CS Advisory Council Meeting
Computer Science Department
November 3, 2017

College of Natural and Behavioral Sciences
California State University Dominguez Hills

Mohsen Beheshti, Chair
http://csc.csudh.edu
<table>
<thead>
<tr>
<th>Time</th>
<th>Agenda Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 – 10:15</td>
<td>Welcome, introductions (Dr. Beheshti, Chair)</td>
</tr>
<tr>
<td>10:15 – 10:45</td>
<td>Overview of agenda items (Dr. Beheshti)</td>
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<tr>
<td></td>
<td>Computer Science Department, programs, goals</td>
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<td></td>
<td>New Courses</td>
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<td></td>
<td>Resources</td>
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<tr>
<td></td>
<td>Research</td>
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<td></td>
<td>Internships, research, Student Clubs, &amp; Competitions</td>
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<tr>
<td></td>
<td>Accreditation/ABET</td>
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<td></td>
<td>Cyber Security Center/Lab</td>
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<td></td>
<td>Toro-hack Conference April 7, 2018</td>
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<tr>
<td>10:45 – 11:15</td>
<td>Review and Approve of CSAC Mission Statement</td>
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<tr>
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<td>Organizing the next CSAC meeting</td>
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<td></td>
<td>CSAC Chair Election (CSAC members)</td>
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<td>Open Forum (CSAC members and CSC faculty)</td>
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<tr>
<td>11:15 – 12:00</td>
<td>ABET – Accreditation Agency (Dr. Marek Suchenek)</td>
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<tr>
<td>12:00 – 01:00</td>
<td>Lunch</td>
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<td></td>
<td>Short Presentations - Clubs</td>
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<td></td>
<td>ACM, IEEE, Cybersecurity, CAHSI</td>
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<td></td>
<td>CSRL, Cyber Security Team</td>
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<tr>
<td>01:00 – 01:30</td>
<td>Tour of CS department facilities</td>
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<tr>
<td>01:30 – 02:00</td>
<td>More on ABET Review</td>
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<td></td>
<td>Cybersecurity Center Survey</td>
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<td></td>
<td>(CSAC Members)</td>
</tr>
<tr>
<td></td>
<td>Wrap-up (CSC Faculty)</td>
</tr>
<tr>
<td>02:00</td>
<td>Adjourn</td>
</tr>
</tbody>
</table>
Interested → Graduated

November 3, 2017
CSA Council Meeting Fall 2017
Comp. Sci. Dept. / CSUDH
Overview

• Programs
• Goals
• Resources
• Area of Concentration
• Research
• New/Changes
• ABET - Review
• Student Activities
Comp. Sci. Dept. Programs

- **BS in Computer Science – BSCS**
  - Next ABET visit: Fall 2018
- **Master of Science in Computer Science – MSCS**
  - Software Engineering
  - Distributed System and Networking
- **Bachelor of Arts in Computer Technology – BACT**
  - Homeland Security Track
  - General Track
  - Professional Track
- **BS in Information Technology – BSIT**
  - Started Spring 2016
- **MS in Cyber Security – MSCY** (Pending Final Approval)
  - Fall 2018
- **Computer Science Certificate for High School Teacher**
  - (In Preparation)
- **Workforce Cybersecurity Certificate**
  - (In Preparation)
Computer Science Dept.

Programs in a glance
http://csc.csudh.edu/programs/

Enrollment/Graduation
http://csc.csudh.edu/student-enrollment-graduation/

Faculty
http://csc.csudh.edu/faculty/

Staff
http://csc.csudh.edu/staff-2/

Student Clubs
http://csc.csudh.edu/student-organizations/
Computer Science Dept. Goals

• Maintain Accreditation
  • ABET/CAC BSCS, BSIT (new)
  • NSA/DoD BACT-HLS

• Increase Interdisciplinary and multi-institutional Research Activities

• Offer new programs/Concentrations/Courses

• Maintain strong ties with industry partners
  • Internships, scholarships, etc.

