COMMUNITY COLLEGE CHALLENGE
MEETING BOTH THE NEEDS FOR UNIVERSITY MATRICULATION AND INDUSTRY NEEDS FOR A QUALITY WORKFORCE

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Wake Technical Community College

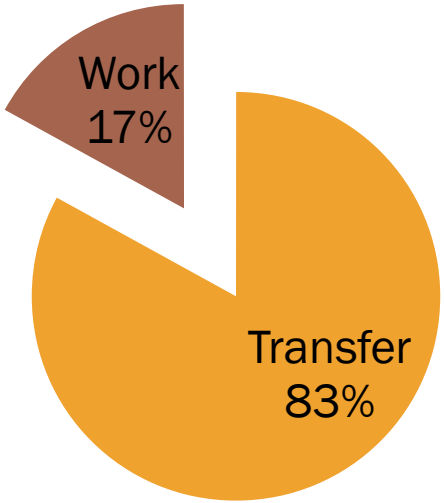
2009 Game Education Summit,
Pittsburgh, Pennsylvania

TODAY

- Need for Matriculation
- Industry Needs
- Students
- IGDA Framework
- Wake Tech
- The challenge

THE NEED FOR MATRICULATION

- In a recent survey of beginning Wake Tech. Simulation and Game Development students 83% were interested in transferring.



ENTRY-LEVEL POSITIONS IN THE INDUSTRY*

Typical Job Title	Junior Game Designer	Artist	Junior Programmer	Assistant Producer	Game Tester
% Require Bachelor or Higher	44%	45%	78%	51%	27%
% Require Less than a Bachelor	56%	55%	22%	49%	73%

*Source: California Community Colleges' Video & Computer Game Industry Scan, 2006

HIGHEST DEGREE OF EDUCATION ATTAINED BY U.S. DEVELOPERS BY DISCIPLINE*

	Some College or Associate's	Bachelor's Degree	Some Graduate	Graduate Degree
Programming	19%	54%	9%	18%
Art	31%	58%	3%	8%
Design	32%	50%	8%	10%
Production	25%	50%	10%	15%
Audio	28%	54%	7%	11%
Q/A	41%	51%	5%	3%
Business	21%	49%	12%	18%

*Source: Game Career Guide, Fall 2008.

THE NEED FOR MATRICULATION

- Many game developers go on to school later
- So having degrees that will transfer is important
- Even some accredited schools offer classes that are not transferable to senior instructions

Source Survey of Wake Tech. SGD 289 students May 2009

INDUSTRY NEEDS FOR A QUALITY WORKFORCE

- People play more video games when the economy is slow – it is cheaper than a trip to the beach
- Even in a down economy the game industry is holding it's own, though hiring has slowed there are still jobs.
- Industry is looking for quality not quantity
- An article I read last week said "analysts remain confident a strong slate of new game releases, … will lead to a return to industry growth by August."

Source Wall Street Journal, Video Game Sales Take Another Tumble In May
Thursday, June 11, 2009 As of 7:17 PM EDT

