

External Review  
*for*

The Department of Technology Systems  
College of Technology and Computer Science  
East Carolina University

Submitted by

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# Department of Technology Systems

## Introduction

The review team visited the E. C. U. campus on September 10-11, 2012. A tour of the campus and laboratories was conducted. Meetings were held with the University stakeholders including administrators, faculty, staff, students and external constituents. A complete list of participants can be found at the end of the document. The members of the visiting team reviewed the Department of Technology Systems (TSYS) Self-Study Report, faculty credentials, curriculum materials, budget documents, samples of student work, and toured the facilities.

The review team was comprised of:

- Ronald Woolsey, Ph.D.  
Professor & Program Coordinator, School of Technology, University of Central Missouri  
Dr. Woolsey has many years of experience in technology both in higher education and as an engineering manager in the private sector. He is a Certified Senior Technology Manager and a member of the American Society for Quality, Society of Manufacturing Engineers and the Association of Technology, Management, and Applied Engineering. Recent national awards include Innovative Excellence in Teaching, Learning, and Technology and Outstanding University Professor.
- Ghaith Rabadi, Ph.D.  
Associate Professor, Engineering Management and Systems Engineering, Old Dominion University  
Dr. Rabadi is a faculty member of ODU's Engineering Management and Systems Engineering, which is a graduate program with an undergraduate minor program. He served as a Graduate Program Director between 2007 and 2010. He has a B.Sc., M.Sc., and Ph.D. in Industrial Engineering. His teaching areas include Supply Chain Management and Logistics, Operations Research, Process Modeling and Simulation, and Applied Optimization. His research areas include Planning and Scheduling, Modeling and Simulation, and Applied Optimizations.
- Paul Schwager, Ph.D.  
Associate Professor of MIS & Associate Dean, College of Business, East Carolina University  
Dr. Schwager has experience with technology program/curriculum development from a business perspective. He has worked collaborative with TSYS on several occasions and has watched the TSYS curriculum develop through his previous roles on the University Curriculum Committee.

## 1. Program Overview

Listed below are the program areas reviewed. Within the College of Technology and Computer Science this unit is included as a Department of Technology Systems with five bachelors, two masters, four certificates, and one doctorate of philosophy consortium degree program.

1. BS in Design

2. BS in Industrial Distribution and Logistics
3. BS in Industrial Engineering Technology
4. BS in Industrial Technology
5. BS in Information and Computer Technology
6. MS in Occupational Safety
7. MS in Technology Systems
8. Computer Network Professional Certificate Program
9. Information Assurance Certificate Program
10. Lean Six Sigma Black Belt Certificate Program
11. Website Developer Certificate Program
12. PhD in Technology Management—consortium degree granted by Indiana State University

The department consists of diverse group of faculty members with a complex set of skills and competencies. There are 32 faculty members (11 Teaching Instructors, 8 Assistant Professors, 9 Associate Professors, and 4 professors). So this is not a typical academic department. Faculty credentials are appropriate for the individual programs and the diversity of the industrial experiences is a value added component. The mix of tenured, tenure track and teaching faculty may be appropriate but with one-third of the faculty on yearly contracts and the other two-thirds of the faculty still facilitating uncounted laboratory assignment the research expectations may need to be reconsidered. The University support for faculty development has been outstanding and must continue to keep constituents abreast with innovation and the changing global competitive environment.

Student enrollment appears to be adequate but not evenly distributed among the individual programs, which is expected given the diversity of the programs and the nature of the discipline. Although many courses appear to be at or over capacity, it should be mentioned that several require multiple laboratories to accommodate student learning activities. This is a common problem in hands-on instructional environments, especially when no load numbers are attached to these duties. Industrial representative indicated that students enter their companies very well prepared to join the workforce.

Curriculum and Instruction is well organized in scope and sequence, and student outcomes are clearly stated. The programs continue to integrate new technology into the various courses but this essentially requires yearly updates to digital and hardcopy instructional materials. It should be noted that due to the dynamic and evolving nature of the discipline of technology, courses must be treated as new preparations on a yearly basis. This is quite different from some other traditional disciplines where curriculum stays almost the same over time. Ultimately this adds to the faculty member's load.

