



ACE AT A GLANCE

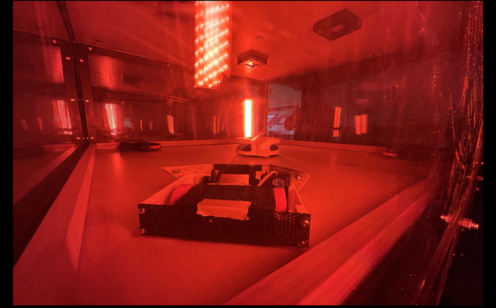
ASSOCIATION OF COMPETITIVE ENGINEERS | • RESEARCH • WORKFORCE DEVELOPMENT



THE TEAM



COMBAT TESTING



COMBAT BUILDS

MISSION: Develop engineering talent through outreach, competition, out-of-classroom education, and applied robotics research with faculty and industry partners.

35+

MEMBERS
and growing

8

COMBAT TEAMS
student-led builds

4

ROBOTICS PILLARS
ACE active in all four

1

DEDICATED LAB
Reese Technology Center

THE FOUR ROBOTICS PILLARS

ACE contributes to each pillar through projects and experiences that connect students with real engineering work.

01 OUTREACH

ACE contributes through Robot in 3 Days, demonstrations, recruiting events, showcases, and STEM engagement that introduce more students to robotics and engineering. Both at Grade and Collegiate Levels.

02 COMPETITION

ACE contributes through its 8-team combat robotics program, testing and Fight Night events, and preparation for future external competitions.

03 EDUCATION

ACE contributes by giving students out-of-classroom experience through open labs, workshops, and teaching nights focused on CAD, programming, electronics, manufacturing, and project planning.

04 RESEARCH

ACE contributes through faculty-connected robotics work with Dr. Tiomkin on a GM robot project and with Liangkai Liu on AI intelligence in robots.

PROGRAMS + APPLIED EXPERIENCE

COMBAT ROBOTICS

Eight student-led teams own the full design-build-test cycle, developing practical skills in CAD, fabrication, electronics, testing, reliability, and iteration.

OUT-OF-CLASSROOM LEARNING

Open labs, workshops, and teaching nights convert classroom concepts into repeatable practice in design, controls, programming, manufacturing, and project planning.

TALENT DEVELOPMENT + 2026-27 PRIORITIES

ENGINEERING TALENT DEVELOPMENT

- **Design under constraints** - balance performance, weight, reliability, cost, and schedule.
- **Build-to-test mindset** - prototype, fabricate, diagnose failures, and iterate using evidence.
- **Multidisciplinary teamwork** - mechanical, electrical, software, manufacturing, and industrial engineering.
- **Project ownership** - budgets, procurement, timelines, documentation, design reviews, and presentations.
- **Professional communication** - technical storytelling, peer teaching, sponsor interaction, and team coordination.

2026-27 STRATEGIC PRIORITIES

- **Grow the combat program** - strengthen testing, reliability, internal competition, and semester Fight Night.
- **Expand applied research** - increase faculty and industry-connected robotics projects.
- **Increase industry involvement** - mentors, speakers, facility tours, sponsors, and technical design reviews.
- **Compete beyond campus** - prepare teams for external events and document outcomes for student portfolios.
- **Broaden outreach** - use Robot in 3 Days, demonstrations, and STEM events to expand access to robotics.

HOW ACE TURNS EXPERIENCE INTO ENGINEERING PRACTICE

01

DEFINE

requirements, constraints, roles

02

DESIGN

CAD, analysis, system architecture

03

SOURCE

BOM, purchasing, manufacturing plan

04

BUILD

fabricate, wire, program, integrate

05

TEST

measure, diagnose, iterate, document

06

VALIDATE + SHARE

compete, review performance, transfer lessons

WHY INDUSTRY PARTNERS ENGAGE

EARLY TALENT CONNECTION

Engage students who are already designing, building, testing, documenting, and presenting technical work outside the classroom.

TECHNICAL ENGAGEMENT

Create meaningful touchpoints through mentorship, design reviews, speakers, facility tours, judging, and project feedback.

APPLIED IMPACT

Support competition, outreach, education, and research projects that turn resources and expertise into visible engineering experience.

INDUSTRY + PARTNERSHIP OPPORTUNITIES

Mentor a build team • Review a design • Sponsor parts or travel • Host a facility tour • Give a technical talk • Connect ACE with research or engineering projects

PARTNER WITH ACE. Support hands-on engineering while building relationships with developing technical talent.

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