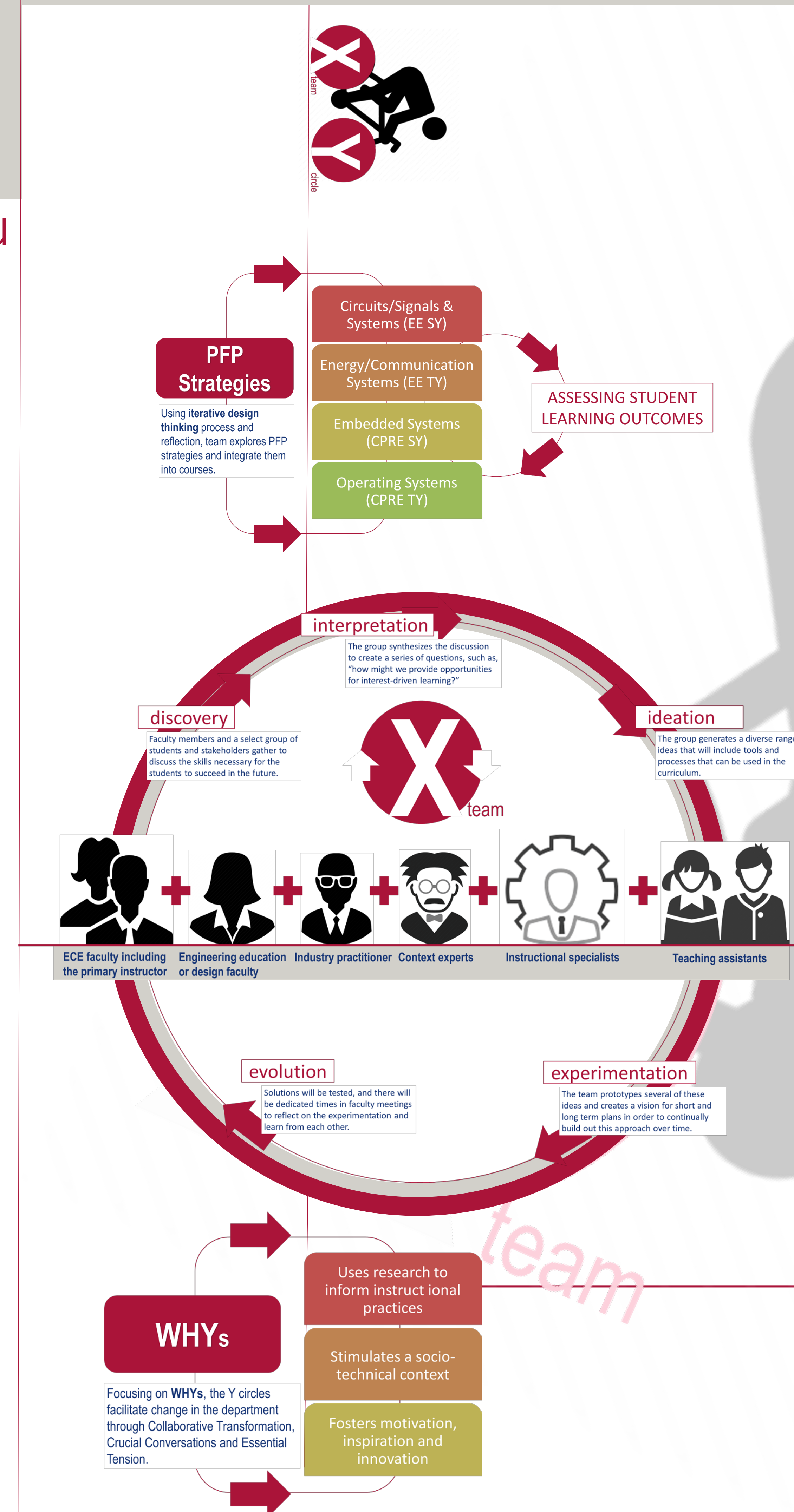
RIDE courses  
Student professional identity development research  
Student professional formation assessment research

**DEPARTMENT** ENGAGED WITH INNOVATION/INCLUSION

Y-circles  
Department Enhancement Program  
Faculty motivation research

PFP: Professional Formation Pedagogy (DT, systems thinking, leadership, inclusion, responsible development)

DT: Design Thinking



X-team: Cross-functional, collaborative instructional model for course design and PFP

Y-circle: Community of practice about teaching and learning that leverages conversation and tension to drive change



### Research

**Instructional Heuristics:** What are the characteristics of heuristics that are successful in creating new teaching approaches and assessing student performance?

**Student Development:** In what ways, do emerging identities shape (and reshape) individual perceptions towards ECE? What instructional interventions focused on design thinking are most influential in the development of a professional ECE identity?

