# Randy Brooks

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## Education

Texas A&M University, PhD student, Interdisciplinary Engineering – Engineering Education (2022-2028)
"Addressing Faculty Instruction Confidence Barriers to Ethics Integration in Core Engineering Courses."
Purdue University, M.S.Ed. Learning Design and Technology (LDT) – 2017
Texas A&M University, B.S. Engineering Technology – Telecommunication Specialty – 1986

## Career Profile

- **Igniting and engaging the curiosity** of students through multimedia tools, STEM culture activities, and development of a **7-14** vertically aligned **STEM scaffolding** framework.
- Providing guidance and direction in the development of relevant skillsets by leveraging experiences from a 23-year Telecom career comprised of **real-world skill and knowledge application** in project management, network operations and planning, and organization leadership.
- Career emphasis around raising the bar and **progressing student success** during the transition from secondary school through the second year in college.
- Forward-thinking STEM education industry veteran with a passion for **developing and implementing** ITS (Intelligent Tutoring Systems) supporting both instructors and students.
- Special focus on applying human performance analysis and tailored instructional design to create and deliver **student-centric curriculum and lessons** preparing lifelong learners to operate in the digital world, which is quickly evolving before us.

## Core Competencies

- Daily engagement with college students involving course organization, delivery, evaluation, and assessment.
- **Research focus** on enhancing the **high school to first-year of college transition space and professional skills development** through student success courses, career knowledge dissemination, instructor support, and solid scaffolding for first-year college students.
- Technical career driven by **developing and applying** mathematical concepts in business and engineering environments and delivering (verbal and written) **communication and analysis**.
- Adept at **assessing knowledge level** of audience for use in creating tailored instruction.

- Interest in and **drive to propel** an educational instructional design revolution leading to quality, rigorous online coursework, classes, and support.
- Commitment to **development of tools and training** to improve the ongoing educational and life readiness of students.
- Use of organizational and creative writing talents to support production of effective bridges between procedural and conceptual lessons.
- Pursuing **quality online engineering tools** as Research Experiences for Teachers (RET) participant with the Texas A&M Computer Science Sketch Recognition Lab (TAMU SRL).
- Lesson production with an eye toward delivering and receiving products digitally.
- Vision to rebuild curriculum & instruction in the digital realm.
- Advancing the **creation and deployment** of quality, engaging, rigorous, and student-centered online lessons.
- Proven ability to work with management and peers to **focus organizations on priorities**.
- Extensive **experience training** technical industry personnel.

## Teaching Philosophy

Two decades in the Telecom Engineering Industry, a decade at a college prep high school, and a decade in a first-year engineering program have provided a wide foundation **supporting and informing** my classroom practices.

My teaching strategies are largely guided by experiences with the **project-based learning** program PLTW (Project Lead the Way), Purdue's MSEd in LDT (Learning Design & Technology) composed of online courses about **effective teaching skills in the digital space**, and industry contemporary commentary publications highlighting the application of **active learning** activities in the classroom (Ambrose/Oakley/Spence) with a focus on the **skill gaps** identified by hiring industries (Wagner) and contextualized lessons within **real-world scenarios** (Christensen). Publications to include:

- Clayton Christensen's "Disrupting the Classroom",
- Tony Wagner's "The Global Achievement Gap",
- Barbara Oakley's "Uncommon Sense Teaching",
- Larry Spence's "Maybe Teaching is a Bad Idea, Why Faculty Should Focus on Learning"
- And guidance from Susan Ambrose et al. in "How Learning Works."

The watchword capturing my student-centered teaching direction is **innovation**, which spurs my interest in deploying ITS (Intelligent Tutoring Systems) in my classrooms. **Robert Gagne's Nine Events of Instruction** guide my lesson development driven by **evidence-based constructivism practices** grounded in both the science of instruction and the science of learning and the constructivism guidance of **Bronson Alcott** and **John Dewey**.

I guide student development of relevant skillsets by leveraging experiences from a 23-year Telecom career comprised of **real-world skill and knowledge application** in project management, network operations and planning, and organization leadership.

