Welcome to MATEC NetWorks Webinar

eSyst: Electronics Systems Technology – Vision and Project Process Update

MATEC NetWorks is an NSF funded ATE Center supporting faculty in Semiconductor, Automated Manufacturing, and Electronics education

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Webbinar Procedures

- If you are listening by phone, please mute your phone by pressing #5.

- If you have questions during the presentation, please submit them in the Chat Window.

- At the end of the session we will answer as many questions as we can. Please type your questions in the Chat Window.

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Poll
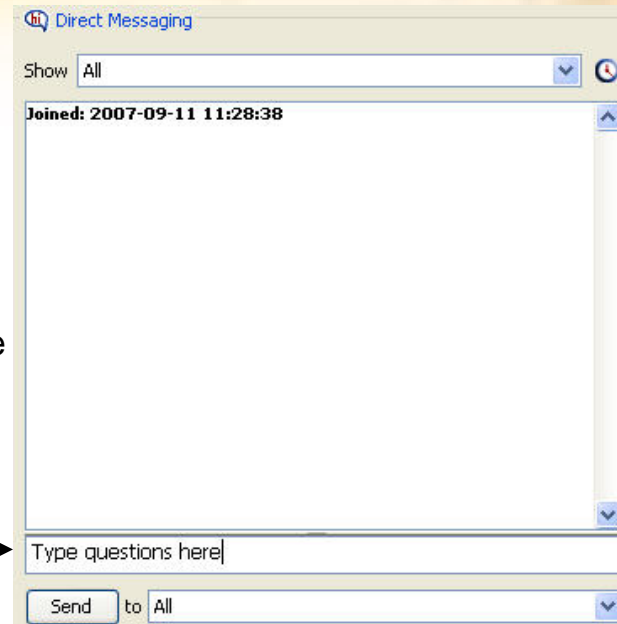
Participants

Name

MCCD-ADMIN (Moderator, Me)

Raise
hand/smile/clap

1
Participant

Direct Messaging

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Joined: 2007-09-11 11:28:38

Chat

Type questions here

Send   to   All

Audio

Microphone   Speaker

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Whiteboard - Main Room (Scaled 126%)

Public Screen 1   Follow Moderator   Roam

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NET**WORKS**

NetWorks Webinar Presenter

Tom McGlew is the Project Manager for the ESyst grant, as well as the manager for NetWorks National Externship Program. He has worked in the electronics field for over thirty years.
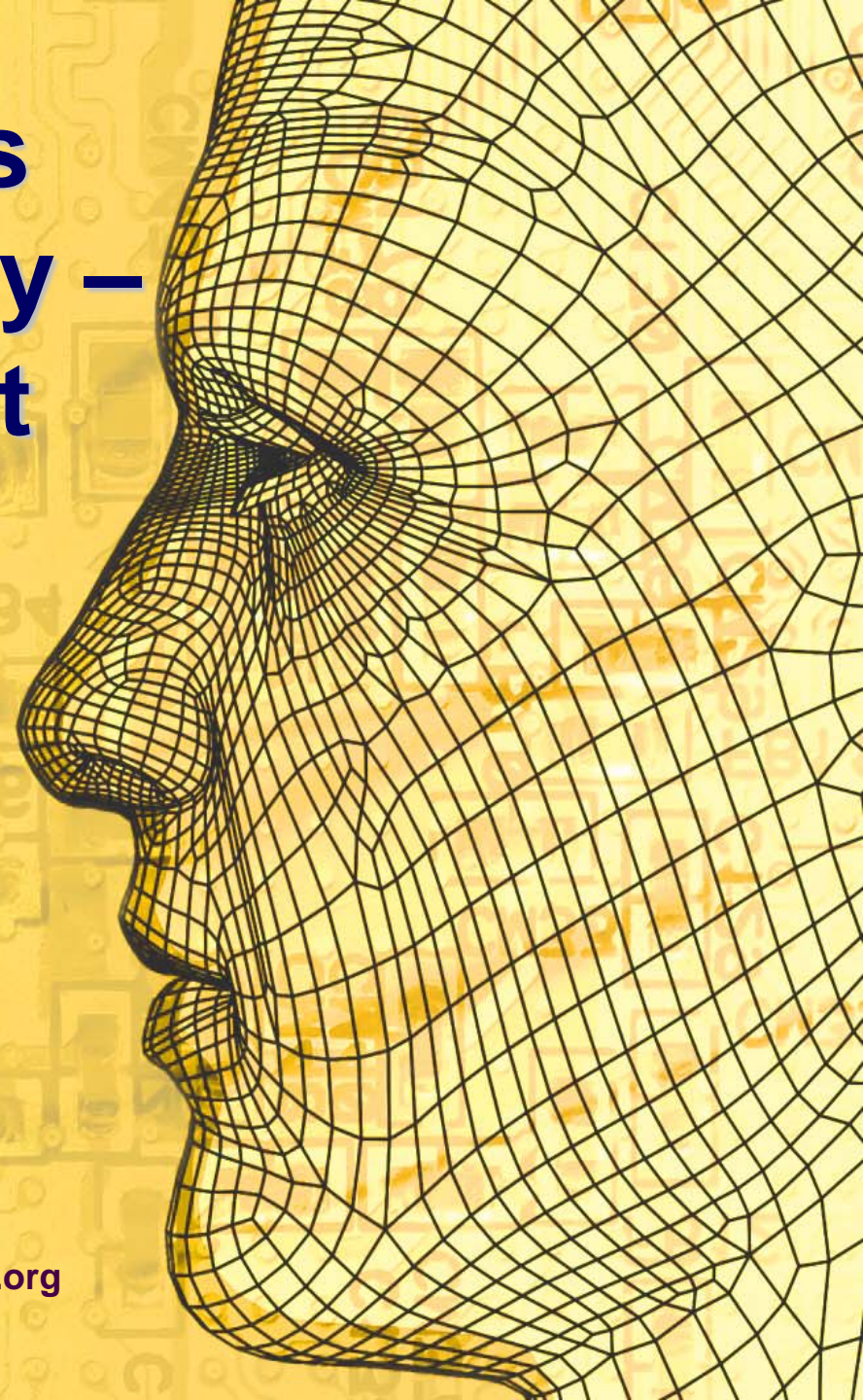
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eSyst: Electronics Systems Technology – Vision and Project Process Update Webinar

