

Curriculum Vitae

EDUCATION

Ph.D., Mechanical Engineering,	Colorado State University,	2007
"Extending the Performance of Net Shape Molded Fiber Reinforced Polymer Composite Valves for Use in Internal Combustion Engines"		
M.E., Mechanical Engineering,	Stevens Institute of Technology,	1995
B.E., Mechanical Engineering,	Stevens Institute of Technology,	1993

HONORS, AWARDS & LICENSES

USAFA Diversity and Inclusion Award (Team)	2024
DF Category III Civilian of the Quarter Award	2024, 2025
Aaron Bylerly Excellence in Faculty Development Award	2023
US Air Force Senior Military Engineer of the Year	2010
Outstanding Academy Educator, Department of Engineering Mechanics	2011
Instructor of the Year, Department of Engineering Mechanics	2011
Professional Engineer, Colorado License # PE0048240	2007
General Bernard P. Randolph Engineering Team Award	2009

TEACHING EXPERIENCE

2026 – Present	Colorado State University (CSU), Aircraft Structures Machine Design	Professor
2019-2025	USAF Academy Dept of Aeronautics, Asst Prof, Structures & Materials Discipline Director Aircraft Structural Dynamics & Aeroelasticity (Course Director) Aircraft battle Damage Repair Engineering (Course Director) Mechanical Behavior of Materials Mechanics of Deformable Bodies (Course Director) Fundamentals of Aeronautics Aeronautics Laboratory – Research Advisor Independent Studies in Aeronautical Engineering (Course Director)	
2025	University of Colorado at Colorado Springs (UCCS), Space Structures	Adjunct Professor
2019	University of Colorado at Colorado Springs (UCCS), Mechanics of Materials	Adjunct Professor
2015-2018	USAF Academy Department of Engineering Mechanics, Mechanical Engineering Capstone – Advisor	Researcher
2010-2015	USAF Academy Department of Engineering Mechanics, Aircraft Structures (Course Director) Experimental Mechanics (Course Director) Introduction to Machine Design (Course Director)	Assistant Professor

- Automotive Engineering (Course Director)
- Statics & Mechanics of Materials (Course Director)
- Introduction to Air Force Engineering
- Engineering Tool Seminar
- Mechanical Engineering Capstone
- Independent Studies in Mechanical Engineering (Course Director)

- 2007-2010 Tinker Air Force Base, Oklahoma, Engineer
Aircraft Battle Damage Repair Engineering (ABDRE) (Course Director equivalent)

- 2001-2004 USAF Academy Department of Engineering Mechanics, Instructor
Introduction to Machine Design
Automotive Engineering (Course Director)
Statics & Mechanics of Materials (Course Director)
Mechanical Engineering Capstone

- 2001-2004 Motorcycle Safety Foundation (MSF), Instructor
Basic Rider Course, Advanced Rider Course

- 1993-1995 Stevens Institute of Technology, Graduate Teaching Assistant
Introduction to Engineering Drafting
Introduction to Engineering Design

- 1989-1993 Stevens Technical Enrichment Program, Instructor
Statics
Mechanics of Materials

RESEARCH EXPERIENCE

2019 – Present USAFA/DFAN

- Aircraft Battle Damage Repair Engineering (ABDRE), AFLCMC/EZPT
“Crippling Strength of Aircraft Structural Repairs” (Indefinite length / in-kind material support)
AFRL/RQHV
- “Transient thermal-structural modelling and testing of representative hypersonic structures”
(4 Yrs / \$150k)
- Various Pedagogical Research Studies

2015-2018 SAFE Engineering, Inc., Principal Engineer 2015 – 2019 (Supporting the USAFA/DFME/CAStLE Research Center)

Office of the Secretary of Defense (OSD) funded projects:

- Managing Environmental Impacts on Time-Cycle Dependent Structural Integrity of High Performance DoD Alloys” (\$4 Yrs / \$3.1M)
- “Predicting and Managing Atmospheric Corrosion in DoD High Strength Aluminum Alloys” (4 Years / \$2.4M)