An exemplar lesson of my creation that effuses my learning mindset is exposing my students to the **EDP** (Engineering Design Process) by having them work through an EDP addressing one or two of the **UN17**

(United Nations 17 Sustainable Development Goals) with a constraint that the solution must be **bio-inspired**. The teams create a presentation documenting their journey from determining what problem to solve to brainstorm to filter and then **exploring their big idea**. Their deliverable (artifact) is an **mp4** of the entire team **delivering this presentation** (Kind of an **Aggies Invent** preparation exercise.). Deliverables (artifacts) the following week consist of a **personal reflection** of their engagement in the process as well as a **peer assessment** of the engagement and teamwork abilities of those on their team.

Students have the **ability to learn** and it is my task to use all the tools at my disposal to help them to a space (emotionally and mentally) where they may learn best. This is achieved through regular formative assessments, problem-solving-grounded lesson structure, and **differentiation of delivery** and assessment. Students are responsible for their own learning, and my role is to provide an **engaging environment** that activates their **curiosity** and ignites their drive to **pursue their passions**. As I teach first-year college engineering students, much of the instruction is foundational and many students are still exploring their future options and **discovering their direction**. This affords me the opportunity for great freedom in lesson production to include guidance for their future tied to the application of the fundamental principles encapsulated in the lesson objectives.

As my students are beginning in **different places** in all aspects of their lives, I regularly begin with a **pre-course survey** to be completed before they come to class where they can share levels of knowledge, **concerns, worries, interests, and passions**. I use this information to address some of the challenges **before they walk into the classroom** as well as **tailoring particular lessons** to better address the backgrounds of the students in the room. A common adjustment that I make based on student input is related to the level of scaffolding that they feel they need relative to my expectation of knowledge and skills retained from their preparatory courses. The level of knowledge information acquired in the survey, as well as from **regular reflections** in the course, drive my development of **tailored scaffolding activities** for all, or some, of the class.

***Docendo discimus*** (by teaching, we learn) is a level of development that I strive to elevate students to pursue. I provide tools and define some structure, then encourage their **curiosity and exploration**.

I bring a special focus on applying **human performance analysis** and tailored instructional design to create and deliver **student-centric curriculum** and lessons preparing lifelong learners to operate in the digital world, which is quickly evolving before us.

From my initial development and delivery of training for my niche telecom engineering teams, to my first-year college students, I have striven **to advance student knowledge** through activity-based lessons tailored to enhancing existing, and developing new, skillsets in my students. The industry shift to digital applications encourages me to extend my Purdue LDT skills/knowledge and further pursue and develop applicable **ITS tools** as another opportunity to **engage and innovate**.

My **vision** is to manage my courses to create student **mastery of concepts** whereby students are encouraged to **resubmit artifacts** until their work reflects mastery of a topic. Development of **teamwork skills** is **highly prized** and learning through **discovery is encouraged** to drive students to construct their own **life-long learning growth mindset**.

## Teaching Appointments

The Texas A&M College of Engineering performed a full redesign and rebuild of first-year curriculum beginning Fall 2018, the semester that I joined the team. Consequently, departmental lessons for ENGR 102/216/217 and CLEN 181 have evolved each semester thereby driving me to make further **revisions tailored** to my student population. The revisions also pull largely from my industry experiences, observations of and reflections on student performance, and feedback from former students.

## ENGR 102 – Engineering Lab 1 - Computation

Initial college engineering course for all engineering students. 1 hour lecture, 3 hour lab.

My first semester teaching this course was the first time that the newly constructed course was taught. I have performed **significant redesigns** each of the subsequent instructional semesters to better **attune** the course to my **student population**.

The course involves teaching students largely unfamiliar with programming how to program while concurrently both informing them about what is involved in an **engineering career** and exploring guidance and supports focused on **student success** in navigating the collegiate environment.