• Increase articulation with CC’s

• Increase research activities with our students

• Continue to graduate Well Prepared Students to continue their higher education studies and/or enter the workforce
New Courses

Discrete Structure
Software Development
Compiler and Finite Automata
Cloud Computing – MS
Big data – MS

Penetration Testing
Enterprise Security
Advanced Gaming

System Engineering (spring 2018)
IT Architecture (fall 2018)
Area of Concentration

- Cyber Security
- Virtualization
- Sensor Networks
  - Data Mining
  - Big Data
  - Data Analytics
  - Data Science
- Curriculum Development
Research

- **Publications**
  - Faculty and student: papers, posters, and presentations

- **Grants**
  - CAHSI - NSF
  - LA Coalition – Cybersecurity Certificate
  - CAHSI-INCLUDES - NSF
  - Ignite CS - Google
  - S-STEM – NSF (Scholarship/pending)
  - SFS – NSF (Scholarship for Service/in preparation)

- **Centers**
  - Center of Excellence in Knowledge Management and Computational Science (CECS)
  - Center of Academic Excellence in Cyber Defense(CAE-CD) – in process

- **Labs**
  Security Lab, Big Data Lab, Forensic Lab
STUDENT ADVISEMENT

• Faculty advises students at least once a semester.

• A degree plan is maintained for each student.
Student Support Programs

• PLTL – Peer Lead Team Learning (CAHSI Initiative)
• Employ senior students to help weaker students.
• AMP Program
• ACM work study group.
• Scholarship
  • STEM Adv.
• Internship
  • STEM Adv.
  • IT Practicum
  • JPL, Edison, Water District, etc.
• Mentorship
  • STEM Adv.
  • CAHSI
Cybersecurity Conference 2017
(March 4, 2017)

Join us at
Next Cybersecurity Conference
Toro-hack 2018
April 7, 2018

November 3, 2017
CSA Council Meeting Fall 2017
Comp. Sci. Dept. / CSUDH
Cyber Security Lab
Internship

November 3, 2017

CSA Council Meeting Fall 2017
Comp. Sci. Dept. / CSUDH
Scholarship
Discussion Items

• Selection of CSAC Chair
• ABET Review
• Curriculum review
• Research, Collaboration
  • Topics of Interest
• Student Research, Internship, Scholarship
• Suggestions from Advisory Members
• Survey
Resources

• **Full Time Faculty**
  - Dr. Mohsen Beheshti, Chair
  - Dr. Marek Suchenek
  - Dr. Jianchao (Jack) Han
  - Dr. Bin Tang
  - Dr. Amlan Chatterjee
  - Dr. Liudong Zuo
  - New Faculty (2)

• **Part Time Faculty**
  - Peter Blankenship
  - Howard Rosenthal
  - Miles Fenwick
  - Dr. Jason Halasa
  - Mr. Kami Amir Heshmat
  - Mr. Ken Leyba
  - Mr. Malcolm McCullough
  - Dr. Mehrdad S. Sharbaf
  - Mr. Michael J. Cleary
  - Dr. Roman Tankelevic
  - Mr. Garrett Poppe
  - Mr. Payman Khani
  - Mr. Al Hassan

• **Hardware/Software**
  - PC, SUN, Mac
  - Unix, Linux, Windows

• **Computing Labs**

  – **Student Project (Portable) LAB**
    - Cluster Computing
      - 8 nodes

  – **Big Data Lab**
    - 4 workstations

  – **LINUX LAB**
    - 25 PC workstations
    - Funded by DoD/ASI

  – **PC LAB**
    - Linux
    - Windows
    - Portable Lab (new)
    - Funded By ASI and DoD/ASI

  – **Cluster/Simulation Lab**
    - 40 Machines with Servers
    - Funded by NSF/ASI

  – **Cyber Security Lab**
    - 12 Machines with Servers
    - Virtual Computer (new) - ASI
### Programs and their emphasis at a glance

<table>
<thead>
<tr>
<th>Program</th>
<th>Track</th>
<th>Description</th>
<th>Theory</th>
<th>Mathematics</th>
<th>Coding</th>
<th>Hands-On</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACT</td>
<td>Professional</td>
<td>Focus on a minor</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>General</td>
<td>Broad coverage in technology</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Homeland Security</td>
<td>Focus in Cyber Security</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>BSIT</td>
<td>Systems and Tools</td>
<td></td>
<td>Med</td>
<td>Med</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>BSCS</td>
<td>Develop Tools/Software</td>
<td></td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Med</td>
</tr>
<tr>
<td>MSCS</td>
<td>DNS</td>
<td>Develop Systems (Adv.)</td>
<td>High</td>
<td>High</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td></td>
<td>SE</td>
<td>Develop Software (Adv.)</td>
<td>High</td>
<td>High</td>
<td>Med</td>
<td>Med</td>
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</table>
BS in Computer Science Program

