

FLORIDA ATLANTIC UNIVERSITY
Department of Computer & Electrical Engineering and Computer Science

ANNUAL FACULTY EVALUATION 2010-11
ACADEMIC/RESEARCH PLAN FOR 2011-12

Name and Rank: Daniel Raviv, Professor

Date: April 21, 2011

Department and College: Computer & Electrical Engineering and Computer Science
 College of Engineering and Computer Science

A. Teaching

- Please list all the courses taught during each semester and include results of the course evaluations.**

COURSES TAUGHT	Number of students responded	Percent responded	Overall rating of the Instructor (In new forms: Quality of Instruction (#20) and Rating of the instructor (#21))
Summer 2010 courses (NO COURSES TAUGHT AT FAU)	n/a	n/a	n/a
Fall 2010 courses Control system 1 EEL4652BocaRaton EEL4652Distance learning Intro to Creativity EGN3935BocaRaton EGN2935BocaRaton EGN3935BocaRaton	11 1 13 5 4	45.8% 16.7% 86.7% 38.5% 80%	Q20, Q21: 1.45 Q1 to Q8: rating: 1 (Q20,Q21 not available) Q20: 1.62 Q21: 1.77 Q20: 1.80 Q21: 2.00 Q20: 2.00 Q21: 2.25
Spring 2011 courses Introduction to Creativity EGN2935/EGN3935 Control Systems 2 EEL4930 and EEL5654	Unavailable yet	Unavailable yet	Unavailable yet

Please see attached copies of “Student Perception of Teaching” summary forms for each class.

2. Master's Degree Committees

a) Number of master's degree committees chaired to completion: **1**

List student names: Eiki Martinson

b) Number of Master students currently supervised: **1**

List student names: Brandon Moore

c) Participation in master's degree committees: **3**

Waazim Reza (CEECS) (Graduated December 2010)

Sagar Aghera (CEECS) (Expected graduation Summer 2011)

Reena Friedel (CEECS) (Expected graduation Spring 2012)

Other Instructional Activities at FAU

New courses

- Developing a new interdisciplinary course (EEL4930/EEL5934) “**Innovative Product Design.**”

This new hands-on course aims at teaching students the art and science of designing and prototyping products and services that are designed for the end user. It touches topics from all engineering disciplines, art, etc.

The course is designed to attract non-engineering disciplines as well.

- Developed and taught a course (EEL4930/EEL5654) “**Control systems 2.**”

This course provides a broad perspective of control topics to engineering students. Topics include: Modeling and sensors review; Design review; Digital control; Fuzzy logic; Sliding mode control; Swarm behavior; Predator/prey self control; and System of systems.

- Preparing a special course for the Honor College at FAU on **Innovation and Creativity.**

Instructional Activities at Other Institutions

- .”Innovative Thinking,” ENES412, short course for high school students, University of Maryland, summer 2010.

An e-mail (7/30/2010) from Rakesh Gopal, MBA, PMP®, CHIEP Project Manager, IBM Global Business Services: “It was indeed a pleasure to have you as Gaurav Gopal's first college professor. He spoke highly of you and my sincere thanks for conducting a highly interactive and educational course that focuses on innovative thinking & creativity, a must for technology heavy curriculum at Universities.”

B. Research and Other Creative Activities (from May 1, 2010 – May 1, 2011)

1. List all publications during the last calendar year:

Book by Daniel Raviv

“Everyone Loves Speed Bumps, Don’t You? A Guide to Innovative Thinking.”

ISBN-13: 978-0615479880

ISBN-10: 061547988X

Executive summary

This guide to innovative thinking is a unified approach that builds on comprehensive problem solving knowledge from industry, business, marketing, math, science, engineering, technology, arts, and daily life. It is based on an eight dimensional methodology that approaches problems systematically, and stimulates innovation by quickly generating unique “out-of-the-box” unexpected and high-quality solutions. The combination of people’s knowledge and experience with this new thinking tool is a very promising one. The methodology provides top leaders, managers, and problem solvers with new insights and thinking strategies to solve everyday problems they face in the workplace.