Each semester I expand and adjust the **cross-curricular elements** that tie to concurrent math courses and the following physics/engineering course**. Formative assessment analysis** is used to identify items to weave into lessons later in the course as well as to adjust teaching the following semester.

Spring 2023
5 students, in-person instruction.

Fall 2022
104 students, 2 sections, no grading support.

Spring 2022
In-person instruction, 5 students.

Fall 2021
Instructed a mostly in-person environment, 83 students, 2 sections, limited grading support.

Fall 2020
Instructed a mix of in-person and remote students, 78 students, 2 sections, no grading support.
COVID-19 environment impact saw 14 students drop or abandon this course.
The drops have been less than 4 students, of 97+, the previous 2 semesters.

Fall 2019
98 students, 1 section, 1 Grad TA, 3 peer TAs.

Fall 2018
97 students, 1 section, 1 Grad TA, 3 peer TAs.

**ENGR 216 – Experimental Physics and Engineering Lab II - Mechanics**

Second college engineering course for all engineering students. 1 hour lecture, 3 hour lab.

My first semester teaching this course was the first time that the newly constructed course was taught. I **customize the material** to better match my **students' needs** and adjust further each semester based on **observation of student engagement** and performance.

The course involves helping students **connect the theory** of their concurrent mechanical physics course **with physical experiments** in the lab. I have added **significant scaffolding** to address student deficiencies in the production of quality lab reports.

Lab activities are adjusted, and sometimes **reconstructed**, based on **observation and evaluation** of student lab work and products. Integrated in this lab are some key **digital ITS supports** (Intelligent Tutoring Systems) such as Sketchtivity and Mechanix from the Texas A&M Sketch Recognition Lab (TAMU SRL) and PhET from the University of Colorado, Boulder.

Spring 2025
197 students in 3 lectures and coordinator for 31 instructors.

Fall 2024
855 students in 12 lectures and coordinator of the course for 16 instructors.

Spring 2024
61 students in one lecture and coordinator of course for 27 instructors.

Fall 2023
282 students, 5 lectures, grading support and no lab responsibilities.

Spring 2023
60 students, 1 lecture, 4 labs, no grading support.

Fall 2022
18 students, 1 lecture, 2 labs.

Spring 2022
In-person instruction, 58 students, 1 lecture, 4 labs no grading support.
Introduced newly constructed lesson with Entrepreneurial Mindset and Bio-design as a foundation.

Fall 2021
In-person instruction, 11 students.

Spring 2021
Instructed a mix of in-person and remote students, 48 students, 4 sections, a peer TA for grading.

Fall 2020

Instructed a mix of in-person and remote students, 11 students, 1 section.

Spring 2020
In-person instruction transitioned to remote instruction at mid-semester, 79 students, 4 sections, no grading support.

Fall 2019
19 students, 2 section, 1 Grad TA, 2 peer TAs.

Spring 2019
72 students, 5 sections, 1 Grad TA, 2 peer TAs.

**ENGR 217 – Experimental Physics and Engineering Lab III – Electricity and Magnetism**
Third college engineering course for all engineering students. 1 hour lecture, 3 hour lab.

My first semester teaching this course was the first time that the newly constructed course was taught. I **customize the material** to better match my **student needs** and adjust further each semester based on **observation of student engagement** and performance.

The course involves helping students **connect the theory** of their concurrent electricity/magnetism physics course with **physical experiments** in the lab. I **regularly tailor** the labs to best match what I know is ahead for the students based on **feedback from former students** and **vision in industry**.

Fall 2023
378 students, 7 lectures, grading support and no lab responsibility.

Spring 2023
7 students, 1 lecture, 1 lab.

Fall 2022
20 students, 1 lecture and 2 labs.

Fall 2021
Mostly in-person instruction, 8 students.

Spring 2021
Instructed a mix of in-person and remote students, 6 students.

Fall 2020
Instructed a mix of in-person and remote students, 13 students.

Spring 2020
In-person instruction transitioned to remote instruction at mid-semester, 9 students.

