MS-ETM Spring 2025 Graduating Cohort Project Showcase

uvu.edu/ms-etm

Utah Valley University Master of Science Engineering and Technology Management

Master of Science Engineering and Technology Management

UVU's Master of Science in Engineering and Technology Management (MS-ETM) is an applied graduate program dedicated to equipping engineering professionals with the leadership skills needed to manage technology in their respective fields. Through this program, participants enhance their abilities in decision-making, evaluation, and implementation strategies tailored for fast-paced technical management environments. These skills are essential for achieving career and business success.

The MS-ETM emphasizes practical, real-world applications. Graduate students benefit from a blend of individual study, collaborative group work, and hands-on practice of theoretical concepts. UVU's MS-ETM program ensures that students receive a rigorous, relevant, and practical education that lays a strong foundation for their technical management careers.

Instead of a traditional research-based thesis, graduate students in the MS-ETM program complete a culminating project. While the program incorporates theory and research, the projects undertaken by MS-ETM students are directly relevant and critical to the businesses and organizations they serve.

Applied, Engaged, Project-Based Learning

During the final two semesters of the MS-ETM program, students select, plan, and execute a significant project that pushes them to new levels of performance in a technical management discipline. These projects are led by individual students, involving team members aided by faculty mentoring. This leads to high-performing teams that yield exceptional results.

Corporate Collaboration

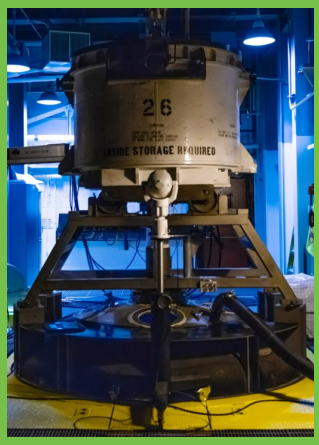
MS-ETM graduate students choose projects with significant impact on a business or organization. Typically, this is the company they currently work for. As Faculty, we sincerely appreciate each business and corporation that has supported our students by allowing them to work on timely and relevant projects within their organizations. This collaboration between the university and business helps students grow their careers and professional contributions.

MS-ETM Spring 2025Cohort

We are pleased to present the graduating cohort for the Master of Engineering and Technology Management for 2025. Students highlighted in this booklet are professionals who are completing their graduate studies while working full-time. Each is expected to receive their MS-ETM master's degree at UVU's Spring 2025 graduation ceremonies.

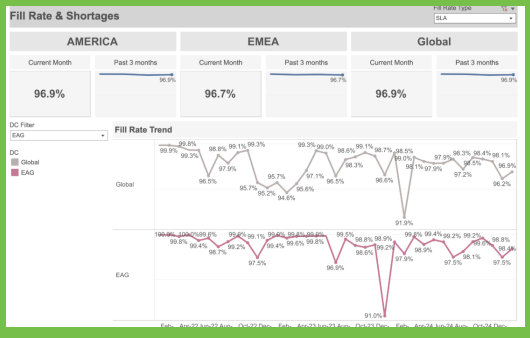
Adam Wise

The objective of this project is to develop a management technique for government defense contracts, balancing Agile and Earned Value methodologies. This aims to create a stable environment for handling large contracts like drones and missile programs. By finding a middle ground, the technique accommodates rapid engineering changes while upholding business management obligations. Adam, leveraging his engineering and business degrees, is testing these techniques as a Systems Safety Engineering Manager at Northrop Grumman. The goal is to develop a software package that integrates requirements, schedules, organizational charts, databases, and team communications, potentially replacing multiple existing programs. This package would monitor schedules, send meeting invites, and reduce unnecessary attendees, saving costs and time. The long-term project targets government-based contracts to enhance ability, speed, and savings.



