Faculty Research, Scholarship, and Grantsmanship Reports

Board of Advocates
School of Engineering and Computer Science
Baylor University

April 25, 2008

Ken Van Treuren
Dean for Research and Faculty Development
Overview

• Activity Summary
• Proposals/Funded
• Conference and Journal Papers
• Research Concerns
  – Tenure and Promotion
  – Teaching Loads
  – Resources (Funding and Space)
Activity Summary

• Fall 2007
  – Information Gathering
  – NASA Technology Exchange Conference
    • Exploration Systems Mission Directorate
    • Presentation on Baylor ECS faculty and research interests
  – Research Bulletin Board
  – Baylor Advanced Research Institute (BARI)
    • Center for Composites
    • Center for Renewable Energy
    • Center for Avionics
  – Waco Aviation Alliance
Activity Summary

• Spring 2008
  – Texas Engineering Experimental Station (TEES)
  – Renewable Energy Academics Roundtable
    • Sponsored by Canada
    • Good Contacts
  – Grant Writing Seminar – May 8, 2008
    • Sponsored by the Department of Communication Studies
    • Six faculty will participate
  – Faith and Learning
    • Interviewed most engineering faculty
    • Paper to be presented at the Christian Engineering Education Conference
Assumptions

• Proposals / Funded
  – Data from Office of Sponsored Programs
  – Calendar Year
  – For Departments only NSF, NIH, or similar
  – “Other” is Scholarship Grants, NCIAA, or similar
  – Funding counted in year granted

• Papers (Conference and Journal)
  – Information from Synergy records
  – Journals and Conferences refereed
  – Other publications/professional contributions not included
Total Proposals and Funded Grants

School of ECS
Proposals / Funded

Proposals
Funded
Mechanical & Computer Science

ME Proposals/ Funded

<table>
<thead>
<tr>
<th>Year</th>
<th>Proposals</th>
<th>Funded</th>
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<tbody>
<tr>
<td>2005</td>
<td>$549,973</td>
<td>$15,361</td>
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<td>2006</td>
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Mechanical Average 2005-2007
Proposals: $549,973
Funded: $15,361
Percentage: 3

Comp Sci Average 2005-2007
Proposals: $602,614
Funded: $85,799
Percentage: 14

CS Proposals / Funded

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Electrical and Computer & Other

**Electrical and Computer Proposals / Funded**

- Proposals: $1,308,856
- Funded: $229,726
- Percentage: 18%

**Other Proposals / Funded**

- Proposals: $667,109
- Funded: $107,310
- Percentage: 16%

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Baylor University
Engineering
Computer Science
Total Conference and Journal Papers

School of ECS
Conference and Journal Papers

- Total
- Conference
- Journal

Papers

2002 2003 2004 2005 2006 2007
Computer Science Papers

![Graph showing Computer Science Papers from 2002 to 2007. The graph plots the number of papers published in total, at conferences, and in journals. The y-axis represents the number of papers ranging from 0 to 5, and the x-axis represents the years 2002 to 2007. The graph indicates fluctuations in the number of papers across the years.]
Research Concerns

• Tenure and Promotion
  – Five faculty eligible for Tenure (ECE and ME)
    • All approved by Departments and University Committee
  – Two granted tenure
  – Three were denied tenure
    • Reason – not sufficient research
      – Publications
      – funding
Russell W. Duren, Ph.D.
Associate Professor, Electrical and Computer Engineering

• Accomplishments
  – Funding $486,884
  – Proposals Pending $750,000
  – Three (3) Refereed Journal Publications
  – Nine (9) Refereed Conference Papers
  – Supervised 10 ECE Graduate Students (50% of ECE)
  – Contact hours/teaching 81% of a full teaching load

• RESEARCH INTERESTS
  – Avionics
  – Embedded systems
  – Computer architecture
  – Reconfigurable computing
  – FPGA design methodology
Randall Jean, Ph.D., PE
Associate Professor, Electrical and Computer Engineering

Accomplishments
• Four (4) Refereed Journal Publications
• One (1) Refereed Conference Paper
• One (1) Invited Conference Paper
• Two (2) Patents
• Supervised six (6) ECE Graduate Students
• Contact hours/teaching 98.6% of a full load
• $653,343 in Pending Proposals

RESEARCH INTERESTS
Microwave Applied Metrology
• Sensors for Biomedical Applications
• Industrial Sensors and Measurements
• Microwave Radiometry Applications
• High Frequency Electronics
Carolyn Skurla, Ph.D.
Assistant Professor, Mechanical Engineering

• Accomplishments
  – Four (4) Refereed Journal Publications
  – Five (5) Refereed Conference Papers
  – 13 Refereed Abstracts at Conferences
  – Contact hours/teaching 93.3% of a full teaching load
  – 14 Proposals made

• RESEARCH INTERESTS
  – Total joint replacements
  – Mechanical testing of engineering & biological materials
  – Degradation effects on properties of bone
  – Tissue welding of meniscus
  – Joint biomechanics
Erich J. Baker, Ph.D.
Assistant Professor, Computer Science

- EDUCATION
  - 2000, Ph.D., University of Tennessee
  - 1996, M.S., Barry University
  - 1994, B.S., University of Notre Dame

- RESEARCH INTERESTS
  - Graph-based biological data interfaces
  - Gene Network Analysis
  - Emergence of Phenotype from Genotype
  - Distributed Knowledge Systems
  - Systems Biology
David Sturgill, Ph.D.
Graduate Director, Associate Professor, Computer Science

• EDUCATION
  – 1996, Ph.D., Computer Science, Cornell University
  – 1993, M.S., Computer Science, Cornell University
  – 1989, B.S., Math and Computer Science, University of South Carolina

• RESEARCH INTERESTS
  – Parallel Computation
  – Automated Reasoning
  – Computer Graphics / Global Illumination
Research Concerns

• Attempt to understand new tenure expectations
• Refine Tenure and Promotion documents
  – Expectations in line with University
• Educate the Administration about engineering
  – Request for Reconsiderations letters
• More emphasis on Master’s Program/PhD (traditional research)
• Hire strategically (right discipline/overlap)
• Address the teaching requirements
  – Student enrollment increasing
  – Faculty numbers not increasing (may decrease)
  – Research faculty overloaded (2-2 ECS  1-1 Science)
• Resources
  – Space
  – Funding (travel)