More Theoretical and Math oriented

Lower Division Requirements (40 units)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>CSC 121</td>
<td>Intro to Prog I (JAVA)</td>
<td>4</td>
</tr>
<tr>
<td>CSC 123</td>
<td>Intro to Prog II (JAVA)</td>
<td>4</td>
</tr>
<tr>
<td>CSC 221</td>
<td>Assembly Language</td>
<td>3</td>
</tr>
<tr>
<td>CSC 2xx</td>
<td>LD CS Elective</td>
<td>3</td>
</tr>
<tr>
<td>MAT 191</td>
<td>Calculus I</td>
<td>5</td>
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<tr>
<td>MAT 193</td>
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Upper Division Requirements (36 units)

1. Core Requirements (12 units)

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<td>Data Structures</td>
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<td>Programming Languages</td>
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<td>Computer Organization</td>
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<td>CSC 341</td>
<td>Operating Systems</td>
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</table>

2. Required Courses (18 units)

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<tr>
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<td>CSC 401</td>
<td>Analysis of Algorithms</td>
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<td>CSC 481</td>
<td>Software Engineering</td>
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<td>CSC 492</td>
<td>Senior Project</td>
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<td>MAT 321</td>
<td>Probability and Statistics</td>
<td>3</td>
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<tr>
<td>MAT 361</td>
<td>Finite Automata</td>
<td>3</td>
</tr>
<tr>
<td>CSC 4xx</td>
<td>UD CS Elective</td>
<td>3</td>
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<td>UD CS Elective</td>
<td>3</td>
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</table>
Bachelor of Arts in Computer Technology (BACT)

- Objectives:
  (a) address the critical shortage of professionals in IT in California and the nation,
  (b) provide an avenue for computer professionals in industry to upgrade their professional skills.

- Concentrations
  - General
  - Homeland Security
  - Professional

- 120 semester credit hours

- Minor (21 Units)
- Certificate (12 Units)
Computer Science Program

• Faculty Qualification:
  • All full time faculty members have Ph.D.’s
  • All Part time faculty members either have Ph.D.’s or have work experience in the related area

• Class Observation:
  • Class review process

• Upper level courses research Led:
  • CSC 492 Senior Project (3) - CAPSTONE – RESEARCH – REPORT
  • CSC 4xx Upper Div. Comp. Sci. Elec. (3)

• Teamwork:
  • CSC 481 Software Engineering (3) – TEAM PROJECT
  • CSC 4xx Upper Div. Comp. Sci. Elec. (3)
  • CSC 4xx Upper Div. Comp. Sci. Elec. (3)
Computer Science Program – Cont.

• Research:
• CSRL – Computer Science Research Lab
• Student paper publications and poster presentations
• Computing Theory and Formal Mathematical Approaches:
  • MAT 281 Discrete Mathematics (3) - THEORY/FORMAL MATHEMATICS
  • MAT 361 Finite Automata (3) – THEORY/FORMAL MATHEMATICS
  • CSC 401 Analysis of Algorithms (3) - THEORY/FORMAL MATHEMATICS
• Class/Course review and assessment process Through IAC meeting, CSU Chair’s, and Monthly Departmental meetings
• Seven State of the Art Computer Laboratories
• A New $40M Library
• CTC 218 – Digital Logic Design

March 24, 2017
BACT Concentrations

• General (GT)
• Network and Security (HST)
• Professional track (PT) –
• 2+2 Program with Community Colleges
  • LBCC, Mt SAC, Rio Hondo, LASC, SMC
  • Another existing Major
    • e.g., Engineering Technology, Digital Arts, Biology, Psychology, Business, ..
• Gaming – in Progress
• Web Design – in Progress
BACT Homeland Security Track

- **List of Lower Division Required Courses:**
  - *(40 units)*
  - CSC 101 Introduction to Computer Education (3)
  - CSC 111 Introduction to Computers and Basic (3)
  - CSC 116 Introduction to Computer Hardware and Tools (3)
  - CSC 255 Introduction to Dynamic Web Programming (3)
  - CSC 115 Introduction to Programming Concepts (3)
  - CSC 121 Introduction to Computer Science and Programming I (4)
  - CSC 123 Introduction to Computer Science and Programming II (4)
  - CSC 221 Assembly Language and Introduction to Computer Organization (3)
  - CTC 218 Digital Logic Design (3)
  - CTC 228 Introductions to Operating Systems and Network (4)
  - MAT 131 Elementary Statistics and Probability (3)
  - MAT 153 College Algebra and Trigonometry (4)