Fall 2019

38 students, 3 sections, 1 Grad TA, 2 peer TAs.

**CLEN 181 – Engineering Success Seminar**

Zero hour college success course for first semester college of engineering students. 1 hour lecture.

My first semester teaching this course was the first time that the newly constructed course was taught, and was the **beta version** that was later **modified based on my and peer feedback and experiences** and rolled out to all first-year students. I customized the material to better match my **students' needs** and adjust further each semester based on **observation of student engagement** and performance. The course involves guiding students through **collegiate/life success strategies** and exploring engineering careers and practices.

This is a zero hour course, thus a challenge is to keep the students engaged and participating even though there is no impact to their GPA.

Fall 2025
27 students.

Fall 2024
29 students.

Fall 2023
16 students.

Fall 2022
104 students, lecture-only.

Fall 2020
Instructed a mix of in-person and remote students, 78 students, 2 sections, no grading support.
COVID-19 environment impact saw 14 students drop or abandon this course.
The drops have been less than 4 students, of 97+, the previous 2 semesters.

Fall 2019
97 students, 1 section, no grading support.

Fall 2018 (Initially called CLEN 289)
97 students, 1 section, no grading support.

**CLEN 289 – The Engineering Profession**

Elective course for students struggling with prerequisites for other engineering courses. 1 hour lecture.

My first semester teaching this course was the first time that the newly constructed course was taught, and was a **beta version** that will be **modified** based on my and peer **feedback and experiences**. I customized the material to better match my **student needs** and will adjust further each semester based **on observation of student engagement** and performance.

The course involves guiding students through various areas of the professional engineer's career to include **case studies, ethics discussions, and interdisciplinary team opportunities**. The students in this course have encountered some academic setbacks, so **a strong thread in the course** is to keep their **interest lit** in engineering and help them onto a **successful path**.

Spring 2020
In-person instruction transitioned to remote instruction at mid-semester, 14 students.

**MEEN 221 – Statics and Particle Dynamics**
Third semester course for engineering academy students beginning before Fall 2018. 3 hour lecture.

This was a challenging, yet well-established foundational engineering course that I taught to the students that chose not to transition to the College Station campus after completing the Academy course requirements. As many colleges have established their customized Statics course, this course will no longer be taught at the academy. I have **adjusted my content** in ENGR 216 to **better prepare students** for their Statics class, based on my teaching this course.

Spring 2020
In-person instruction transitioned to remote instruction at mid-semester, 6 students.

Fall 2018
22 students, 1 section, no grading support.

**ENGR 482 – Ethics and Engineering**
Fourth semester course for engineering academy students beginning before Fall 2018. 2 hour lecture.

This course was the 4$^{th}$ course in the Academy sequence before the curriculum redesign. The redesign involved incorporating these ethics lessons into the core classes. I have **highly customized** my ENGR 216/217 ethics curriculum teaching **based on my experience teaching** this course. This was an **extremely impactful** course for early engineering students and **I strive to capture** a similar imprint during the ethics component of their new courses.

Spring 2019
11 students.

**Presentations and Publications**

- Presented at ASEE (GSW) Gulf-Southwest March 2025 conference. "WIP: Fostering Professional Skills Development Through Application in Core Engineering Subject Courses: A Pathway to Holistic Student Development." Co-author Surupa Shaw. 3$^{rd}$ place Faculty Paper. (2025)
- Presented at University-level event, 2024 TAMU Transformational Teaching and Learning Conference (TTLC), May 2024. "Dewey, Alcott and the student of 2050" (2024)
- Presented at Texas A&M STEM4Innovation conference in January 2024, "STEM Career Prep in 2050" (2024)

