

# Hatching Development Program

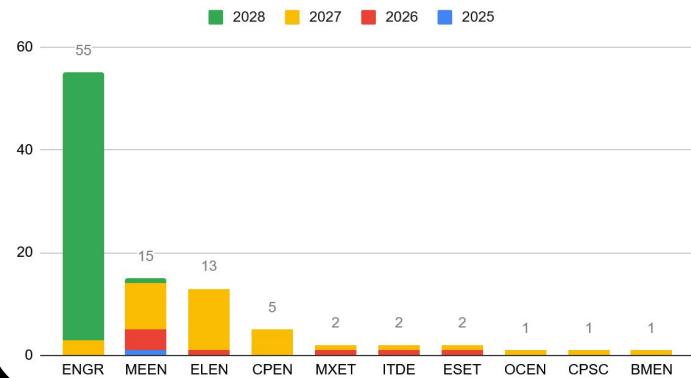
Founded Fall 2015



## Spring 2025 Snapshot

- 100 members led by 8 student leaders
- 70% entered without prior engineering experience
- 95% of participants would recommend the program to others
- Gender- and ethnically diverse team

Hatching Spring 2025 Class Year and Distribution



With your support, we can continue breaking barriers, expanding access, and preparing the next generation of engineers



## Mission Statement

Fostering growth in undergraduate engineers by providing the tools, support, and real-world experience they need to build strong communication, problem-solving, and engineering skills. We achieve this through carefully designed technical lectures paired with a collaborative, hands-on, semester-long project that encourages teamwork and practical application of knowledge.

## Feedback Response

"Hatchling's environment is very warm and welcoming, perfect for anyone who is just starting out and doesn't know much yet. I loved being around people who were there to have fun and build robots together. More importantly, Hatchling gave me the chance to grow as an engineer in a field that usually demands prior skills, helping me take my first steps into robotics with great support." – Spring 2025 Graduate



## Impact

- Hatchling graduates go on to leadership positions:
  - 90% of all-time Hatchling Directors
  - 100% of Treasurers since 2016
  - 50% of all-time senior leadership, project leads, and officers
  - 3 active presidents in 100+ member TAMU student engineering organizations
- Internship and Research Positions (Summer 2025)
  - Texas A&M Engineering Experiment Station
  - The Boring Company
  - Selector AI
  - TEKsystems (Full-Time)
  - City of Victoria, Texas
  - DEVCOM Army Research Laboratory
  - REUs and TAMU Research Labs
  - And more
- SolidWorks Certifications (CSWA and CSWP)





## Learning Objectives

- SolidWorks (CAD) Competency
  - Design custom parts and modify assemblies
  - Reading and designing around manufacturing constraints
- Electronics
  - Evaluating hardware specifications and datasheets
  - Circuit design and implementation
- Programming
  - Utilize Git/GitHub
  - Control hardware via a microcontroller
  - Python and C++
- Manufacturing
  - Soldering and crimping
  - Additive manufacturing
- Problem Solving and Critical Thinking
  - Teams go through the design process from concept creation to testing





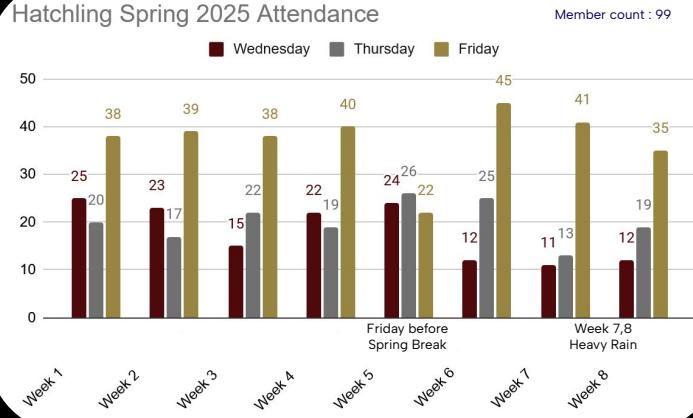
## Schedule – 3 Meetings a Week (Repeated Lectures)

- Week 1: Introductions
- Week 2: SolidWorks (CAD) Foundation
- Week 3: SolidWorks 3D
- Week 4: Tools, Project, and Process
- Week 5: SolidWorks Assembly
- Week 6: Design Review and C++
- Week 7: Programming and Git/GitHub
- Week 8: Electronics and Soldering
- Week 9: Prototype Week
- Week 10: Build Week

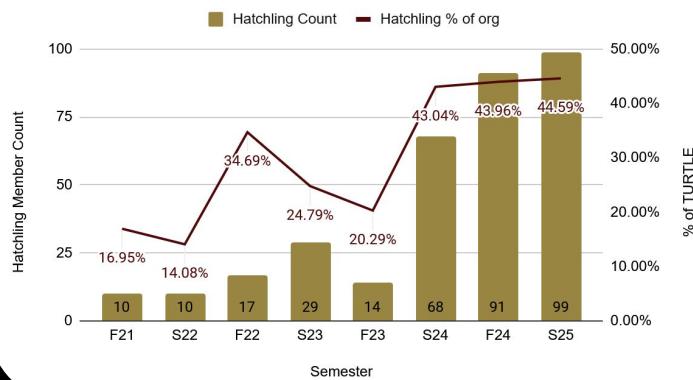
\*Orange indicates a project milestone\*



Hatching Spring 2025 Attendance



Hatching Growth by Semester



## This Semester Stats

- Average lecture attendance of 75 members (75% of Hatchlings)
  - Total of 794 sign-ins across all 10 weeks
  - 100% of people who attended a meeting joined TURTLE and participated in a club social
- 16 teams completed their project (60%)
- 90% gave a perfect 10/10 star experience rating
- Net-positive program budget of \$3000
  - 50/50 split for supplies and shirts
  - ~\$400 in one-time program investments

## Additional

- Surpassed 500 all-time Hatchling members
- Restructured internal structure & documentation for long term (10+ years) sustainability
- Introduced in-house Hatchling robot controller
  - Provides greater project freedom when incentivizing software solutions



## Fall 2025 Goals

- Inaugural Professional Development Workshop Series semester (Hatchling supplemental)
- Introduce V2 of Hatchling ESP32-based Controller with PCB / dev board variants
  - Estimated controller production cost - \$254.92 / \$196.85 per 10 units
- Extend team skills in software and embedded systems, with emphasis on
  - Git/GitHub , C++ , Linux, and Hardware Integration
- Expansion to external student organizations and public
  - 2 organizations have entered into a collaboration agreement
    - Inaugural College Station Interorganizational Cup
  - Hatchling materials posted on TURTLE website
  - Lectures recorded and posted on YouTube



## Long-term Investment Goals

- Form Incubator Development Program (Hatchling sequel)
  - Specialized tracks in mechanical, software, or electrical
- Lab equipment
  - Pair of robotic arms as an experimental testbed for skill development
  - Additional 3D-Printers (Expand rapid prototyping capacity)
    - Existing 4 printers runs full-time during project phases
  - Additional soldering stations / workstations



# Hatching, A Decade of Advancing Texas A&M's Engineering Standards