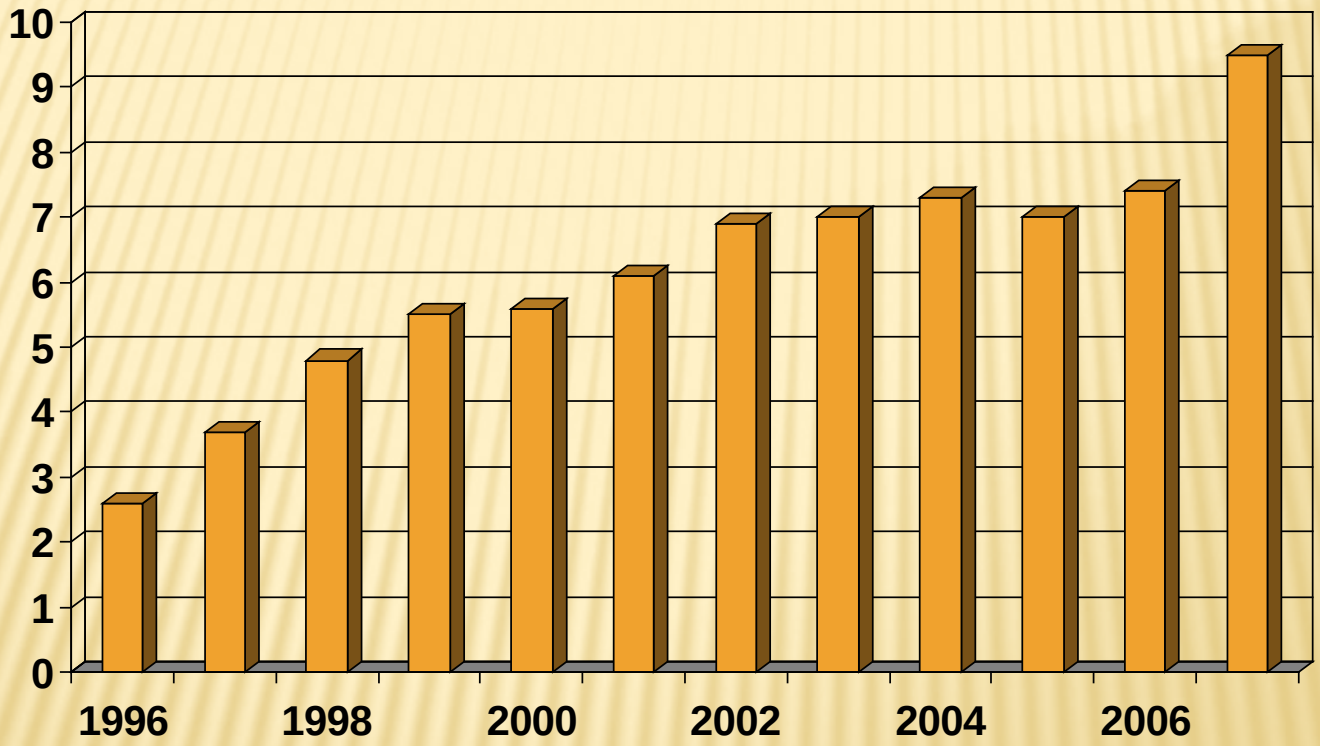
ECONOMIC IMPACT OF GAME INDUSTRY

- Where are the Game Companies?

Source: http://gamedevmap.com

ECONOMIC IMPACT OF GAME INDUSTRY

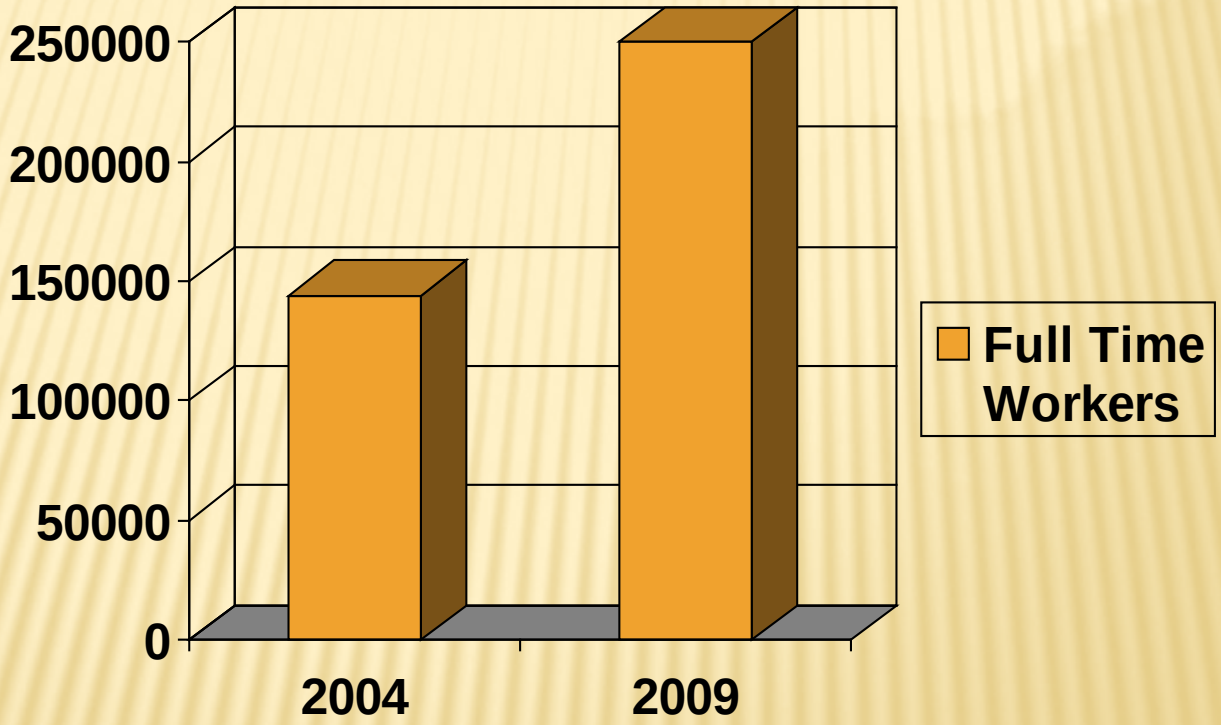
U.S. Computer & Video Game Sales Growth - Software ($Billion)*



