

Systems Engineering Education Initiative at Georgia Tech

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ABSTRACT

Systems engineering education for mid-career professionals in the Federal government has received increased emphasis in recent years. To meet the need expressed by senior government managers, Georgia Tech Research Institute, in concert with the Georgia Tech Distance Learning and Professional Education Department is developing a Professional Master's Program. This program will combine academic courses and a practicum to enable the mid-career professional to lead and implement programs using the proven tools of Systems Engineering.

1.0 Introduction.

The Georgia Institute of Technology is creating a professional master degree and certificate program in systems engineering. This is a collaborative effort between the College of Engineering, the Georgia Tech Research Institute, and the Office of Distance Learning and Professional Education. This presentation will provide a description of the need, the degree and the certificate, their unique features and the roll out schedule

1.1. The Need

DOD has renewed emphasis on Systems Engineering because of the current situation, characterized by retiring Systems Engineers with inexperienced replacements, and lack of systems thinking and systems engineering. At the same time, systems are getting more complex, mistakes are more costly and technology is moving faster so upgrades must be planned into the overall life cycle

Beyond the government, industry wants a systems approach in all sectors – defense, sensors, and textiles. Unfortunately, many current systems integrators lack an enterprise perspective.

1.2 The Objective

- Achieve an internationally renowned effective Complex System Engineering education graduate level program
- Promote an innovative interdisciplinary graduate education for engineering approaches melding theory and experience
- Advance Systems Engineering thinking and practice further into the technological future
- Contribute to Georgia Tech's goals now and in the future
- Anticipate and address needs of key stakeholders

1.3 The Initiative

This program will:

- Promote an innovative interdisciplinary graduate education for engineering approaches melding theory and experience
- Advance Systems Engineering thinking and practice further into the technological future
- Contribute to Georgia Tech's goals now and in the future
- Build on and extend core strengths
- Anticipate and address needs of key stakeholders

1.4 Details

Features of the proposed program are:

- Graduate level certification in Sys Engineering to meet Defense customer requirements
- Professional or Executive Masters in Systems Engineering, or Engineering Systems
- Short courses in specialization areas based on customer input
- Blended learning
- Distance learning courses
- On-site courses
- Academic and Industrial Advisory Groups to improve programs and courses

2.0 Program Descriptions

Two levels of education will be offered. The Professional Masters in Systems Engineering will comprise

- 30-36 hours (30 recommended)
- 1 yr FT graduate level
- 2 yr PT graduate level
- 6 core courses plus electives

The certificate program will include

- 12-18 hours
- 4-6 courses
- Additional focus area certificate options

3.0 Admission Requirements

Our prospective students will have

- Minimum 5 years experience
- No standardized test required
- Basic hard science Bachelor's, i.e. math, chemistry, physics, engineering, biology, computer science, architecture, etc
- 3 letters of recommendations

4.0 Current Status

This proposed program, like all academic programs within the University system, must follow the Georgia Tech and Board of Regents process for credit approval. We have just begun the process and must obtain, sequentially, approval from the schools and colleges involved, the Faculty Senate, the Provost and the Board of Regents. This process is essential to ensure the academic rigor and quality of the program. We anticipate that we will offer the certificate program in Atlanta in Spring 2006 with the degree program offered in Atlanta by Spring 2007. Eventually, we intend to offer both certificate and degree programs at off-site locations.