National Alliance of Community and Technical Colleges

VICISSITUDE

A REFEREED JOURNAL FOR COLLEGE LEADERS

Volume 2
Number 2
July 2010

VICISSITUDE is sponsored by the

National Alliance for Community and Technical Colleges

(NACTC)

Publishing and printing of the journal is paid for by

Florida State College at Jacksonville

www.fscj.edu

Best Practices

Florida's Unified Curriculum Model for Engineering Technologies

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The Florida Advanced Technological Education (FLATE) Center's review and reform of the statewide Curriculum Frameworks has redefined the manufacturing and related technologies curriculum in Florida at the state level. Working with the Florida Department of Education's Adult and Career Education team, Florida community colleges, and Florida industries, FLATE has recently completed the first phase of this project. The new A.S. / A.A.S. degree program in Engineering Technology (ET) with eight specialization tracts and 13 specialization certificates was approved by the FL DOE in March 2007.

The premise of this degree is a "one-plus-one" approach where in year one a student takes general education courses and a technical core curriculum that aligns with the Manufacturing Skills Standards Council (MSSC) Certified Production Technician (CPT) credential. The 18 credit hour "ET Core" covers introductory computer aided drafting, electronics, instrumentation and testing, quality, safety, and processes and materials. Year two of this degree focuses on a specialization tract. Each college adopts one or more of the specialization tracts and certificates depending on their local industry needs. The currently approved (FLDOE) tracts are: Advanced Manufacturing, Advanced Technology, Alternative Energy Systems, Electronics, Mechanical Design & Fabrication and Quality, Digital Design and Modeling, Biomedical Systems. Nine community colleges have adopted the new degree as of June 2010, and several others have recently started their own internal curriculum processes to get the degree program approved for offering in 2010.

This 2-year Engineering Technology degree is part of a much larger statewide unified curriculum project that reaches the high school

technology programs and career academies, incumbent worker training, and bachelor degree programs. Embedding the MSSC Skill standards into the ET Core provides an industry-relevant articulation pathway from secondary programs that address these same industry skills. It also provides a pathway for incumbent workers to gain college credit by experience through certification. To accomplish these articulations, FLATE has crafted the first-of-its-kind Statewide Articulation Agreement based on an Industry Certification. This statewide agreement based on industry certification now serves as a model for other career and technical programs.

To ensure the success of this unified curriculum plan, FLATE, in partnership with the FLDOE, also drafted a new curriculum framework for secondary and PSAV programs that align with the MSSC CPT. FLATE is currently aligning other secondary programs with the MSSC certifications. FLATE also provides support for colleges, including Hillsborough Community College, during their institutional adoption and implementation phase, as well as a comprehensive statewide promotional and recruitment campaign for the unified curriculum.

All Engineering Technology Associate in Science (A.S.) Degree holders can transfer to a number of Florida Bachelor's of Applied Science (B.A.S.) Degrees. A 2 + 2 articulation applies 60 credit hours of an A.S. Degree to a B.A.S degree. Additionally, A.S. degrees in Engineering Technology will articulate to the B.S.A.S. in Operations Management at USF Polytechnic as well as B.S. degrees in various engineering technologies (B.S.E.T.). There are additional academic requirements for both the B.S.A.S and the B.S.E.T degrees.

FLATE serves the entire state of Florida and is one of over 37 Advanced Technological Education (ATE) Centers funded by the National Science Foundation (NSF) to enhance and promote the technician workforce for advanced technologies in the United States (grant # 0802436). FLATE's leadership is a partnership among Hillsborough Community College, St. Petersburg College, and the University of South Florida's College of Engineering.

A.S. / A.A.S. Engineering Technology Degree
Specializations and related Certificates

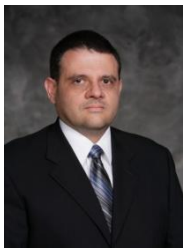
Specialization	Certificates	Credit Hrs
Advanced Manufacturing	Automation Lean Manufacturing Pneumatics, Hydraulics & Motors for Manufacturing	12 12 12
Advanced Technology	Applied Technology Specialist	16
Alternative Energy Systems	Alternative Energy Systems Specialist	18
Biomedical Systems	Medical Quality Systems	12
Digital Design and Modeling	Computer Aided Design and Drafting	12
Electronics	Electronics Aide	12
Mechanical Design & Fabrication	CNC Machinist Computerized Woodworking	12 12
Quality	Lean Six Sigma Green Belt Six Sigma Black Belt	12 12
Non-specific:		
ET Core (MSSC CPT aligned)	Engineering Tech. Support Specialist	18

The ET Curriculum Frameworks and supporting documentation and the statewide articulation agreement are posted at www.fl-ate.org/projects/degree-reform.html. *Information about the specific degree programs at Florida colleges can be found at:* www.madeinflorida.org/ET_degree.

About the Authors

Dr. Marilyn Barger is the Principal Investigator and Executive Director of FLATE, the Florida Regional Center of Advanced Technological Education, funded by the National Science Foundation and housed at Hillsborough Community College in Tamper, Florida since 2004. She earned a B.A. in Chemistry at Agnes Scott College and both a B.S. in Engineering Science and a Ph.D. in Civil Engineering (Environmental) from Scott College and both a B.S. in Engineering Science and a Ph.D. in Civil

Engineering (Environmental) from the University of South Florida, where her research focused on membrane separation science and technology for water purification. She has over 20 years of experience in developing curricula for engineering and engineering technology for elementary, middle, high school, and post secondary institutions, including colleges of engineering. Dr. Barger serves on several national panels and advisory boards for technical programs, curriculum and workforce initiatives, including the National Association of Manufacturers Educators' Council. She is a registered professional engineer in the State of Florida, a Fellow of the American Society of Engineering Education, and charter member of the University of South Florida's Academy of Inventors.



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