The BS in Design (Architectural and Mechanical), Industrial Distribution & Logistics, Industrial Technology, and Information & Computer Technology (Computer Networking, Information Security, and Information Technology) last met the accreditation standards for the Association for Technology, Management, and Applied Engineering in 2007. These programs have achieved continuous approval since 1985. The BS in Industrial Engineering Technology and the MS in Technology Systems are scheduled for accreditation visits in 2013 and the MS in Occupational Safety is moving toward ABET accreditation in 2014.

Research is appropriate to the discipline although may be somewhat less than counterparts in relatively static curricular areas. The laboratory component of many of the courses is not reflected in the faculty load and greatly affects the tenured faculty's ability to participate in all three areas of service, research and teaching.

Facilities are state of the art and well maintained. The ability of the department to solicit and receive external support for equipment and facilities is essential for this area to keep up with technological change.

## 2. Program Strengths

A strength repeated by the department stakeholders is its ability to adapt quickly to the fast changing discipline of technology systems. Other strengths include:

- Staff, faculty, students and administrators emphasized that a strength of the program is the people they work with and leadership is supportive as well as collegial
  - Everyone including Teaching Instructors feel they are a part of a bigger team (rank is not a factor).
  - Student's mentioned the importance of the industrial experience of their instructors
  - Students liked the communications within the department
- There is a sense of engagement at all levels
  - The department does a good job of tracking their graduates and their place of employment
  - Outreach programs have continued success with funding and equipment support from the private sector industries.
  - Excellent graduate placement and industrial connections
  - External contacts pointed out that ECU Technology graduates were better prepared to enter the workforce than their counterparts from other institutions in the area.
- Innovative programs in a rapidly changing environment
  - Online availability is a strength of the program
  - Outstanding facilities including technology, distribution, manufacturing laboratories, and distance education infrastructure
  - Systemic virtualization of labs is in particular impressive and adds a significant value
- The faculty shows a strong commitment to the program and willing to do whatever is needed to succeed

## 3. Program Challenges

Several challenges to the success of the programs were identified as areas for improvement including:

- The large variety of courses tends to spread the faculty over too many courses
- Twelve programs with 32 faculty members is hard to sustain
- A lack of a permanent chair
- Lack of coordinator's release time or compensation
- The departments role in the consortium PhD program is not well defined

- Faculty are not rewarded or compensated for the consortium PhD activities
- A lack of visible presence on campus
- The faculty understands the value of research but current infrastructure and incentives are inadequate
- The departments identity is found in the individual programs
  - Perceived overlap with other units in the college
- Class size and laboratories are not formally factored into faculty workload
- Fast pace of technological change
- Lack of instructional design support

#### 4. Recommendations for Improvement

- A clearly defined departmental vision
  - Hire a permanent chair to guide future direction and unify faculty
  - Doing a better job with marketing and targeted recruitment with a clear set of goals
  - Define the department's top "areas of excellence" on which departmental resources can be focused.
  - Better alignment of the departmental research goals to the University's
  - Developing a five year departmental strategic plan with annual operational program specifics
- Develop a research "culture"
  - Participating in the consortium-based Ph.D. program led by Indiana State University is a good opportunity for the department to conduct research since it does not have its own program and ECU benefits from the student credit hours. However, what is missing is some incentive for the faculty to serve on committees and to advise students. This can be in terms of loading, or recognition of some sort. Furthermore, Ph.D. fellowships may be an opportunity to support faculty research; however, funding will be an issue that must be studied and secured.
  - The tenure track faculty members are currently given 3/3 loads so they can pursue a research agenda. However, with large classes that require labs, teaching courses in an online environment, expectation to conduct research and industry outreach, and serve on committees, the faculty can use a bit more release time to do such activities in addition to pursuing grants and publications. The release time can be tied to specific annual goals and expectations of the faculty members to advance their career as well as the department's mission especially if ECU is trying to position itself more as a research-oriented university.
  - More presence of on campus (face to face) graduate students on campus to help with research. This however requires the allocation of resources and tuition grants allocated by the graduate college. The department should develop a plan to support their requests for more graduate student support from the university.
  - Data for the PhD consortium program needs to be disseminated to the normal graduate office communications
  - Define targets for the faculty to sustain the program and grow the research agenda.
  - The department needs grant support to increase quality and quantity of submissions.