- Texas Higher Education Coordinating Board (THECB) Annual Conference, invited panelist for session, "Leveraging AI to Disrupt Higher Education to Better Serve Students", December 2023.
- FIE 2023 presenter and workshop, "Towards an Intelligent Tutoring System for Virtual Reality Environments." 5 authors. (2023)
- Presented at ASEE 2023 annual summer conference, July 2023. "Using an Entrepreneurial Mindset and Biomimicry-Based Design to Better Engage First-Year Engineering Students." (2023)
- Presented at University-level event, 2023 TAMU Transformational Teaching and Learning Conference (TTLC), April 2023. "Fostering Creative thinking Through Bio-Design Brainstorming." (2023)
- Presented at ASEE (GSW) Gulf-Southwest March 2023 conference. "Engineering Academy (EA) Design and Operation." 3 authors. (2023)
- Invited member of ASEE/NEA initiative to create a view of the 2050 Engineer. "Engineering the Mindset for the Future: A Blueprint for Systemic Change in Undergraduate Engineering & Engineering Technology Education" Working Group #4. Several work sessions in 1H2023.
- Presented at Texas A&M STEM4Innovation conference in January 2023, "Using an Entrepreneurial Mindset (EM) and Bio-mimicry-Based Lesson to Engage Students." (2023)
- Presented at inaugural Texas Conference on Student Success, October 2022. "Fostering Creative Thinking Through Bio-Design Brainstorming." (2022)
- Presented 2 papers at ASEE 2022 annual summer conference, July 2022. (2022)
    - Work-in-Progress: "Designing Pre-Course Sessions to Enhance Student Preparation" solo
    - "There and Back Again: Lessons Learned from Facilitated Faculty Discussions on the Move Online and Then Back Face to Face." Multiple authors.
- Presented at University-level event, 2022 TAMU Transformational Teaching and Learning Conference (TTLC), April 2022. (2022)
    - "The Power of the Pre-Course Survey for Course Launch, Addressing Concerns, and Developing Community." Multiple authors.
- Presented at ASEE (GSW) Gulf-Southwest March 2022 conference. (2022)
    - "The Power of the Pre-Course Survey for Course Launch, Addressing Concerns, and Developing Community." Multiple authors.
- Invited to present at Texas A&M STEM4Innovation conference in January 2022, "College Preparedness for Engineers". (2022)
- Peer presented paper at FIE (Frontiers in Education) conference 2021, October 2021. Tracy Hammond, Randy Brooks, Shawna Thomas, Pauline Wade, Charles W. Peak, Charles Patrick Jr, Samantha Ray, Paul Taele. "A Virtual Community of Practice for Enhanced Teaching and Convergence to Strengthen Student Learning, Engagement, and Inclusion." (2021)
- Presented 2 multi-author papers at ASEE FYEE annual conference, August 2021. (2021)
    - "Creating a Supportive Space for Teaching-Focused Faculty to Write About their Teaching" 11 peer authors.
    - Advancing Engineering Education Using a Teaching Focused Plan For Creating an Inclusive Classroom" 9 peer authors.
- Presented 3 solo papers at ASEE 2021 annual summer conference, July 2021. (2021)
    - "Transposing Gagne to the Online Realm"
    - "Drivers and Impacts of a 'Clean Slate' Foundational Engineering Curriculum Redesign at a Large Southwestern University,"
    - "Student-Success-Focused Engineering College Preparatory Courses"