*Source: The NPD Group

ECONOMIC IMPACT OF GAME INDUSTRY *

- FULL TIME WORKERS IN US



* R. W. Crandall & J.G. Sidak, Video Games: Serious Business For America's Economy

WHERE IS THE JOB GROWTH IN THE VIDEO GAME INDUSTRY?*

- Game Designer – 33% growth
- Programming – 31% growth
- Art – 28% growth
- Testing – 25% growth
- Production – 19% growth

*Source: California Community Colleges' Video & Computer Game Industry Scan, 2006

AVERAGE SALARY BY DISCIPLINE*

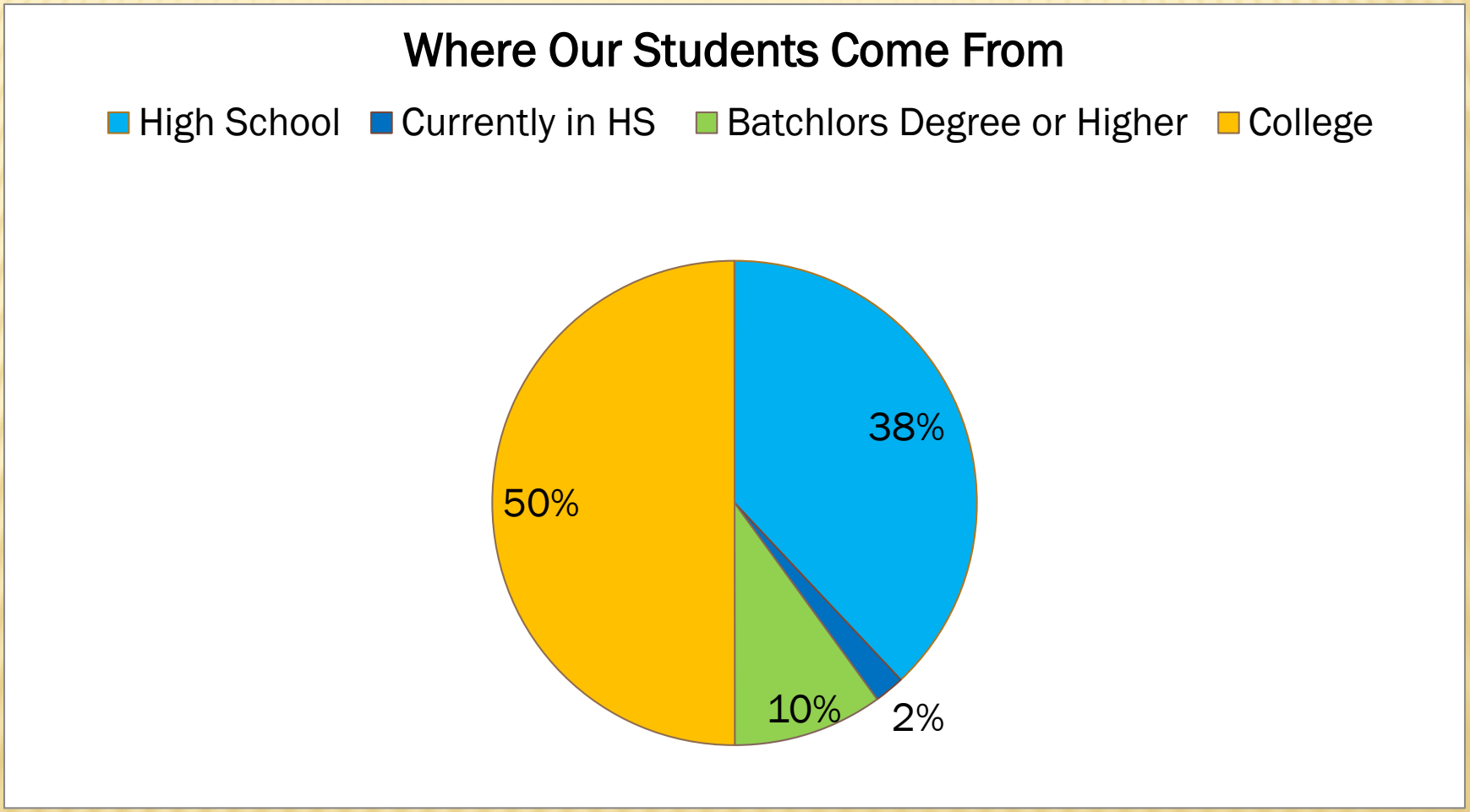
	Average Salary	3 or Fewer Year's Experience
Programming	$83,383	$60,296
Art	$66,569	$43,500
Design	$63,649	$46,184
Audio	$73,764	$52,763
Production	$79,970	$53,971
QA	$39,309	$28,556