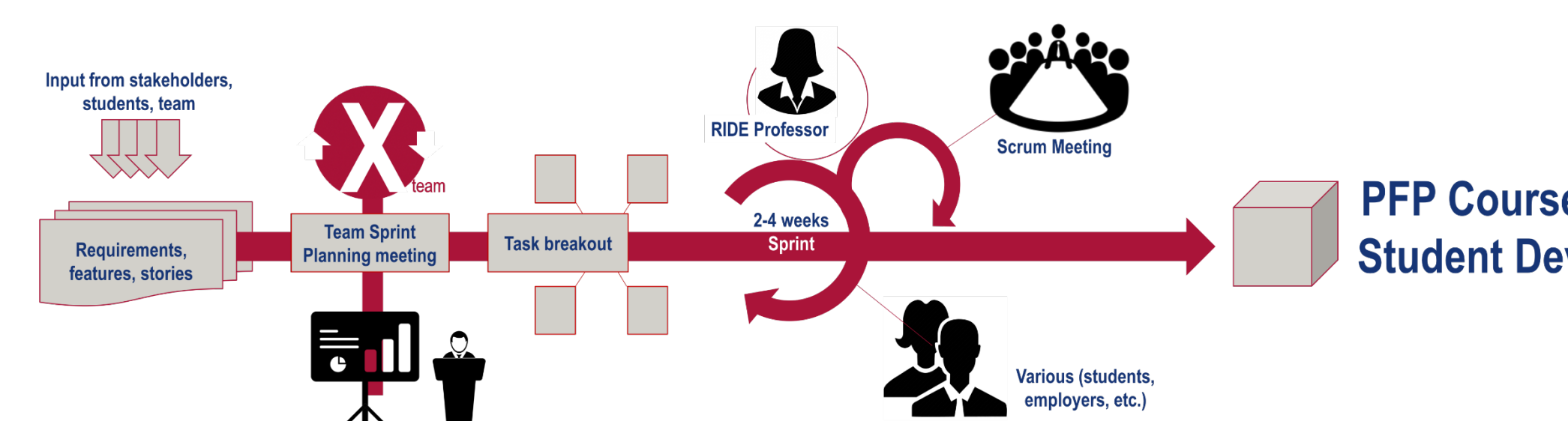
**Faculty Motivation:** Does participating in Y-circle and X-team processes result in more faculty satisfaction and engagement based on Self Determination Theory needs?

Workshops on DT teaching practices. Interviews, observations, and data collection. Narratives of outcomes of workshops. X-team data collection. Guidelines to inform faculty. Assessment of student DT skills.

Document review. Networking with research gatekeeping. Preparation for data collection. One-on-one interviews with students. Observation of classes, organizations, and other engineering activities. Focus groups with X-team and Y-circles.

Preparation of survey for departmental faculty. Survey administration and comparison over time. Data obtained from Department Enhancement Program. Document review of materials, practices, policies and structures.

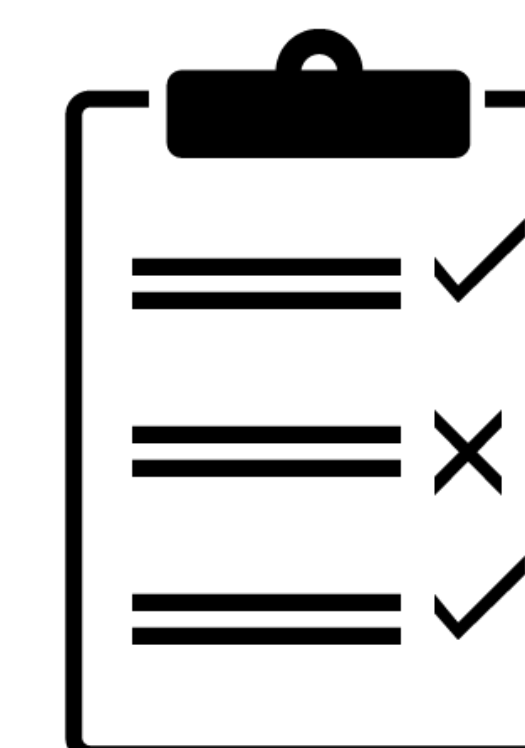
### Project Management



#### SCRUM agile process as culture change agent

Product	Product Owner	Scrum Master/Coach	Team Members	Stakeholders	Sprint Period	Number Sprints/Yr
PFP Course, Student Dev	Course Instructor	RIDE Professor	X-Team	Various (students, employers, etc.)	2-4 weeks	Approx. 12/AY
Faculty Dev, Dept Structs	Dept Chair	RIDE Professor	DEP/CT/CC facilitators, X-team leaders	Y-Circle, advisory boards, institution, NSF, etc.	8-10 weeks	3-4/AY
Project Outputs, Outcomes	RIDE Director	RIDE Professor	Project team, Working groups	Department, boards, partners, NSF, etc.	6-8 weeks	Approx. 6/yr

### Evaluation



Establishing trends in attracting and retaining diverse students.

Understanding changes in practices and attitudes about professional formation and learning for both faculty and students.

Studying changes in department structures, policies and procedures.

Evaluating new pedagogical models and teaching practices.