Benny Liao

The Logistics and Production Metrics Realignment Project tackles the operational challenges we've been facing due to misaligned SLAs, outdated inventory management, and poor communication between IBOS and production teams. These issues have led to frequent delays and stock shortages, which in turn hurt our server uptime and overall productivity. In leading this project, I've focused on aligning SLAs to ensure that both IBOS and production teams are working towards the same goals. We've also implemented real-time inventory tracking to prevent shortages and set up better communication processes to streamline our operations. These improvements are designed to help us stay on top of performance metrics and ensure smoother collaboration across departments. This project reflects an approach to problem-solving by using data to drive decisions, empowering teams with the right tools, and fostering a culture of communication.

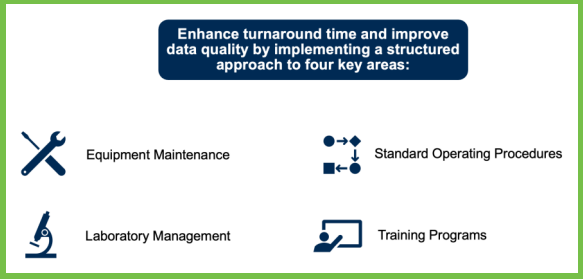


Cazden Davis

The Iron Horse Gas Plant consists of three gas processing facilities: Iron Horse One, Iron Horse Two, and Stagecoach, all managed from a central control room. Stagecoach has been inactive for over a decade and was outdated even at its shutdown. Scheduled to restart in April 2025, Stagecoach requires significant upgrades to match the standards of Iron Horse One and Two. These upgrades include modernizing communication infrastructure, replacing outdated PLCs (Programmable Logic Controllers), and upgrading HMI (Human-Machine Interface) displays. These improvements will enhance operational efficiency, minimize downtime, and ensure a seamless and reliable operation across all three plants.

Chase Dickinson

Elemental analysis is crucial in the minerals processing industry, providing insights into process performance and efficiency. It supports rapid decision-making and innovation in new products and processes. However, recent R&D efforts have faced delays and unreliable data from external labs. To address this, the R&D department has acquired X-ray Fluorescence (XRF) analyzers for sample analysis. This project aims to develop procedures and protocols to reduce turnaround times and improve data quality. Key deliverables include: sample preparation protocols, streamlined operational and safety procedures, and a sustainable laboratory framework. Effective communication and training for engineers and project managers are also emphasized to ensure long-term sustainability. By focusing on a user-centered approach, the project aims to enhance the reliability, safety, and efficiency of XRF instrumentation, resulting in faster turnaround times, increased operator confidence, and a scalable system for future growth and innovation.

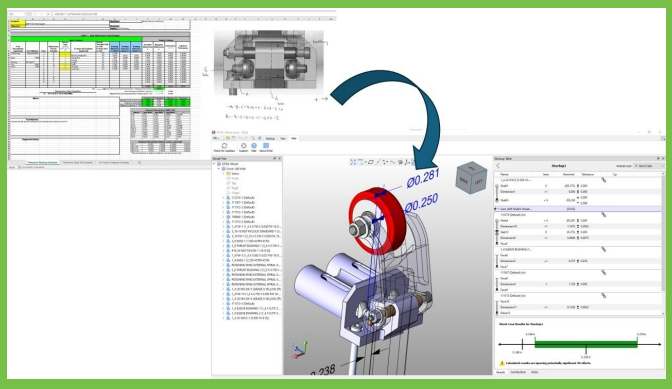


Cooper Despain

As our production plant ages, we face challenges with obsolete control systems hardware and software. To address this, we have initiated a comprehensive maintenance and upgrade plan. Key objectives include anticipating annual capital costs, understanding manpower and downtime requirements, and establishing priority-based metrics for efficient scheduling. Our action plan involves documenting obsolete hardware and software, identifying upgrade paths, conducting feasibility studies, and setting annual upgrade goals. We have started by identifying obsolete hardware and software and incorporating necessary upgrades into ongoing projects. We are currently building a structured yearly roadmap with clear goals for continued upgrades. By setting realistic yearly targets and balancing upgrades with available resources, this plan exemplifies proactive leadership, enhancing the plant's long-term viability and operational efficiency.