- A more formalized promotion and tenure process is needed. More mature tenure process with college and university committees established is recommended to be implemented at ECU including the department and the College of Technology and Computer Science. As for the department:
  - The mentor program is a promising start
  - The current FAR and PAD process for faculty evaluation is a positive step to formalizing the P&T process
  
- Re-visit the organizational structure
  - Permanent Chair
  - Compensation/release for program coordinators especially for programs with high enrolment. With several programs currently in place, several coordinators are needed and therefore compensating them may pose a challenge for the department
  - Program Mergers or realignment. The department has a few more programs than most typical department. Due to nature of the discipline, it is expected to more programs than in traditional departments; however it seems that some reorganization can make the department easier to market and manage. Based on the department's self-study, some programs have low enrollment and the faculty should evaluate whether it is meaningful to reorganize some of the programs not only based on enrollment but also based on the strategic goals of the department and the top areas of excellence that the department wants to focus on.
  - College level conversation to articulate synergy between departments
  
- Resource allocation
  - Graduate assistantships/research fellows are needed if the University wants more research out of the department. This however requires the department to develop proposals to the Graduate College that demonstrate their plans to reach specific goals and the resources (stipends and tuition) necessary to achieve these goals.
  - Lab based courses need to be revisited to determine faculty loads. Laboratory meetings need to be integrated into the faculty load calculations
  
- Develop university level metric for measuring impact of outreach/engagement. This will be important for the department, the college and university. The department will benefit tremendously from demonstrating their value added by measuring the impact on the community. The department seems to have already done some work in developing such metrics which can be utilized

# Department of Technology Systems

**September 10, 2012**

## **Administrative Staff**

Teresa Martin  
Kelly Bass

## **Undergraduate Students**

Chad Quinn - IDIS  
Jamie Bertman - RCLS  
Bennette Atwill - CMGT  
Gabriela Biondi - IDIS  
Jonathan Williams - CMGT  
Stephen Beaman - CMGT  
Dayvee Daniels - IDIS  
William Pate - BSIT  
Clay Kobeda - ITCN  
Raeshon Reid - ITCN  
Jasmine Robbins - RCLS  
Bryan Snyder - BIOL  
John Cochran – BIOL  
Kaytiana Crane –  
Jake Smith –  
Ryan Mackenzie –

James Hoover – ITCN  
Jawad Dughmush - ITCN  
Matt Schurtz –  
Kyle Oliver – IDIS  
Katlin Porich –  
Warren Harvey – CMGT  
Kimberly Boltinhouse – RCLS  
Dan Mills - BSIT

## **Internal Constituents**

Rickey Hicks – Dept of Chemistry  
Katherine Swank – Dept of Interior Design &  
Merchandising  
Evelyn Brown – Assoc Dean & Professor  
Engineering

## **External Constituents**

Wendy Marlowe – Nash Community College  
Chris Eckhardt – Keihin Carolina System  
Technology

**September 11, 2012**

## **Tenured Faculty**

Charles Leske, Jr – ITCN  
Te-Shu Chou – ITCN  
Carolyn Dunn – BSIT  
Richard Monroe – IDIS  
Kanchan Das – IENG  
Janet Sanders – IENG  
Hamid Fonooni – MSOS  
Peng Li – ITCN  
David Batts – BSIT & MSOS  
Barry DuVall – BSIT, IDIS, & MSTS  
Andrew Jackson – IENG  
Merwan Mehta – IENG & MSTS  
Robert “Bob” Chin – DESN  
Leslie Pagliari – IDIS & MSTS  
Eron OZan – ITCN & MSTS

Phil Lumstord – ITCN

## **DE Online Graduate Students/Assistants**

Dylan Hardison  
Amzie Hoffner  
Christopher Soles

## **Face to Face Graduate Students**

Michelle Glasgow  
Ronan McAleenan  
James Bissette

## **Fixed Term/Part-Time Faculty**

Sandra Tuind – IDIS  
Mark Angolis – IDIS

Ranyect Agarweds – BSIT, DESN, & IENG  
Amy Frank – BSIT, DESN, & IENG  
Leonard Palmer – IENG  
John Jones – BSIT  
Biwu Yang – ITCN  
Lee Toderick – ITCN  
Jeanne- Larie Lawrence – IDIS  
Melinda Doty – BSIT  
Steve Baker – BSIT

John Pickard - IDIS

**Graduate & Undergraduate Coordinators**

David Batts – BSIT  
Phil Lunstord – ITCN  
Erol Ozan – ITCN & MSTs  
Robert “Bob” Chin – DESN  
Richard Monroe – IDIS & MSTs  
Hamid Fonooni - MSOS