- Presented at University-level event, “2021 TAMU Transformational Teaching and Learning Conference”, April 2021. (2021)
    - “The Academy Model for Connecting Two-Year College and Four-Year College Programs”
    - “Transposing Gagne to the Online Realm”
    - “Asynchronous, Student-Success-Focused Engineering College Preparatory Courses”
    - “A Virtual Community of Practice to Enhance Teaching to Strengthen Student Learning”
    - “The Power of a Writing Community Group”
    - “Options for Operating a Mixed Modality Classroom”
- Presented 3 solo papers at ASEE (GSW) Gulf-Southwest March 2021 conference. (2021)
    - “A Pre-Baccalaureate Engineering Course for the Road Ahead”
    - “First-Year Engineering Program Curriculum ReDesign”
    - “21st Century Instructional Design featuring Gagne, Rogers, and Bloom”
- Invited to present at TAMU STEM4Innovation conference in January 2021. (2021)
    - “Multimodal Instruction (in-person/remote) Methodologies”
    - “Critical Pre-College STEM Knowledge”
- Invited by TAMU CTE to present a section on multi-modal instruction as part of “Juggling Chainsaws while Riding a Unicycle: Engaging In-Person and Remote Students” in September 2020. (2020)
- Invited by IEEI (Institute for Engineering Education and Innovation) to lead the Texas A&M Engineering Education Faculty Summer 2020 Book Study on “How Learning Works: Seven Research-Based Principles for Smart Teaching”, from Susan Ambrose, et al. (2020)
- Brooks, R. H. (2020, June), Deploying Intelligent Tutoring Systems (ITS) in the Engineering Classroom Paper presented at 2020 ASEE Virtual Annual Conference Content Access, Virtual Online. https://peer.asee.org/34382 (2020)
- Invited to present at University-level event, “2020 TAMU Transformational Teaching and Learning Conference”, May 2020 on three topics, before cancellation of conference amid COVID-19 concerns.
- Presented at University-level event, “2019 TAMU Transformational Teaching and Learning Conference”, May 2019 on “Exploring the Growing World of ITS (Intelligent Tutoring Systems)”. (2019)
- Invited to present on full body of research engagement with Texas A&M Computer Science Sketch Recognition Lab at the Mechanix NSF funding Advisory Board review, March 2019, Dr. Hammond.
- Presented “The Rise, Reprise, and Revolutionize of ITS” at TCEA (Texas Computer Educators Association) in February 2019. (2019)
- Presented “Torrent of Timely and Targeted Digital Tools” and “Confessions of a First Time Online Course Instructor” at TCEA in February 2018. (2018)
- Presented “Why Every 21st Century Student Should Take Principles of Engineering (PoE) and Computer Science Principles (CSP)” and “Torrent of Timely and Targeted Digital Tools” at PLTW-Texas in February 2018 (Project Lead the Way). (2018)
- Invited to present regarding Mechanix research at TAMU Teacher Quality Grant Program “Action Research Conference”, January 2018, Dr. Nite. (2018)
- Brooks, Randy & Koh, Jung & Polsley, Seth & Hammond, Tracy. (2017). Score Improvement Distribution When Using Sketch Recognition Software (Mechanix) as a Tutor: Assessment of a High School Classroom Pilot. 10.1007/978-3-319-64239-0_9. In Tracy Hammond (Ed.), Frontiers in Pen and Touch – Impact of Pen and Touch Technology on Education (pp. 125-136). Switzerland: Springer International Publishing. (2017)

- Presented “Blending with PBSLearning, GC, and More” at TCEA in February 2017. (2017)
- Presented “Score Improvement Distribution When Using Sketch Recognition Software (Mechanix) as a Tutor: Assessment of a High School Classroom Pilot” at CPTTE (Conference on Pen and Touch Technology in Education) in April 2016. (2016)
- Presented “Mechanix” at PLTW-Texas in February 2016 and PLTW National Summit in March 2016. (2016)
- Presented “The Next Giant Leap: Flipped to Online” at TCEA in February 2015. (2015)
- Presented “Flipped Classrooms: Fad, Fiction, or Future?” at TCEA in February 2014. (2014)
- Learning@Lovejoy presentations on ‘Flipped Classrooms’ in 2012/2013. (2012/2013)

**Relevant Education Industry Instruction Experience**

**Texas A&M University, Professor of Practice**
**Texas A&M Engineering Academy at Blinn College, Brenham, Texas 2018 – 2023**
**Texas A&M First-Year Program, College Station, Texas 2023-Present**