Refereed Journals

- (Authors listed in alphabetical order) M. Gonzalez, L. Klingler, S. Moosai, and D. Raviv, “Taking a College Algebra Course: An approach which increased students’ success rate,” PRIMUS, accepted for publication.

Submitted to Refereed Journals (or in preparation)

- D. Raviv, B. Moore, and E. Martinson, “From Idea to Market: A Case Study for Sustainable Innovation,” **submitted** to the Journal of Engineering Entrepreneurship.
- D. Raviv, “Teaching Hands-on Inventive and Innovative Problem Solving,” Journal of Engineering Education. (in preparation)
- D. Raviv, B. Moore, and E. Martinson, “An innovative water distillation process,” Desalination Journal, (in preparation)

Refereed Conference Proceedings

- D. Raviv, and D. Barbe, “Ideation to Innovation (I2I) Workshop,” National ASEE Conference, Louisville, KY, June 2010
- D. Raviv, and D. Barbe, “Ideation to Innovation (I2I) - An Interactive Educational Program,” abstract accepted for ICEE-2011 conference, iNEER network, Belfast, Northern Ireland, UK. August 21-26, 2011.

Patent

- Patent application, USPTO, “Safety Promoting Techniques for Mobile Communication,” January 2011

2. List all research grants during the last academic year:

Sponsored Research/projects

Funded Projects

- “A University-Level Initiative for Innovation and Entrepreneurship,” – Michael R. Levine, April 2011, **\$50,000**.
Part of NSF I/UCRC Center for Advanced Knowledge Enablement (CAKE) that provides a framework for interaction between the university faculty and students, and industry to pursue advanced research in the mentioned fields. A CAKE goal is to develop long-term partnerships between academia, industry and government that will feature strong industrial support and collaboration in research and education.
- “Spark: A University-Level Initiative for Innovation and Entrepreneurship,” – NCIIA, Received: Fall 2010, **\$7,500**.
- “Exploration of Technical Data,” – Relli Technology, Spring 2010, **\$25,000**. Extended for the second year, effective Spring 2011, for **additional \$25,000**.
Part of NSF I/UCRC Center for Advanced Knowledge Enablement (CAKE) that provides a framework for interaction between the university faculty and students, and industry to pursue advanced research in the mentioned fields. A CAKE goal is to develop long-term partnerships between academia, industry and government that will feature strong industrial support and collaboration in research and education.

Recent Proposals or in preparation

- “Discovery-based approach to teaching and learning parallel algorithms,” National Science Foundation, REESE program, 2010, more than **\$1,200,000 (Dr. Raviv, PI)**
- Proposal to Dept of Education: Problem Solving in Mathematics, PI: Dr. Goldwyn. Dr. Raviv is a Co-PI, in preparation
- “A Multi-nation collaboration on Innovative Product Design,” with Dr. Peer Sathikh, NTU, Singapore, to be submitted to NCIIA, May 2011, in preparation **(Dr. Raviv, PI)**
- A University-Level Initiative for Innovation and Entrepreneurship,” to be resubmitted to NCIIA, May 2011, in preparation **(Dr. Raviv, PI)**
- Proposal to Broward County School Board, with Ana Escuder and Joseph Furner (FAU), submitted for first feedback, \$17,000.
- Proposal to Motorola Education (PI: Dr. Zilouchian, CoPI: Dr. Raviv), in preparation.
- Education Proposal to Harris Corp. (PI: Dr. Zilouchian; not funded)

3. List participation in meetings of professional societies, special seminars, or other professional activities:

Conference Workshops (presented by D. Raviv)

- “On teaching and learning creative, inventive and innovative thinking,” 90-minute workshop, National Collegiate Inventors and Innovators Alliance (NCIIA) Conference, Washington, DC, March 2011

Conference/ Workshop Activities; National Committees

- Office Of Innovation and Entrepreneurship, Department of Commerce, Invited contributor to national vision, 2011
- Committee member, Intelligent Robots and Computer Vision XXIX: SPIE's Conference, Boston, MA, November 2011
- Program Chair Elect for the (National) American Society for Engineering Education (ASEE), the Entrepreneurship (ENT) Division, June 2010