University of Akron funded projects:

- “Supersonic Particle Deposition for repair of Commercial Aircraft” (3 Yrs / \$1.7M)
- “Mechanical Impact of Corrosion Damage” (4 Years / \$355k)

Office of Naval Research (ONR) funded projects:

- "Corrosion and Fatigue Test Protocol" (\$0.5M / 3 Yrs)
- "Effect of Galvanic Coupling and Corrosion Inhibiting Coatings on Environmentally Assisted Cracking" (3 years / \$900K)

Other Projects:

- F-35 Full-Scale Fatigue Test Failure Analysis Program (\$3Yrs / \$900K)
- Technical and Scientific Material testing Support Services for the Federal Railway Administration (FRA) Tank Car Safety Program (2 Yrs / \$15k)

Publications: Textbooks / Handbooks

1. Buckley, Richard T., Koenck, Trevor P., Marges, Francis A., Martinez, Isaiah N., Piper, Cole, R., and Sanford, Lucas R., "Aircraft Battle Damage Repair Engineering Handbook, 2022 Edition, AFLCMC/EZPT

Publications: Journal articles

2. Arunachalam, Saravanan, Sarah E. Galyon Dorman, Richard T. Buckley, N. Aidan Conrad, and Scott A. Fawaz. (2018). "Effect of electrical discharge machining on corrosion and corrosion fatigue behavior of aluminum alloys" International Journal of Fatigue Vol 111, pp. 44-53.
3. Buckley, Richard, Radford, D.W., Stanglemaier, R., "Characterization and Processing of Carbon Fiber Reinforced PETI-RFI", Journal of Advanced Materials 2008, vol. 40, no2, pp. 17-32 [16 page(s)]
4. Buckley, Richard T., "Extending the Performance of Net Shape Molded Fiber Reinforced Polymer Composite Valves for Use in Internal Combustion Engines," Doctoral thesis, COLORADO STATE UNIV FORT COLLINS DEPT OF MECHANICAL ENGINEERING
5. Buckley, R., Miwa, J., Stanglmaier, R., and Radford, D., "Light-Weight Composite Valve Development for High Performance Engines," SAE Technical Paper 2006-01-3635, 2006, doi:10.4271/2006-01-3635.
6. Buckley, R., Stanglmaier, R., Radford, D., and Willson, B., "A Prediction of Weight Reduction and Performance Improvements Attainable through the use of Fiber Reinforced Composites in I.C. Engines," SAE Technical Paper 2005-01-3693, 2005, doi:10.4271/2005-01-3693.

Publications: Conference papers

7. Richard T Buckley, P.E. "Using New Faculty Orientation in an Aeronautical Engineering Department with Very Low Levels of New Faculty Experience to Produce Competent First-Year Instructors". 2025 ASEE Annual Conference & Exposition, Montreal, Quebec, Canada, 2025.
8. Richard T Buckley P.E. "Exploring Motivational Tools for Homework in a Senior-Level Engineering Course". 2024 ASEE Annual Conference & Exposition, Portland, Oregon, 2024, June. ASEE Conferences, 2024. <https://strategy.asee.org/47420> Internet. 13 Oct, 2024
9. Saravanan R. Arunachalam, Richard T. Buckley, and Scott A. Fawaz (2017). Effect of Electro Discharge Machining on the Corrosion Behavior of Aluminum Alloys. 2017 Department of Defense - Allied Nations Technical Corrosion Conference. Birmingham, AL.
10. Robert G. Kelly, Saravanan Arunachalam, Stephanie L. Kaster, Richard T. Buckley and Scott A. Fawaz (2017). Mechanical Impact of Corrosion Damage. 2017 Department of Defense - Allied Nations Technical Corrosion Conference. Birmingham, AL.
11. Cindy Klahn, Richard Buckley, and Scott Fawaz (2017). Substantiation Process of Cold Spray Repaired Parts. 2017 Cold Spray Action Team (CSAT) Workshop, Boston, MA.

