

Work In Progress – Developing an Individualized Life-Long Learning Plan for Junior Electrical and Computer Engineering Majors

Michael Elmore

Engineering Design Division

James Constable

Electrical and Computer Engineering Department

BINGHAMTON
UNIVERSITY
STATE UNIVERSITY OF NEW YORK

Thomas J. Watson
School of Engineering
and Applied Science

- **Introduction**
- **Setting Goals**
- **Life-Long Learning**
- **Individualized Life-Long Learning Plan (ILLP)**
- **Conclusion**

- **Introduction**
- **Setting Goals**
- **Life-Long Learning**
- **Individualized Life-Long Learning Plan**
- **Conclusion**

INTRODUCTION

**ENGINEERING DESIGN DIVISION
ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT
BINGHAMTON UNIVERSITY**

- The Accreditation Board for Engineering and Technology (ABET), now ABET Inc., adopted Engineering Criteria 2000 (EC2000) in 1997.
 - Revolutionary because focus was on what is learned rather than what is taught

- In response the Electrical and Computer Engineering Department in the Thomas J. Watson School of Engineering and Applied Science at Binghamton University State University of NY approved a new course:
 - EECE 382 - Electrical and Computer Engineering Seminar II

- The intent was to consolidate topics across several courses to better meet Outcomes a – k listed under Criteria 3 of EC2000.
- Outcome (i) a recognition of the need for, and the ability to engage in life-long learning was one topic of EECE 382.
- Our paper addresses how we introduced students to the idea of life-long learning by means of an *Individualized Life-Long Learning Plan (ILLP)*.

- Introduction
- **Setting Goals**
- Life-Long Learning
- Individualized Life-Long Learning Plan
- Conclusion

SETTING GOALS

**ENGINEERING DESIGN DIVISION
ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT
BINGHAMTON UNIVERSITY**

- Needy [Ref. 1] discusses how organizations develop a vision, goals, and objectives and the strategies required to achieve success meeting these items.
 - Her students develop a personal mission statement with both life and career goals.
 - They are asked think about how they will maintain their technical skills in support of their career goals

Life Goals

In EECE 382 students are asked to take to write down three life goals.

Students are invited to share them during class discussion, but not required.

These are private and are not collected.

However, they will form the basis for recording three career goals, which will be part of their assignment.

Career Goals

- Introduction
- Setting Goals
- **Life-Long Learning**
- Individualized Life-Long Learning Plan
- Conclusion

LIFE-LONG LEARNING

**ENGINEERING DESIGN DIVISION
ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT
BINGHAMTON UNIVERSITY**

- **Parkinson [Ref. 2] provides a good summary of the behavior and attitudes of a life-long learner. These are discussed with our students:**

- **Focusing on learning instead of grades**
- **Managing your education**
- **Performing a self-assessment**
- **Addressing weaknesses**
- **Knowing how to learn**
- **Conducting research**
- **Solving design problems**
- **Learning outside the classroom.**



Ref. 3

- Introduction
- Setting Goals
- Life-Long Learning
- **Individualized Life-Long Learning Plan**
- Conclusion

INDIVIDUALIZED LIFE-LONG LEARNING PLAN

ENGINEERING DESIGN DIVISION
ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT
BINGHAMTON UNIVERSITY

The Individualized Life-long Learning Plan (ILLP) consists of the following elements:

- 1. A list of your three career goals**
- 2. A statement of where you are today**
- 3. An assessment of your strengths and weaknesses**
- 4. Steps you can take to bridge to your career goals**

- **A list of your three career goals might include:**
 - **Become a manager at an information technology company**
 - **File for and obtain three patents**
 - **Enjoy my job and look forward to going to work each day**
 - **Design a new power system for a commercial jet**
 - **Get my Professional Engineering license**
 - **Earn a Master of Engineering degree before my 30th birthday**
 - **And many, many others....**

- **A statement of where you are today might include:**
 - **Transcript**
 - **Resume**
 - **Portfolio**
 - **Swizzle¹**
 - **Other**

¹A one page description of yourself that acts as an introduction to a prospective employer.

- **An assessment of your strengths and weaknesses might include:**
 - **What motivates you?**
 - **How well do you manage your time?**
 - **How well do you work with others?**
 - **How well do you write and present?**
 - **How quickly do you learn a new software tool?**
 - **Are you a hands-on type of engineer or more theoretical or both?**
 - **Do you like design work or some other aspect of engineering?**

- **Steps you can take to bridge to your career goals might include:**
 - **Finish my undergraduate engineering degree with a 3.0 or higher GPA**
 - **Get an internship at computer company**
 - **Study for and take the Fundamentals of Engineering Exam**
 - **Learn a foreign language**
 - **Get a teaching assistantship as I work toward my master's degree**

- Introduction
- Setting Goals
- Life-Long Learning
- Individualized Life-Long Learning Plan
- **Conclusion**

CONCLUSION

**ENGINEERING DESIGN DIVISION
ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT
BINGHAMTON UNIVERSITY**

- Introduction
 - Motivation for the ILLP
- Setting Goals
 - Life and career goals
- Life-Long Learning
- Individualized Life-Long Learning Plan (ILLP)
 - Four components
 - Student example



Ref. 3

Any questions?

1. Needy, Kim, “Implementing a Societal Context, An Appreciation for Life-Long Learning, and Contemporary Issues into an Engineering Management Course”. In *Frontiers in Education Conference*. June 18-22, 2006. *American Society for Engineering Education Annual Conference Proceedings*. Chicago, Illinois.
2. A. Parkinson, “Developing the attribute of lifelong learning,” *29th ASEE/IEEE Frontiers in Education Conference*, pp. 11a1-16 to 11a1-20, San Juan, Puerto Rico, Nov. 10 – 13, 1999.
3. Jeff Pigeon, a former student of the presenter and currently voice actor, writer and animator at Pixar Animation Studios (<http://www.jeffpidgeon.com/>)