Jeffrey Kopish

TD Williamson in Salt Lake City builds In-line inspection tools for pipelines. The Mechanical Engineering Department currently uses Microsoft Excel for tolerance stack calculations. To improve efficiency and reduce errors, Sigmetrix EZTol tolerance analysis software has been purchased. However, successful implementation requires a well-thought-out plan. Understanding the department's needs is crucial. Three key steps have been identified: evaluating the software's capabilities and limitations, defining a clear process and expectations, and creating tailored training documentation and courses. By providing training and exposure to EZTol, the Mechanical Engineering Department can smoothly adopt the software and achieve its benefits.

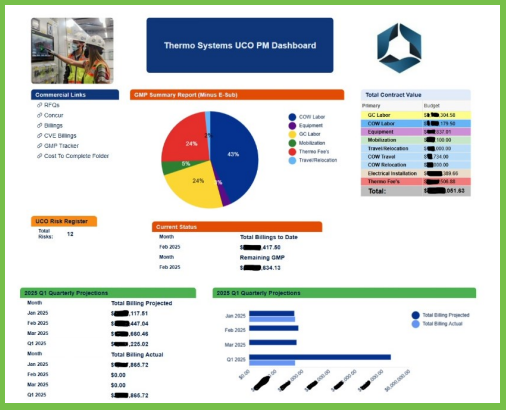


Matthew Brown

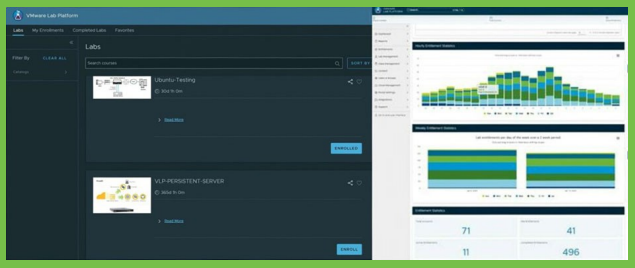
This project addresses challenges in large-scale data center developments in remote locations like Alabama and Louisiana. Issues include new deliverables, unfamiliar software, limited on-site technical resources, and a need for specialized training. A comprehensive training program, combining remote and in-person sessions, will familiarize participants with software such as Aveva, Control Expert PLC, and Ignition. A one-week in-person training will cover troubleshooting, networking, and system-specific details. The staffing model transitions from locally hired workers to a traveling workforce, with existing personnel shifting to travel-based roles. Centralizing engineering tasks with a dedicated Meta Central Engineering team ensures consistency in pre-commissioning deliverables. The work schedule includes two weeks on-site and two weeks off, with enhanced travel incentives. KPIs will track the success of these initiatives, and Smartsheets will centralize data for clear project metrics and trends.

Michael Haskell

The commissioning (Cx) process at Thermo Systems faced challenges like inconsistent documentation, limited financial oversight, communication gaps, and schedule misalignment. This project develops a structured Cx framework tailored to controls and automation, integrating financial management tools and real-time progress tracking to enhance efficiency, accountability, and communication. Key improvements include standardized documentation templates, a Smartsheet-based Cx progress dashboard, and automated alerts for deadlines. These tools enable teams to track milestones, align budgets with project progress, and avoid costly rework or delays. A structured communication plan (RACI) is implemented to define responsibilities clearly and improve collaboration between financial and technical teams. This initiative strengthens Thermo Systems' commissioning capabilities, setting a new benchmark for efficiency and transparency in controls and automation projects, and underscores Michael's leadership in tackling complex challenges and driving impactful results.



