

**PROFESSIONAL
DEVELOPMENT
SOLUTIONS**



PROFESSIONAL CERTIFICATES

TEST AND EVALUATION

**MODELING
AND SIMULATION**



THE UNIVERSITY OF
ALABAMA IN HUNTSVILLE

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MODELING AND SIMULATION

CERTIFICATE

Build a foundation in Modeling and Simulation (M&S) to improve decision making, product design, risks/safety, and program efficiencies. Learn the benefits of using models and their simulation to improve engineering processes and provide practical means for system of systems integration planning, improve live test planning, and represent system attributes not easily examined in real-time. **Prerequisite:** *Undergraduate degree in a technical field or equivalent experience.*

REGISTER
TODAY!

Take the 4-course certificate series or take just 1 course.

TEST AND EVALUATION

CERTIFICATE

Designed to address the principles of test and evaluation (T&E), this program introduces all aspects of T&E throughout the life cycle of a system. Learn the roles, purposes, functions, and techniques of T&E within the systems engineering process. The program includes modeling and simulation activities as well as developmental, live fire, and operational T&E. **Prerequisite:** *Undergraduate degree in a technical field, project management, or equivalent experience.*

**REGISTER
TODAY!**

Take the 5-course certificate series or take just 1 course.

View courses and course descriptions for the Modeling and Simulation Certificate and the Test and Evaluation Certificate inside.



TEST & EVALUATION CERTIFICATE

CORE COURSES:

Take 1 course or the complete 5-course certificate program.

Test and Evaluation Principles

Learn how test and evaluation (T&E), acquisition, and requirements personnel integrate efforts to provide systems that perform as designed and required by the user. Grasp foundational concepts such as developing a team of key personnel, documents, and more. At the end of the course, you will be familiar with elements of a test program, test sites that will provide you the best data to support your test requirement and mission, and confidence to proceed with assurance in your role.

J. Whitehead/G. Tackett, 14 hrs, \$895

Campus: Sep 20 – 21, 2017 | W, Th | 8:30 am – 4:30 pm

Campus: Feb 6 – 7, 2018 | T, W | 8:30 am – 4:30 pm

Online: D2518015

Test Planning and Conduct

Explore technology demonstrations, experimentation, and tests which all provide the opportunity to collect data to support both programmatic decisions, access Technical Readiness Levels (TRLs), and support the acquisition milestone determinations. Learn proper test planning and the conduct of those tests which are paramount to successful execution and evaluations. Learning will focus on initial planning techniques and issues, test plan development, rehearsals, test plan validation, test conduct, data collection, and after action reviews.

S. Mullins, 14 hrs, \$895

Campus: Nov 15 – 16, 2017 | W, Th | 8:30 am – 4:30 pm

Campus: Mar 6 – 7, 2018 | T, W | 8:30 am – 4:30 pm

Online: Coming Spring 2018

“*The instructor presented the course material in a way that was straight forward and easy to understand. He was easy to contact and responded promptly. He seemed to care that I actually understood the material.*”



FEATURED INSTRUCTORS:

GREGORY TACKETT is the VP for Huntsville Operations of Clear Creek Applied Technologies Inc and is the former Senior Executive Service Director of the BMDS Operational Test Agency. He has over 35 years of M&S experience, and

has served as Executive Agent for US Army RDECOM M&S, Director for System Simulation and Development for the US Army Aviation and Missile RD&E Center, Chairman of the Board for the Alabama M&S Council, US National Lead for the NATO group on Conceptual Modeling for M&S, US Army lead for the international TTCP Weapons Group, and US Army representative on the Defense M&S Office (DMSO) Architecture Management Group.

Requirements Development

One of the most successful impacts a development team can have on a system is to ensure the successful identification, analysis, allocation, and verification of requirements. Learn to allocate the requirements to the system's architecture and processes for conducting a requirements analysis. Go beyond the typical textbook process by applying experience-based instruction. Participate in interactive exercises to develop requirements and experience an entire requirements development process.

G. McPherson, 14 hrs, \$895

Campus: Oct 18 – 19, 2017 | W, Th | 8:30 am – 4:30 pm

Campus: Aug 28 – 29, 2018 | T, W | 8:30 am – 4:30 pm

Online: D2318007

Also a core course for the Systems Engineering Certificate

Test and Evaluation Assessment

Explore the planning, process, and products of system evaluation and assessment through testing. Learn to build assessment and validation plans that map required system performance. Understand the relationship between Modeling and Simulation (M&S) and test in a Model-Test-Model approach, as well as in Live-Virtual-Constructive environments. Understand the importance of operationally relevant environments as it relates to Technical Readiness Levels (TRLs) and how to assess threat and environmental realism for test design. Learn how to evaluate reliability, availability, and maintainability (RAM).