- Promoted from Associate Professor to Full Professor in September 2025.
- Elected Faculty Senate Academic Professional Track Faculty Committee Member (2021-)
- Appointed as an external reviewer on the Blinn College Institutional Review Board (IRB) (2021-)
- Appointed reviewer of TAMU Provost APT Teaching Excellence Award. (2021)
- Appointed TAMU Transformational Teaching & Learning Conference (TTLC) Program Committee (TTLC) (2021-)
- Appointed to Faculty and Student Advisory Board – TAMU Center for Teaching Excellence (2020-2023)
- TAMU EEF (Engineering Education Faculty) Keep Moving Forward Task Force Leader (2019-)
- IEEI (Institute for Engineering Education and Innovation) Peer Teaching Program (2020-2021)
- NASH-ACUE Instructional training cohort student (2020-2021)
- Member of ASEE (American Society for Engineering Education) (2019-)
- Member of TCEA (Texas Computer Education Association) (2014-)
- Texas State Science and Engineering Fair Multi-level Judge (2019-)
- Full-time engineering instruction of Texas A&M first- and second-year Engineering Courses.
- Tasked with ingraining Texas A&M Engineering Academy students with the Aggie culture.
- Sole Texas A&M Engineering representative on the Blinn College-Brenham campus. (2018-2023)

**Texas A&M University, Computer Science & Engineering**
**Sketch Recognition Lab (SRL)**
**Research Experiences for Teachers (RET) Program**
**College Station, Texas 2015 - Present**

- Ongoing deployment of Sketchtivity and Mechanix in my Texas A&M Engineering Classrooms.
- Texas A&M Spark! E^3 program.
    - 2015 as a researcher.
    - 2017 as a specially requested 2nd-time researcher.
    - 2018 as a Master Teacher guiding and supporting the team of researchers.

- Presented on TAMU SRL tool, Mechanix, at 2016 CPTTE (Conference on Pen & Touch Technology in Education) at Brown University, 2016 PLTW Summit in Indianapolis, and 2016 PLTW-Texas Convention in Houston.
- Instructor user testing and student field testing in my high school STEM lab, and development consulting regarding an online tool (TAMU SRL Mechanix) supporting vector, free-body diagram, and truss analysis by providing real-time constructive feedback for learners and performance metrics for instructors.
- Work on paper for CPTTE 2016 published as "Randy Brooks, Jung In Koh, Seth Polsley, and Tracy Hammond. Score Improvement Distribution When Using Sketch Recognition Software (Mechanix) as a Tutor: Assessment of a High School Classroom Pilot, Frontiers in Pen and Touch, Chapter 11, Springer, 2017."

**Manager of LHS Online Signature Courses**
**Lovejoy High School, Lovejoy ISD, Lucas, Texas 2017 - 2019**

- Developed operating model for product.
- Launched LHS Online Signature Courses in Summer 2017.
- Evaluated opportunities for expanding the offering.

**High School Mathematics and PLTW (Project Lead the Way) Engineering Educator**
**Lovejoy High School, Lovejoy ISD, Lucas, Texas 2010 - 2018**

- 2018 Lovejoy ISD Texas Association of School Administrators Secondary Teacher of the Year.
- Earned Purdue Learning Design and Technology Masters Degree in May 2017.
- Customized and delivered instruction in PreCalculus and PLTW Principles of Engineering.
- 4 years instructing 2 classes of PLTW Principles of Engineering students.
- Regular TCEA Presenter on Flipped/Blended/Online/Tech Classrooms (2014/2015/2017/2018).
- Launched Lovejoy Online Signature Courses in Summer 2017.
- HEB Rising Star Finalist in 2014 and Rising Star Semi-Finalist in 2016.
- Completed 4-day Kagan Class Engagement Workshop in January 2017.
- 2016 – 2017 PBS LearningMedia Digital Innovator.
- Lovejoy High School Web manager.
- Presented on Flipped Classrooms at Learning@Lovejoy PD Summer 2012 and Summer 2013.
- Texas PTA Honorary Life Membership, 2015.

**Mathematics/ACT Tutor**
**Tutoring101 2014 - 2018**

- Staff tutor prepared students for the Math portion of the ACT College Entrance Exam.
- Staff tutor provided 1:1 math guidance for a wide demographic of students ranging from 4$^{th}$ grade to PreCalculus.