*Source: Game Career Guide, Fall 2008

WHO ARE OUR STUDENTS?

- Community College students are those who do not have the resources to go somewhere else
- Have been to a College or University and found it just did not work out
- Those that understand the community college offers a quality education and prefer to stay close to home
- Most work while going to school

MOST WAKE TECH STUDENTS HAVE BEEN TO COLLEGE BEFORE STARTING IN GAME DEVELOPMENT



AT WAKE TECH

- We have over 500 students currently enrolled in our Simulation and Game Development programs
- Our graduation rate has been less than 10%*
- 40% of our graduates plan on going on to further their education
- The majority of our students are white males

*We have made some curriculum changes that should help rectify this issue starting with the fall 2009 class

IGDA CURRICULUM FRAMEWORK

- The curriculum framework we present in this document is a conceptual guide for game-related educational programs.
- In such a complex field, there is no “silver bullet” approach.
- There are many types of games related programs.

CORE TOPICS

- 1. Critical Game Studies
- 2. Games and Society
- 3. Game Design
- 4. Game Programming
- 5. Visual Design
- 6. Audio Design
- 7. Interactive Storytelling
- 8. Game Production
- 9. Business of Gaming

It should be noted that there is a consistent overlap in this list, so that some subtopics may be part of more than core topic.

CRITICAL GAME STUDIES

- This interdisciplinary Core Topic combines approaches from history, literature, media studies, and design.
- A key goal here *is to develop and refine a critical vocabulary for* articulating the aesthetics of games.
- At Wake Tech we teach video game history in our introduction course.

MEDIA STUDIES

- Non-game media, such as literature, radio, film, television, art, theatre, graphic novels, architecture, Internet
- At Wake Tech students are encouraged to take Introduction to Film, Art and/or Story Telling from our Arts Department

GAME DESIGN

- *Principles and methodologies behind the rules and play of games.*
- Addresses the fundamental ideas behind the design of electronic and non-electronic
- Includes gameplay, storytelling, challenges, and basic interactive design, including interface design, information design, and world interaction.
- At Wake Tech all SGD students are required to take two semesters of Game Design.

GAME PROGRAMMING

- *Aspects of traditional computer science and software engineering – modified to address the technical aspects of gaming..*
- Includes physics, mathematics, programming techniques, algorithm design, game-specific programming and the technical aspects of game testing.
- At Wake Tech all SGD students are required to take a programming class whether they want to study art or the technical side of games.

VISUAL DESIGN

- *Designing, creating and analyzing the visual components of games*
- History, analysis and production in traditional art media such as painting, drawing and sculpture; communication fields like illustration, typography and graphic design; other design disciplines such as architecture and industrial design; and time-based media like animation and filmmaking
- At Wake Tech students are encouraged to take a variety of courses from our Arts department as well several courses that are offered with in SGD; however, they are all required to take an introduction to 3D Modeling class.

AUDIO DESIGN

- *Designing and creating sound and sound environments.*
- includes a range of theoretical and practical audio-related areas, such as: music theory and history; music composition; aesthetic analysis of music; recording studio skills; and electronic sound generation.
- At Wake Tech students are required to take a Audio/Video class and for those who want more audio we have arranged for them to take a music composition course via our Arts division.