G. Tackett, 14 hrs, \$895

Campus: Dec 13 – 14, 2017 | W, Th | 8:30 am – 4:30 pm

Campus: Apr 10 – 11, 2018 | T, W | 8:30 am – 4:30 pm

Online: D2318017

CHOOSE 1 ELECTIVE:

System Validation and Verification

Ensure that you have a complete approach to the validation and verification (V&V) of your product. Learn the process to ensure that a new system works as designed and that the design fulfills its intended function. Hands-on cases illustrate developing metrics, team/management structures, and executing V&V activities.

D. Gunther, 14 hrs, \$895

Campus: Dec 11 – 12, 2018 | T, W | 8:30 am – 4:30 pm

Online: D2318010

Also a core course for the Systems Engineering Certificate

Project Scope, Cost, and Schedule Management

Was the project completed on time, aligned with the budget, and did it meet the customer's requirements? Become skilled with earned value measures, proficient with performance indexes, and build s-curve charts to interpret project trends. Gain the tools to monitor quality, measure performance, and communicate the results in performance reports. Learn scope controls with a WBS and components of deliverables.

R. Steele, 21 hrs, \$895

Campus: Mar 6 – Apr 3, 2018 | T, Th | 5:30 – 8:30 pm

Online: D2318012

Also a core course for the Project Management Certificate

MODELING & SIMULATION CERTIFICATE

CHOOSE 4 OF THE FOLLOWING 5 COURSES:

Take 1 course or the complete 4-course certificate program.

Fundamentals of Modeling and Simulation

Gain an introduction to fundamental M&S terminology and concepts. Review model types and modeling methods to understand how simulations work. Survey typical and emerging M&S applications. Study in depth important M&S paradigms. Includes developing simple simulations.

M. Petty, 14 hrs, \$895

Online: D2318003

Developing Simulations

Explore the challenges of real-world simulation development and how to plan for large-scale projects with this hands-on simulation building course. Explore modeling approaches including stochastic and physics-based modeling, and artificial intelligence. Delve into simulation techniques, engines, languages, and design features. **Prerequisite:** 'Fundamentals of Modeling and Simulation' or a background in modeling and simulation.

R. Alexander, 14 hrs, \$895

Online: D2318004

Simulation Verification, Validation, and Accreditation

A range of verification and validation (V&V) methods including informal, static, dynamic, and formal methods are described, and guidelines for selecting the best method for a given model are discussed. Specific procedures for performing important V&V methods and interpreting their results are explained.

M. Petty, 14 hrs, \$895

Online: D2318005

Systems Analysis, Modeling, and Simulation

Cover the analytical methods that, with tests, provide the basis for systems validation and verification processes and procedures. Build your skill base for development of systems models, integration of component models into a systems model, and model-based and hardware-in-the-loop simulation.

J. Little, 14 hrs, \$895

Campus: Nov 6 – 7, 2018 | T, W | 8:30 am – 4:30 pm

Online: D2318008

Also a core course for the Systems Engineering Certificate



Dr. Petty is second to none. I completely enjoyed his teaching method and presentation of the material.

NEW Monte Carlo Simulation

Monte Carlo Simulation is a powerful method that uses probability distributions to simulate many types of systems. It uses randomness to explore the range and likelihoods of possible outcomes and produces results that vary from run to run. Learn two types of Monte Carlo simulation: Stochastically (randomly) and fixed. In both, randomness is generated using probability distributions selected and parameterized to model the actual variability present in the scenario or system being modeled.

Prerequisite: *Some background in probability or statistics and MS Excel is recommended. Examples will be given in both Excel and R.*

M. Petty, 14 hrs, \$895

Campus: Jun 12 – 13, 2018 | T, W | 8:30 am – 4:30 pm

Online: Coming Spring 2018

Ways to Register

ONLINE

PCS.uah.edu/PDSolutions

PHONE

256.824.6010 or 800.448.4031,
8:15 am – 5 pm (CST), M – F

IN PERSON

UAH College of Professional
& Continuing Studies,
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**For policies, course info,
and instructor bios, visit
PCS.uah.edu**



FEATURED INSTRUCTORS:

DR. MIKEL PETTY is the Director of the UAH Center for Modeling, Simulation, and Analysis. He has worked in modeling and simulation research and development since 1990 in areas that include simulation interoperability and composability, computer generated forces, multiresolution simulation, and verification and validation methods. Dr. Petty has published over 175 research papers and has been awarded over \$15 million in research funding. He served on a National Research Council committee, is a Certified Modeling and Simulation Professional, and is an editor of the journal *SIMULATION*.



THE UNIVERSITY OF
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COLLEGE OF PROFESSIONAL
AND CONTINUING STUDIES

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