- **List of Upper Division Required Courses:**
  - *(25 units)*
  - CSC 301 Computer and Society (3)
  - CTC 310 Software Project Management (3)
  - CTC 316 O/S and Networking Support (3)
  - CTC 328 PC forensic (4)
  - CTC 362 Communication Systems Security (3)
  - CTC 428 OS Security (3)
  - CTC 452 Network Security and Hacking Prevention (3)
  - CTC 492 Senior Project (3)

- **GE Courses (55-62 units)**

- **Total Units for the program (120 -127)*

* MAT 131 or MAT153 Counts toward GE too
BACT Professional Track

• ACT PROGRAM (68 Units) (View I)
  • A. Core Requirements (34 units)
    • 1. Lower Division (19 units)
      • CSC 101 Intro to Computer Education (3)
      • CSC 111 Intro to Computers and Basic (3)
      • CSC 116 Intro to Comp HW and Tools (3)
      • CSC 255 Intro to Dynamic Web Prog. (3)
      • MAT 131 Elem Stat and Probability (3)
      • MAT 153 College Algebra and Trig (4)
    • 2. Upper Division (15 units)
      • CSC 301 Computer and Society (3)
      • CTC 310 Software Project Management (3)
      • CTC 316 O/S and Networking Support (3)
      • CTC 452 NW Sec and Hack Prevent (3)
      • CTC 492Senior Project (3)
  • B. Professional Track Requirements (34 units)
    • 1. Specific Domain (15 – 31 units)
      • a. Minor in another program
      • c. Concentration Courses – with the consultation of departments
    • 2. Free Electives (3 – 19 units)

• BACT in Professional track (68 units) (View II)

• Program Units

• BACT Professional Track (Earth Sciences)
  • A. BACT Core Requirements 34
  • B.1 Minor: Earth Science 20
  • B.2 Free Electives 14

• BACT Professional Track (Biology)
  • A. BACT Core Requirements 34
  • B.1. Minor: Biology 19-21
  • B.2. Free Electives 13–15

• BACT Professional Track (Art in Digital Graphics)
  A. BACT Core Requirements 34
  • B.1 Minor: Art in Digital Design 15
  • B.2 Free Electives 19

• GE Courses (55-62 units)
  • Total Units for the program (120 -127)*
  • * MAT 131 or MAT153 Counts toward GE too
Minor in Computer Technology

- Minor in Computer Technology (21 Units)
- Lower Division Requirements (9 units)
  - CSC 111 Introduction to Computers and Basic (3)
  - CSC 116 Introduction to Computer Hardware and Tools (3)
  - CSC 255 Introduction to Dynamic Web Programming (3)
- Upper Division Requirements (12 units)
  - 1. Required Courses (6 units)
    - CSC 301 Computers and Society (3)
    - CTC 310 Software Project Management (3)
  - 2. Select two courses from the following (6 units):
    - CTC 316 O/S and Networking Support (3)
    - CTC 328 PC forensics (4)
    - CTC 362 Communication Systems Security (3)
    - CTC 428 OS Security (3)
    - CTC 452 Network Security and Hacking Prevention (3)
Certificate in Computer Technology (pending)

• COMPUTER TECHNOLOGY CERTIFICATE (15 units)
  • 1. Computer Basics
    • CSC 101 Intro to Computer Education (3)
  • 2. Programming Select one (3 units)
    • Visual basic
      • CSC 111 Intro to Computers and Basic (3)
    • Concept
      • CSC 115 Intro to Programming Concept (3)
  • 3. Basic Hardware
    • CSC 116 Intro to Comp Hardware and Tools (3)
  • 4. Web Design & Security
    • CSC 255 Dynamic Web Programming (3)
  • 5. Computer Ethics
    • CSC 301 Computer and Society (3)
BACT Program

• Bachelor of Arts in Computer Technology (BACT)

• Objectives:
  (a) address the critical shortage of professionals in IT in California and the nation,
  (b) provide an avenue for computer professionals in industry to upgrade their professional skills.

• Concentrations
  • General
  • Homeland Security
  • Professional

• 120 semester credit hours

• Minor in Computer Technology (21 Units)

• Certificate (12 Units)
## BS in Computer Science

### A. Lower Division Requirements (40 units)

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<td>Calculus I</td>
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<td>MAT 271</td>
<td>Foundations of Higher Math.</td>
<td>3</td>
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<tr>
<td></td>
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### B. Upper Division Requirements (36 units)

#### 1. Core Requirements (12 units)

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<td>Upper Div. Comp. Sci. Elec.</td>
<td>3</td>
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