INTERACTIVE STORYTELLING

- *Traditional storytelling and the challenges of interactive narrative.*
- Narrative theory, character development, plot, dialogue, back-story, and world creation, as well as experimental approaches to storytelling in literature, theatre, and film with relevance to games
- At Wake Tech we requested our Arts department to teach a Storytelling course which they did for our students. We also incorporate a lot of these topics in our Character Development class

GAME PRODUCTION

- *Practical challenges of managing the development of games*
- Games are among of the most complex forms of software to create, and game development and publishing are complex, collaborative efforts.
- At Wake Tech students may take a Game Production class in addition to being taught many of these principles through other classes.

BUSINESS OF GAMING

- *Economic, legal and policy aspects of games.*
- The economics of the game industry – how games are funded, marketed and sold, and the relationships among publishers, developers, distributors, marketers, retailers, and other kinds of companies are addressed here.
- At Wake Tech students are required to take a SGD Business course specifically designed to cover these topics; however, they may also take a traditional Economics or Business class.

PROJECT BEGINNING AT WAKE TECH

- 2003
  - A student asked the question why are there no game programming courses offered in North Carolina when we have so many local game companies.
- 2004
  - We started teaching some game programming under Computer Programming.
  - We started gathering input from the local companies on what there needs are
  - We started planning a NSF Grant

WAKE TECH

- 2005
  - Pilot program – One Year Diploma
  - Submittal of NSF grant proposal
  - First DGXPO and Conference 2005
- 2006
  - Awarded NSF-ATE Grant
  - State approves an AAS, Diploma in Simulation & Game Development
  - DGXPO and Conference 2006
  - Work with Arts department to add needed classes
  - First SGD students start in the fall

DIGITAL INTERACTIVE ENTERTAINMENT & SIMULATION TECHNOLOGY

A new curriculum and source of professional workforce for the digital gaming & simulation industry

National Science Foundation ATE-Project

A Project Partially Supported by NSF under Grant No 0602801

PROJECT GOALS

- To design, develop, and implement a two-year, associate degree program to meet the workforce demand of industry and serve as a national model
- To provide professional development to K-12 teachers and community college faculty to improve teaching and learning through the use of digital game technology

CURRICULUM

- Wake Tech has developed curriculum in partnership with industry leaders (DACUM)
- IGDA (International Game Developer Association) Curriculum Framework
  - Critical Game Studies
  - Games and Society
  - Game Design
  - Game Programming
  - Visual Design
  - Audio Design
  - Interactive Story Telling
  - Game Production
  - Business of Gaming

