NEXT GENERATION ENGINEER: SOLVING WORKFORCE NEEDS

ASEE Global Symposium

Allyson Peerman
Vice President, Global Public Affairs
October 2011
THE PROBLEM

Engineering education solely focused on technical excellence does not adequately prepare engineers to develop innovative solutions to global challenges.

THE END GOAL

A next generation of engineers, prepared with the multidisciplinary skills and real world experiences that enable them to collaborate, lead, and innovate for global impact.
CHALLENGES FACING TODAY’S GLOBAL ENGINEER

**Managing Geographical differences**
- 7 or more time zones
- 10+ countries
- 24-48 hour resolution

**Communication challenges**
- Language barriers, slang, accents
- Communication & Documentation styles
- Decision making process differences

**Culture**
- Chain of command works differently
- Body language differences missed
- Yes doesn’t always mean yes (soft skills are different)

**Pace of Innovation**
- Rapidly changing technology environment
- Constantly evolving standards and regulations
- Learn how to learn
ENGINEERING WORKFLOW

Customer Needs → Silicon Design → Platform Engineering → Fab → ATMP
NEW COMPETENCIES REQUIRED FOR THE NEXT GENERATION ENGINEER

- **Strong Technical Foundation**
- **Leadership**
- **Critical thinking and problem solving**
- **Cross-cultural awareness**
- **Creativity and innovation**
- **Oral and written Communications**
- **Collaboration**
- **Business and project management**
WHAT WE HEARD FROM DEANS & EDUCATORS

There is a significant gap in integrating real world experiences and context into engineering education.

This is most critical in the first few years when 50% of engineering students drop out and many seek relevance between course work and future work.

Real world learning must go beyond traditional internships to include “solving” real and simulated industry challenges.

The educational program for modern engineers has been the same since the post-WWII research university was designed, and is fundamentally mismatched with the scope, scale, and multi-disciplinary nature of the modern challenges engineers are called on to help solve.
AMD NEXT GENERATION ENGINEER

**Vision**
Foster a new generation of engineers with the multidisciplinary skills and experiences to innovate for global impact

**Mission**
Enable engineers to strengthen their impact on the world by infusing collaboration, leadership and innovation into their development and education

**Objectives and Strategies**

**AMD Engineering Talent Management**
*Increase AMD’s global engineering capabilities through developing, attracting & retaining top talent*
- Create rigorous internal development programs
- **Collaborate with world-class teaching and professional institutions**

**Best-in-Class Engineering Programs & Student Experience**
*Invest in best-in-class engineering programs and student experiences*
- Broaden curricula to incorporate multidisciplinary and real world experiences
- Share proven models for curricula enhancement

**AMD Issue Leadership and Advocacy**
*Reinforce AMD as a global engineering leader and open doors to new markets*
- Strengthen relationships with customers, strategic partners and policy leaders
- Position AMD as an innovative, global company with unique technical and human assets
- Enable open dialogue amongst the global community of engineers, academics and government officials
- Provide a creative solution to the long-standing "pipeline challenge"
CURRENT COLLABORATIONS

Olin College of Engineering
Founding Partner – Initiative for Innovation in Engineering Education (I2E2)
- Disseminate best practices for the advancement of engineering education via workshops, consulting services, exchange programs, etc.

Gordon-MIT Engineering Leadership Program
- Development of a “Real-World Learning Tool” for engineering classrooms

National Academy of Engineering (NAE)
- Highlight successful models of infusing real-world experiences into engineering education; report to publish in June 2012

NAE-Grand Challenge Scholars Program Workshop
- Hosted the GCSP Workshop 2011 in July at AMD

University of Texas-Cockrell School of Engineering, Webber Energy Group
- Support for Multidisciplinary Learning Program

University of Illinois
- Engineer of the Future 4.0 Conference
AMD INFUSION LEARNING TOOL

- Develop an engineering classroom learning tool with MIT

- Learning Objectives
  - Expose engineering students to real world scenarios and contexts
  - Enable them to practice skills that are essential to their success as future engineering leaders, including global awareness, communication, collaboration, problem-solving, etc.
  - Enhance the offerings of engineering programs and the experiences of their students
  - Prepare young engineers to collaborate, lead, and innovate for global impact

- Context for the learning tool based on issues faced by the global AMD Fusion development team and subsequent learnings from the project
INFUSION TOOL LEARNING OUTCOMES

Focus on how young engineers can better:

- Work with people from other cultures, groups and time zones
- Employ effective oral and written communication skills
- Think holistically about complexity of a project
- Critically analyze problems and propose solutions
- Solicit, listen to, and synthesize changing customer input and feedback
- Ask questions and demonstrate initiative
- Work with both technical and non-technical colleagues
- Lead teams and projects
“GAMEULATION”

- A Mixture of Gaming and Simulation
  - Includes game-dynamics and elements of simulation
  - Deliberately aligns activities and learning objectives
  - Encourages iterative usage to foster exploration of alternate scenarios and endings
  - Provides feedback that helps users develop and enhance skills
Trademark Attribution

AMD, the AMD Arrow logo and combinations thereof are trademarks of Advanced Micro Devices, Inc. in the United States and/or other jurisdictions. Other names used in this presentation are for identification purposes only and may be trademarks of their respective owners.

©2011 Advanced Micro Devices, Inc. All rights reserved.