Raja Manjit Singh



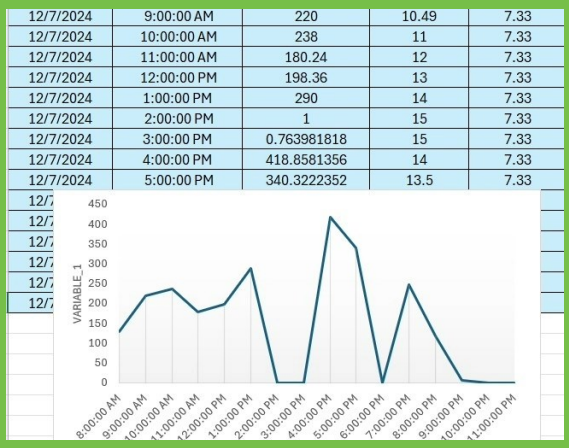
The VMware Virtual Lab Platform (VLP) offers hands-on virtual IT labs accessible globally on any device, eliminating the need for costly physical labs and simplifying infrastructure management. Transitioning to VLP allows the technical support team to create, manage, and deliver IT labs for self-paced training, instructor-led sessions, and live events. This project involves establishing technical support labs within VLP through phases like requirement gathering, implementation, deployment, training, launch, and maintenance. Moving to VLP reduces operational costs, enhances data security, and provides greater control over lab environments. It also eliminates third-party expenses and maximizes existing resources, creating a more efficient and compliant lab environment. Additionally, the project outlines a standardized process for developing internal labs, serving as a benchmark for other teams.

Rodrigo Reyes

This project focuses on using polymers with copper nanoparticles to enhance safety and durability in medical products and packaging. It highlights the benefits of improved antimicrobial properties, increased mechanical strength, and thermal stability. The integration of copper nanoparticles aligns with industry standards and market expectations, addressing current challenges related to microbial contamination in medical devices and packaging. Comparative analysis shows that traditional antimicrobial coatings have limitations in durability, and antibacterial polymers without nanoparticles are less effective. Recommendations include optimizing nanoparticle concentration, validating biocompatibility, and conducting mechanical and thermal resistance tests. In conclusion, polymers with copper nanoparticles are a promising option for improving medical products and packaging.

Sohil Dilawar

This project aimed to develop and evaluate statistical models, including Machine Learning (ML), to effectively fill gaps in missing Global Horizontal Irradiance (GHI) data for utility-scale photovoltaic (PV) power plants. The primary objective is to create low-cost, high-value models capable of filling data gaps of more than one day with 95% accuracy or better, forecasting future GHI values, and addressing critical plant operational needs in the absence of reliable GHI measurements. The successful implementation of these models offers several benefits for PV plant operators: improved energy production forecasts, enhanced plant performance monitoring and optimization, and informed decision-making regarding maintenance schedules and operational strategies. This data-driven approach maximizes energy output, reduces operational costs, and enhances overall plant efficiency.



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Pauli Alin - MS-ETM Program Director

Graduates of the MS-ETM program are equipped with the skills and knowledge to excel in their fields and careers for years to come. Our program's success is reflected in the achievements of our students, who often balance full-time work with their studies and contribute significantly to their organizations. We are extremely proud of the 2025 graduating cohort, a group of dedicated professionals who have demonstrated exceptional commitment and capability throughout their time in the program.

Dr. Pauli Alin

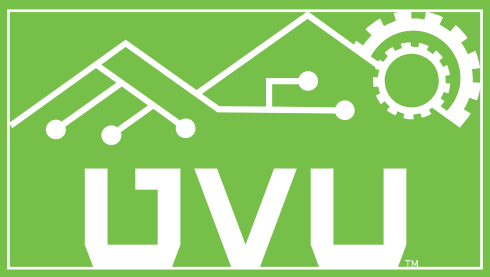
Current MS-ETM Teaching Faculty

Pauli Alin (pictured above), Ahmed Alsharif, Anne Arendt, Maria Blevins, Justin Flanagan, Armen Ilikchyan, Momtaj Khanam, Kyle Merrill, and Susan Thackeray.







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