Maricopa Advanced Technology Education Center

NSF ATE Grant #0702753

eSyst

A presentation of eSyst.org

eSyst Development Process Agenda

- **Project Vision – Lou Frenzel**
- **Project overview – Tom McGlew**
  - What has changed?
  - What is a System?
  - Goals
  - Student Learning Goals
  - Development Process Review
- **Project status / Web Site Tour – Tom McGlew**

Project Development Team Members

Mike Lesiecki – Principal Investigator

Lou Frenzel - Project Lead Subject Matter Expert

Roy Brixen – Project Developer

Wayne Phillips – Project Developer

Jesus Casas – Project Developer

Ui Luu – Project Developer

Bassam Matar – Project Developer

James Hardison – M.I.T. Project Developer

Tom McGlew – Project Development Manager

eSyst: The Vision

Louis E. Frenzel

Electronic Design Magazine

Continuous Rapid Changes in Industry

- Advancements in semiconductor technology.
- New approaches to designing and implementing electronic equipment.
- Changes in electronic equipment service and troubleshooting procedures.
- Evolving industry needs and technician job positions/duties.
- Emerging systems view rather than component view of electronics.

Lagging College Curriculum and Content

- Clear evidence of dated course content.
- Focus on unnecessary topics at the expense of new critical topics.
- Declining enrollments in ET programs despite continuing need for technicians.
- Current curricula based on engineering technology jobs no longer available.
- Poor retention due to lack of interest.
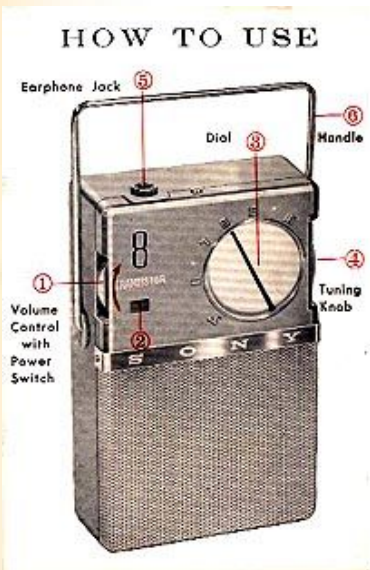- Dated textbook content.

The Solution: eSyst

- Textbook content problem still to be resolved but MATEC WRE program addresses this issue.

- Esyst program conceived to address the systems view of electronics and industry's current needs.

- Develop new curricula and courses to address previously mentioned problems.

- Encourage colleges to update programs.

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Project Development and Status

Tom McGlew

eSyst Project Manager

So what has changed and what is a System?

Then to Now

Now to the future

What has Changed?