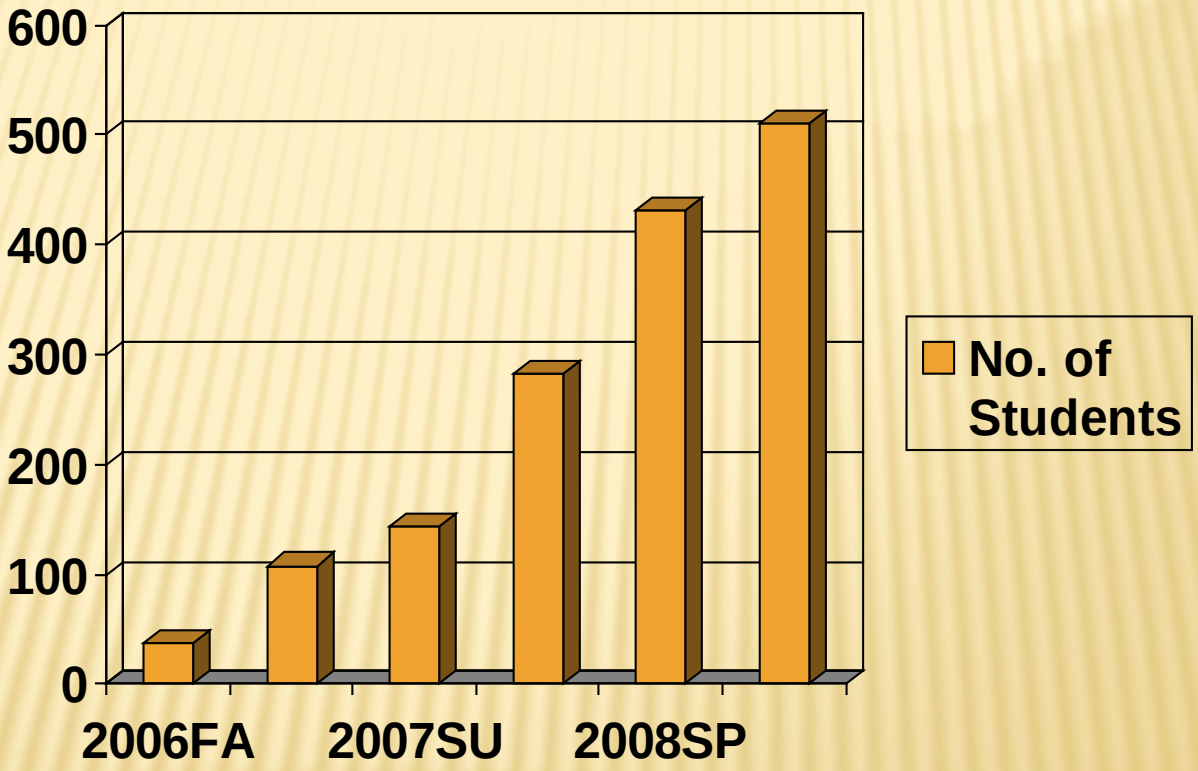
CURRICULUM

- Multi-disciplinary studies, including art, music, mathematics, physics, computer programming, and graphics
- AAS Degree, Diploma, Certificates
- Textbooks, lab manuals, and other course materials will be developed for national dissemination

WAKE TECH

- 2007
  - With the information from our DACUM and the IGDA Curriculum Framework we start the process to change the State Curriculum Standard.
  - DGXPO and Conference 2007
- 2008
  - DGXPO and Conference 2008
  - Meet with industry leaders to discuss curriculum changes
  - First SGD students graduate – 100% job placement

SIMULATION AND GAME DEVELOPMENT ENROLLMENT AT WAKE TECH



WAKE TECH

- 2009
  - State approves new curriculum
  - Triangle Game Conference 2009 http://www.trianglegameconference.com/
  - Over 500 students enrolled in the curriculum
- Curriculum Standard Improvement
  - Simulation & Game Development
  - New courses added per industry input:
    - QA
    - Game Engine Survey
    - More Flash and Modeling courses
    - 3D Math and Physics

THE CHALLENGE

- We have created a program that gives the students the skills to succeed in the video game industry
- We are not meeting the needs of over 40 percent of our students who wish to transfer because our program does not yet transfer to senior institutions in the state of North Carolina
- The main reason is there is no matriculation in NC is there are no Bachelor's programs in Game Development in NC

THE CHALLENGE

- Funding a new program – game development cost more than a standard college class
- Dealing with too many students – game development is a hot topic
- Hiring Faculty – finding qualified faculty willing to work for community college wages
- Internal Issues – road blocks

THE CHALLENGE

- For students that want to transfer to a traditional Computer Science (BS) degree they find that general education courses (two years of calculus, chemistry, physics…) take up the majority of the first two years of classes rather than the major courses they have taken.
- This would however, be the same for anyone studying a humanities related course trying to transfer to a science curriculum.
- We have tried having higher math and science requirements but for most of our students this slowed their progression through the program; this is one reason we have split our program in to two tracks.
- Now students can chose between a science based or a art based program while still getting the benefits of a solid core.

WAKE TECH HAS MATERIALS TO SHARE

- As part of our NSF grant we have some materials that we have created that we are willing to share with other Community Colleges.
- We have course materials, speakers series on CD, as well as offering professional development to teachers via our Summer Institute, June 22-25.
- For more information on any of these please contact Dr. Kai Wang or my self at :

Wake Technical Community College
9101 Fayetteville Rd.
Raleigh, NC 27613

WAKE TECH HAS PARTNER ACTIVITIES

This works especially well for schools with out the funding or expertise to teach the advanced level classes.

- 1st-year classes taught at partner colleges
- 2nd-year classes taught at Wake Tech

- Fayetteville Technical Community College
- Nash Community College
- Pitt Community College
- Wayne Community College
- Surry Community College

OUTREACH ACTIVITIES

- Summer Game Camp
  - Simulation and Gaming

    Rising 9th and 10th graders will learn to design and create digital games using GameMaker software.
  - Advanced Simulation and Gaming

    Rising 9th and 10th graders will use MAYA to create 3D models and animation.

FURTHER INFORMATION

- IGDA web site: http://igda.org/
- IGDA Game Education SIG: http://igda.org/education/
- IGDA Game Education Wiki: http://igda.org/wiki/Game_Education_SIG
- IGDA Game Education Listserv: http://seven.pairlist.net/mailman/listinfo/game_edu
- Wake Tech Simulation and Game Development: http://cet.waketech.edu/sgd/sgd.htm

Questions? Please contact us at:

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