- Committee member, Intelligent Robots and Computer Vision, Boston, MA, November 2010
- *Invited to the NSF PEER review panel on Education, REESE*, NSF, Arlington, Virginia, June 2010

Papers Reviewed

- Papers to ASEE ENT division 2003-present

Other

- Prepared a new industry/business questionnaire to explore interest in national innovation program, in collaboration with UMD, 2011
- Initiated a new collaboration between FAU and Holon Institute of Technology (H.I.T.) for bringing students and faculty to FAU (with the Office of International Programs, currently examining MOU's), 2010-
- Exploring a new collaboration between FAU and Ben Gurion University (BGU) for bringing students and faculty to FAU (with the Office of International Programs), 2010-

C. Service

1. List membership and chairmanship on all committees, indicating the time spent in each during last year:

College of Engineering Committees

- College Sustainability Committee, member, Spring 2010-

Electrical Engineering and CEECS Departmental Committees

- Ad-hoc committee, Departmental Strategic Planning Committee (4/2011- 5/2011)
- Digital and Image Signal Processing Committee/Group, (Fall 2009-)
- Teaching and Graduate Assistants Committee, (Fall 2009-)
- Students Affairs Committee, (Fall 2009-)

University Committees

- **SUS representative** to Florida-STEM initiative 2010-
- Chair, Innovation and Entrepreneurship Committee until 8/2010

2. List other service activities

Recent Presentations and visits

- Invited speaker, Holon Institute of Technology, Thinking in Eight Dimensions”, December 2010.
(Interviewed on the topic by a very respected Newspaper: Haaretz/ The Marker)
- Invited Speaker, Mtech, University of Maryland, “TRIZ” and “Ideation to Innovation”, November 19, 2010
- Invited Speaker, Walter Johnson High School, Rockville, Maryland, on “Hands-on

Creativity,” October 29, 2010

- Invited Speaker, National Institute for Standards and Technology (NIST), “Eight Keys to Innovation,” October 29, 2010
- Invited Speaker, International Incubator, Mtech, University of Maryland, “Innovation for Growth – Dealing with Change,” September 29, 2010
- Invited Keynote Speaker, Texas A&M at Kingsville, “Innovation” September 23, 2010

Local Community Service

- Invited Speaker, “Innovative Individual,” KEF group, Florida, June 2010

D. Other University Duties (where applicable):

Assistant Provost for Innovation and Entrepreneurship (including Summer 2010)

As the Assistant to the Provost for Innovation and Entrepreneurship, I oversaw related activities at the university level, including setting the vision and objectives, improving communications between colleges, exploring existing related programs and activities, planning interdisciplinary education experiences for students, faculty & businesses, and eventually covering/initiating a spectrum of programs/activities from ideation to commercialization. The work included exploring funds; preparing the stage for “proof-of-concept” laboratory; improving students’ related skills; planning for a university-wide certificate; and expanding beyond FAU borders, e.g., national workshops, and collaborations.

Included: latest resume

ACADEMIC/RESEARCH**PLAN FOR 2011-12****Present your academic plan:****(1) Plan to develop and offer new courses: title, semester, U or G**

- New interdisciplinary course (EEL4930/EEL5934) **“Innovative Product Design.”**
This new hands-on course aims at teaching students the art and science of designing and prototyping products and services that are designed for the end user. It touches topics from all engineering disciplines, art, etc.
The course is designed to attract non-engineering disciplines as well.

- Hope to teach a special course for the Honor College at FAU on **Innovation and Creativity**.

(2) Plan to develop online course: title, time schedule

Stochastic Processes and Random Signals (Fall 2011)

(3) Other creative activities relating to academics**Research plan:****(1) Funded projects and potential buy-outs**

Plan to work on the THREE currently funded projects.
Hope to attract more funding

(2) Ph.D. and Master students to be supervised

Hope to expand my supervision to more students.

(3) Potential publications (journal, conference, etc.)

Hope to publish at least 2 refereed publications (Please see submitted/ in preparation section)

(4) Proposals to be submitted (Tentative titles, Tentative amount, Agency/Industry, Your role (PI, Co-PI, etc.)

Continue to explore opportunities as PI and Co-PI for proposals (interdisciplinary, please see pending and “under preparation” lists of proposals)