**InfuseUs.com 2009 - 2018**

- Self-initiated website devoted to support educators in the engagement of digital natives as well as supports for the digital natives.
- Offerings included links, samples, and direction regarding portals providing benefit for today's in-classroom instruction as well as migration to digitally-based, online instruction.

**Workforce Development – Experiences as an Industry Trainer**

**Telephone Product Launch**
**Charter Communications, 2005-2009**

- Delivered training to various cable network personnel regarding the operation and deployment strategy of a new product (telephone) on the cable network.
- Assessed technical/product knowledge of various departments and tailored training content to be most effective.

**Traffic Engineer Curriculum Development and Delivery**
**Vartec Communications, 2000-2005**

- Developed and delivered curriculum to reinforce the procedural needs of traffic engineers and to clearly tie those activities to the conceptual requirements of the position.
- Joined Vartec with no training structure in place for the engineering organization. I created and deployed a program to effectively enhance team member knowledge and skills.

**Traffic Engineer and Planner Training**
**MCI Communications, 1986-2000**

- Built templates used for traffic engineering and trained teams and management on their use.
- Worked closely with outside vendor to tailor a procedural program to better match the conceptual needs of the organization, and served as Subject Matter Expert (SME) during delivery.
- Provided myriad trainings to direct reports, peers, and upper management regarding new network deployments and procedural adjustments and impacts.

**Development/Leadership/Awards**

- Invited member of the Texas A&M University initial cohort for the Aggie Experience Project Faculty Community of Practice, Fall 2025 – Spring 2026.
- Invited member of ASEE/NEA initiative to create a view of the 2050 Engineer. "Engineering the Mindset for the Future: A Blueprint for Systemic Change in Undergraduate Engineering & Engineering Technology Education" Working Group #4. Several work sessions in 1H2023.
- Texas A&M Working Group member, MGT#3, "Elevating Extended Campuses" in 1H22.
- Texas A&M Fish Camp Namesake in 2022.
- Aggies Invent Mentor and Support (2021-)
- ASEE-GSW secretary (2021-2024)
- Elected TAMU Faculty Senate Academic Professional Track Faculty Committee Member (2021-)

- Appointed as an external reviewer on the Blinn College Institutional Review Board (IRB) (2021-)
- Appointed reviewer of TAMU Provost APT Teaching Excellence award. (2021)
- Appointed TAMU Transformational Teaching & Learning Conference (TTLC) Program Committee (2021-)
- Appointed to Faculty and Student Advisory Board – TAMU Center for Teaching Excellence (2020-2023)
- TAMU EEF (Engineering Education Faculty) Keep Moving Forward Task Force Leader (2019-)
- IEEI (Institute for Engineering Education and Innovation) Engaged Faculty (2020-)
- NASH-ACUE Instructional training cohort student (2020-2021)
- Member of ASEE (American Society for Engineering Education) (2019-)
- Member of TCEA (Texas Computer Education Association) (2014-)
- Texas State Science and Engineering Fair Multi-level Judge (2019-)
- 2018 Lovejoy ISD Texas Association of School Administrators Secondary Teacher of the Year.
- 2016 – 2017 PBS LearningMedia Digital Innovator.
- Lovejoy ISD STEM Council (2014 – 2018).
- 2015 Texas PTA Honorary Life Membership.
- 2015/2017/2018 Texas A&M Spark! E^3 Summer Research Program.
- 2014 HEB Rising Star Finalist, 2016 HEB Rising Star Semi-Finalist.
- Proclamation 2015 - TEA Mathematics Textbook Evaluation. (Summer 2014)
- Lovejoy ISD Site-based committee (2013 – 2018).
- Lovejoy High School Site-based committee (2012 – 2018).
- LISD Mission Possible (Technology Advancement) Team member since inception in 2011 to 2018.
- PLTW Summer Institute training – 10 days for Principles of Engineering (2014) and 10 days for Introduction to Engineering Design (2015).
- Certified Toastmaster (CTM).