

**Making Math Meaningful Through
Workplace Research
NSF ATE (DUE 0071093)**

**Presented at:
28th Annual AMATYC Conference
Phoenix, Arizona**

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Presenters:

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Making Math Meaningful Through Workplace Research NSF ATE (DUE 0071093)

Grant Objectives:

- ▣ **Expose math instructors to math in industry**

- ▣ **Expose students to math in industry with**
 - **Industry snapshots**

 - **Industry based applications**

Presentation Objectives:

- ▣ **Demonstrate what we have completed**

- ▣ **Demonstrate our product**

- ▣ **Explain Our Industry Visit Process**

- ▣ **Invite you to our AMATYC Summer Institute**

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Agenda 11/14/02

Introductions and Objectives

2000 - 2002 Industry Visits

CDs, Snapshots and applications

Snapshot Process – Planning

Snapshot Process – The Industry Visit

Snapshot Process – Production

AMATYC Summer Institute, 2003

SUMMER 2000 ONE WEEK WORKSHOP

- Participants
 - Ten Wake County Teachers
 - Three Wake Tech Community College Instructors

- Visited six industries
 - Barbara H. Mulkey Engineering
 - Dewberry & Davis, Inc.
 - N.C. D.O.T – Structure Design Unit
 - PMW products, Inc.
 - Progressive International Electronics
 - Square D

Summer 2001

- One five-day workshop for local community college and public school instructors
- Two two-day workshops for non-local community college instructors

- Participants
 - Six public school teachers
 - Six community college instructors

- Visited five industries
 - Buehler Motor
 - CompuChem
 - BesPak
 - NIEHS
 - Johnson Controls

Summer 2002

- One one-day workshop for non-local community college instructors
- Four two-hour workshops for non-local community college instructors

- Participants
 - Twelve community college instructors
 - One four-year college instructor

- Visited five industries
 - Cooper Bussman
 - Blum Industries
 - Eaton
 - LinPac
 - NIEHS

Preparation for site visit

Discuss site visits

- What will we see?
- What will we get?
- What will we do with it?
- What does the company get?

Discuss company to be visited Tuesday afternoon

- Type of math we will see
- Look up the company on the internet
- Make a list of questions
- Make a list of possible applications

(see the attached agenda that was sent to NIEHS)

Snapshot Process - Planning.

- Find companies that hire 2-year graduates.
 - CC advisory boards.
 - Cooperative Education and Job Placement.
 - Job Fair Participants.
 - Educational Foundation Division.

- Research the company on the Internet.

- Schedule visits with these companies.
 - Call someone who is an interface to Wake Tech Community College or
 - Call the Human Resources department.
 - Emphasize an industry-community college partnership.
 - Emphasize that their company and employees will be featured in the documentation/CD.

- Plan the visit.
 - Get information on the company.
 - Make some contacts within the company through the phone or email.
 - Find out where technicians use math.
 - Identify some “real math” problem ideas.
 - Work with the company to create an agenda for the visit.

- Company visit (2-hours).
 - Management introduction/overview about the company.
 - Interview technicians.
 - Observe technicians using math.
 - Document the math examples.
 - Videotape all activities during the visit.

Snapshot Process – The Industry Visit.

General Plan:

- The visit should not take over two hours.
- The team will consist of three to five people.
- With permission, videotape all of the activities.
- Initially, meet in a small conference room.
- Later, get a tour of the work areas or production facilities.

A suggested agenda:

- Fifteen-minute introduction/overview by a manager or representative in a conference room.
 - Describe what the COMPANY does at this location.
 - Describe what your function does for the COMPANY.
 - List what you look for in the way of math skills in your employees.
 - Describe other skills you look for (ie. Writing, speaking, attitude, GPA, etc.)
- General discussion with 2-3 engineers/technicians. Each should provide:
 - Job title
 - Job responsibilities
 - Educational background
 - Relevant work history
 - Ways in which he/she uses math at the COMPANY
 - Use of various employability skills, such as written and oral communication skills
 - Any comments he/she has on what would have been done differently as a student
- A tour of two or three work areas.
 - At each area, we would like to discuss a relevant math problem.
 - We would like to have the tools (formulas, tables, etc.) and data to be able to solve the problem. It would be nice to have this data written out for us after we discuss the problem to be solved.
- Questions and close out in a conference room.

Snapshot Process - Production.

- Write up snapshot.
 - Outline the structure of the snapshots.
 - Write company profile.
 - Write technician biographies.
 - Write warm-up quiz.
 - Write application problem.
 - Write up student notes.
 - Write up teacher notes.

- Get other instructors to review the material.
 - Review for technical content (technical department).
 - Review for grammatical correctness (English department).

- Select video stills and clips.
 - This will require the assistance of your AV department.

- Construct the snapshot package.
 - Insert all doc files, picture files and video files into a common folder.
 - Write or use existing template html.
 - This will require someone with knowledge of html.
 - Test the links.
 - Burn the CD for company review.

- Send the CD to the industry for review.
 - Ask for their input and suggestions.
 - The company should insure the company information is correct.
 - Require them to sign an agreement that the CC can use the material publicly.

- Incorporate corrections, changes and suggestions as needed/required.
 - Burn the final version of the CD

- Make CD copies and distribute to instructors.

- Use the CD in the classroom.

- Get student and teacher evaluations of the snapshot.

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**Spend a Week in NC This Summer
and Learn to Construct Industry-
based Classroom Activities.**



**AMATYC
Summer
Institute**



Making Math Meaningful Through Workplace Research

**May 18-23, 2003
Wake Technical Community College
Raleigh, NC**

Institute Fees:

Travel, lodging, materials, and most meals will be provided through funding by a National Science Foundation grant.

Participant Costs:

Registration and incidentals

Registration and additional information will be available at the AMATYC website or contact Jesse Williford at ljwillif@waketech.edu .