12. Rhymer, D.W., Buckley, R.T., Jensen, D.D., "The Effect of Student Narration on Senior-level Engineering Classes," Proceedings of the 2012 American Society for Engineering Education Annual Conference, San Antonio, TX, 2012.
13. Christie, E., Jensen, D., Buckley, R., Menefee, D., Ziegler, K., Wood, K., Crawford R., "Prototyping Strategies: Literature Review and Identification of Critical Variables," ASEE Annual Conference, San Antonio, TX, June 2012.
14. Buckley, Miwa, Radford, Stanglmaier, "Exploring the Potential Advantages of Light-Weight Valves in Internal Combustion Engines, ASME 2006 Internal Combustion Engine Division Spring Technical Conference (ICES2006), Paper no. ICES2006-1318 pp. 43-52
15. Buckley, Miwa, Radford, Stanglmaier, "Design Process for Resin Transfer Molded, Fiber Reinforced Poppet Valves for Internal Combustion Engines," ASME 2006 Internal Combustion Engine Division Spring Technical Conference (ICES2006), ISBN: 0-7918-4206-1

Publications: Technical reports

16. Galyon Dorman, S. E., J. H. Niebuhr, S. R. Arunachalam, R. T. Buckley, and S. A. Fawaz. (2018). Predicting and Managing Atmospheric Corrosion in DOD High Strength Aluminum Alloys. SAFE Inc.

PROFESSIONAL AFFILIATIONS:

National Society of Professional Engineers (NSPE), member
American Society of Mechanical Engineers (ASME), member
American Society of Engineering Educators (ASEE), member & reviewer
American Institute of Aeronautics & Astronautics (AIAA), member
Society of Automotive Engineers (SAE), member

RELEVANT WORK HISTORY

Professor of Mechanical Engineering, Colorado State University, Fort Collins, CO

Jan 2026 – Present

- Teaching faculty responsible for the instruction undergraduate students in Mechanical Engineering
- Responsible for courses such as Aircraft Structures, Machine Design with Finite Element Analysis

Assistant Professor of Aeronautical Engineering, USAF Academy, CO **July 2019 – Dec 2025**

- Structures Discipline Director responsible for all curriculum development and execution for 7 courses across two departments
- Department Civilian personnel lead in charge of hiring, & personnel actions for 20 AD & GS civilians
- Academic Advisor to over 60 Aeronautical Engineering Majors & 10-15 4-degrees per year
- Air Force Lead Researcher technical expert for Aircraft Battle Damage Repair Engineering (ABDRE) supporting over 80 engineers in numerous CONUS and deployed locations around the world
- Advisor in Charge (AIC) for the Aeronautical Engineering class of 2023, over 100 cadets
- Air Officer Commanding for Academics (AAOCA) for CS 35, 2019 – 2025

Adjunct Professor, Department of Mechanical and Aerospace Engineering, University of Colorado at Colorado Springs (UCCS) **2019 - Present**

- Revised and taught "Mechanics of Materials" Spring 2019
- Designed and taught the first-ever "Aerospace Structures" course for the new Aerospace Engineering degree program.

Professional Engineer, Hammers Construction Colorado Springs, CO **Feb 2019 – July 2019**

- Professional Engineer (PE) Responsible for design and analysis of a variety of commercial structures.
- Design and certification of steel frame, wood frame, and concrete structures.

- Task Manager responsible for overall execution of multiple disciplines from soils through construction administration.
- Manager of the Drafting department, responsible for timely production & review of drawings to support more than thirty ongoing projects in various phases of development.

Commercial Structural Project Engineer, RMG Engineers, Monument, CO July 2018 – Feb 2019

- Professional Engineer (PE) Responsible for design and analysis of a variety of commercial structures.
- Design and certification of steel frame, wood frame, and concrete structures.
- Task Manager responsible for overall execution of multiple disciplines from soils through construction administration.

