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

AGENDA

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

Interested → Graduated

Overivew

- Programs
- Goals
- Resources
- Area of Concentration
- Research
- New/Changes
- ABET - Review
- Student Activities

Comp. Sci. Dept. Programs

- BS in Computer Science – BSCS
  - Accredited by CAC Computing Accreditation Commision of ABET since 1995.
  - Next ABET visit: Fall 2018
- Master of Science in Computer Science – MSCS
  - Software Engineering
  - Distributed System and Networking
  - Data Analytics/Data Science (in preparation – 2018/2019)
- Bachelor of Arts in Computer Technology – BACT
  - Homeland Security Track
  - Genenral 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.

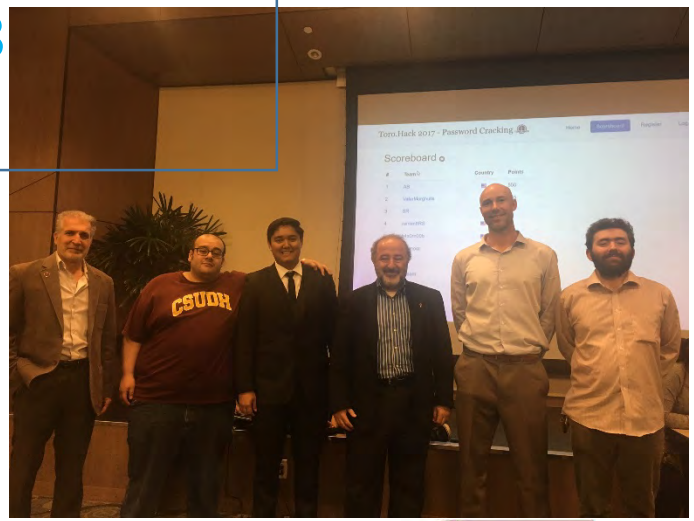
Student Support Programs

- 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



Cyber Security Lab

Internship

Scholarship

STEM Advantage
Science • Technology • Engineering • Math

Discussion Items

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


COMPUTER
SCIENCE
DEPARTMENT
CALIFORNIA STATE UNIVERSITY
DOMINGUEZ HILLS

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 Machnies with Servers
    - Virtual Computer (new) - ASI

Programs and their emphasis at a glance

Program	Track	Description	Theory	Mathematics	Coding	Hands-On
BACT	Professional	Focus on a minor	Low	Low	Low	High
	General	Broad coverage in technology	Low	Low	Low	High
	Homeland Security	Focus in Cyber Security	Low	Low	Low	High
BSIT		Systems and Tools	Med	Med	High	High
BSCS		Develop Tools/Software	High	High	High	Med
MSCS	DNS	Develop Systems (Adv.)	High	High	Med	Med
	SE	Develop Software (Adv.)	High	High	Med	Med

BS in Computer Science Program

More Theoretical and Math oridented

Lower Division Requirements (40 units)

CSC 121 Intro to Prog I (JAVA) (4)
CSC 123 Intro to Prog II (JAVA) (4)
CSC 221 Assembly Language (3)
CSC 2xx LD CS Elective (3)
MAT 191 Calculus I (5)
MAT 193 Calculus II (5)
MAT 271 Found of Hi Math (3)or

LD CS Elective (3)

MAT 281 Discrete Mathematics (3)
PHY 130 General Physics I (5)
PHY 132 General Physics II (5)

Upper Division Requirements (36 units)

1. Core Requirements (12 units)

CSC 311 Data Structures (3)
CSC 321 Programming Languages (3)
CSC 331 Computer Organization (3)
CSC 341 Operating Systems (3)

2. Required Courses (18 units)

CSC 301 Computer and Society (3)
CSC 401 Analysis of Algorithms (3)
CSC 481 Software Engineering (3)
CSC 492 Senior Project (3)
MAT 321 Probability and Statistics (3)
MAT 361 Finite Automata (3)

CSC 4xx UD CS Elective (3)

CSC 4xx UD CS Elective (3)

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)
- 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

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)
- Certifacate (12 Units)

BS in Computer Science

A. Lower Division Requirements (40 units)

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 Intro. to Comp. Org. (3)
CSC 2xx	Lower Division Computer Science Elective (3)
MAT 191	Calculus I (5)
MAT 193	Calculus II (5)
MAT 271	Foundations of Higher Math. (3) (CSC 2xx)
MAT 281	Discrete Mathematics (3)
PHY 130	General Physics I (5)
PHY 132	General Physics II (5)

B. Upper Division Requirements (36 units)

1. Core Requirements (12 units)

CSC 311	Data Structures (3)
CSC 321	Programming Languages (3)
CSC 331	Computer Organization (3)
CSC 341	Operating Systems (3)

2. Required Courses (18 units)

CSC 301	Computer and Society (3)
CSC 401	Analysis of Algorithms (3)
CSC 481	Software Engineering (3)
CSC 492	Senior Project (3)
MAT 321	Probability and Statistics (3)
MAT 361	Finite Automata (3)

3. Comp. Sci. Electives: (6 units):

CSC 4xx	Upper Div. Comp. Sci. Elec. (3)
CSC 4xx	Upper Div. Comp. Sci. Elec. (3)