Principal Engineer, SAFE, Inc., Monument, CO (supporting USAFA/DFME/CASTLE)

June 2015 – July 2018

- Instructor and technical advisor to fifteen engineering senior design students solving real-world technical problems: remote extraction of road side bombs, launch & recovery of large UAVs.
- Guided detailed modeling of ill-defined systems including motion, physics & structural analysis
- Lead structural analyst including static loads, stress, fatigue, damage tolerance on air and spacecraft
- Designed new repair strategies for composite-metallic repairs using Supersonic Particle Deposition
- Specialized in fatigue crack growth data under both mechanical, environmental, corrosion conditions.
- Developed, executed 16 ASTM test plans for determining mechanical properties of new materials
- *Demonstrated first FAA repair-spec, substantiation for cold-spray repaired, commercial aircraft parts.*
- Business case analysis for large capital equipment including payback period, return on investment
- Look-forward projections of manning, balancing capacity, customer requirements, forecasting
- Program Management responsible for \$10M in engineering design, research, test, and root cause failure analysis. Executed high-end research projects for DoD and commercial customers.
- Developed budgets, conducted detailed financial reviews, execution plans for ten different programs
- Supervised twelve scientists and engineers, including two PhD & 2 MS Senior Engineers

Senior Military Faculty, Deputy Department Head, USAFA/DFEM, CO July 2010 – June 2015

- Chief Operating Officer for sixty-member, \$35M department administering Mechanical and Systems Engineering degrees, mentored over twenty independent research projects involving thirty students
-- US News top 5 Undergraduate Mechanical Engineering program in the nation.
- Senior design advisor for; Additive Manufacturing in Explosive Ordnance Disposal, Unmanned Aerial System Alternative Launch and Recovery, Formula and Electric Land Speed Record racing teams.
- Design process, Prototyping tools, Developed a Design mind-map for Additive manufacturing
- Taught: Aircraft Structures, Engineering Measurement & Test, Automotive Engineering, Machine Design, Senior Design Capstone, Statics and Mechanics of Materials, Structures, Introduction to Eng.
- Instructed high-level math topics including calculus-based analysis, statistics, complex analysis, linear algebra, numerical analysis techniques for engineering, data acquisition and signal conditioning
- Directed \$25M Applied Mechanics Lab, supervised nine faculty and engineering technicians.
- Drove culture change to open, collaborative environment for thirty-five researchers
- Mentored staff to Lean Certification, Base Safety Team of the Year (3x), Safety Manager of the Year awards 2 years in a row
- *Selected as Outstanding Academy Educator, Outstanding Instructor by peers and students.*

Lean 6-Sigma Team Lead (Promotion) – Oklahoma City, OK

Apr 2009- July 2010

- Manager, facilitator for aircraft repair station's largest transformation program, focused on increasing production line throughput, reducing tact time, heavy maintenance cost for fleet of 67 aircraft.
- 6-Sigma statistical analysis of process flows, production lines to determine error rates
- Reduced aircraft maintenance time from fifteen months to below twelve using lean process tools.
- Consolidated periodic inspection and maintenance schedules to reduce aircraft downtime.
- *Air Force Senior Military Engineer of the Year for establishing heavy maintenance best practices.*

Deputy Director, B-1 Engineering Squadron – Oklahoma City, OK

Aug 2007 – Apr 2009

- Acting Director, oversaw 39 engineers, equipment specialists, 24/7 support to fleet of combat aircraft.

Richard T Buckley, PhD, PE

Cell: 719-439-0280
rt.buckley.pe@gmail.com

- Technical lead for \$196M of development, sustainment programs for the aircraft fleet.
- Lead Instructor - Aircraft Battle Damage Repair, trained thirty engineers for high-tempo overseas ops.
- Taught two-week intensive course on structural analysis and repair design for emergency operations.
- Improved ABDR team performance from failing to Excellent in under two years.
- First ever removal, inspection, and replacement of a wing pivot pin on the largest swing-wing aircraft.
- Engineering lead, designed repairs for emergency three-engine flight from Afghanistan to England.
- *General Bernard P. Randolph Engineering Team Award for the first ever B-1B wing replacement.*