Today, the greater part of a tech's work now deals at a higher level. Specifically, he or she works more with:

- larger PCBs containing many ICs
- plug-in modules and subassemblies
- complete pieces of equipment
- entire systems as well as their power and cabling

The focus is on signal flow through the system and testing the system to see that it meets specific standards. Rarely does the tech replace individual components such as transistors, diodes…

The Structure of Electronic Equipment

SYSTEM

EQUIPMENT

PRINTED CIRCUIT BOARD
(PCB) **OR MODULE**

ELECTRONICS COMPONENTS
(resistors, capacitors, diodes,
transistors, ICs, etc.)
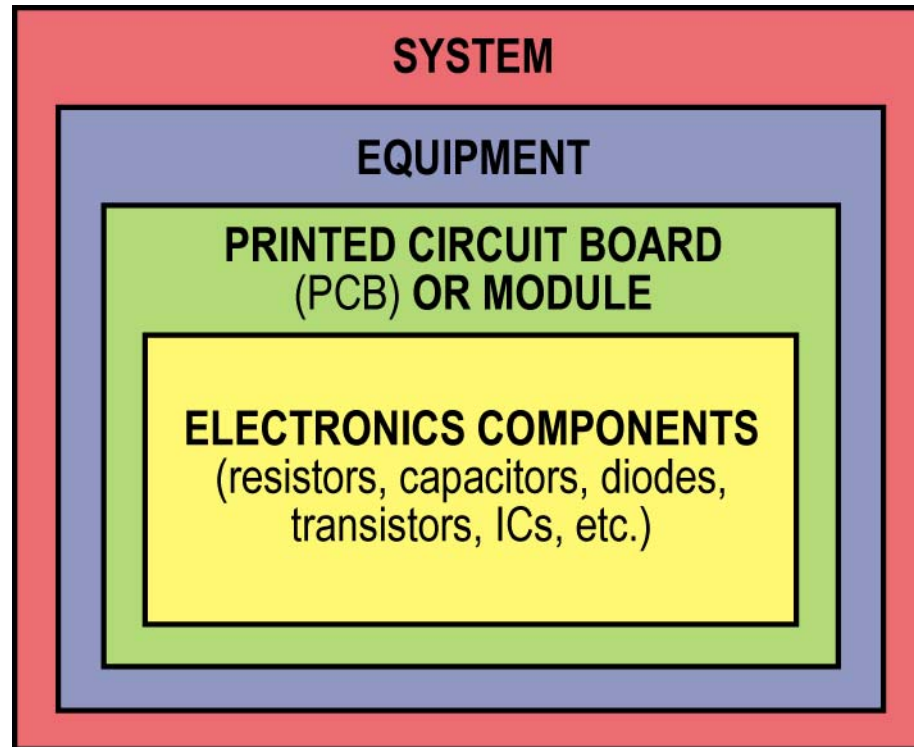
What is an Electronic System?

For electronics, we can say that a system is an assembly of electronic and sometimes mechanical components as well as the software that operate together as a unit to perform some function.

Project Goals

1. Revise curriculum and courses, create new materials for faculty and student learning and enrichment, and provide guidance for faculty in the usage of the emerging systems view of electronics resources.

2. Develop a complete web-based delivery system for the resources associated with the Systems View of Electronics Technology.

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Project Goals continued

3. Increase enrollments and retention in electronics technology programs.

4. Ensure the curriculum addresses the needs of industry by incorporating the most recent electronic methods, circuits, systems, and practices involving simulations and online laboratories.

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Which Courses To Update?

– DC and AC Circuits Analysis

– Solid State Devices and Circuits

– Digital Logic and Circuits

– Microprocessor Applications

– Test, Measurement, and Data Acquisition

– Communications

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Curriculum Impact

First Semester (Fall)

ELE 105 Algebra/Trig for Technology

ELE 111 Circuit Analysis 1

ELE 132 Digital Logic and Circuits

ELE 181 Computer Programming

Summer Semester includes ENG 101, CRE 101, SOC and HUM student electives.

Second Semester (Spring)

ELE 112 Circuit Analysis 2

ELE 121 Solid State Dev. And Circuits

ELE 241 Microprocessor Concepts

GTC 106 Industrial Safety

GTC 185 Electro-Mechanical Devices

Third Semester (Fall)

ELE 222 Solid State Dev. And Circuits 2

ELE 243 Microprocessor Applications

ELE 261 Communication Systems 1

COM 100 Intro to Human Communication

GTC 104 Manufacturing Processes

Fourth Semester (Spring)

ENG 102 First Year Composition

ELE 251 Electronic Measurements

ELE 263 Communication Systems 2

Student Learning Outcomes

1. The program graduate will be able to specify, install, program, operate, trouble shoot, and modify electronics systems.

2. The program graduate will have effective written and oral communication skills.

3. The program graduate will have the attitudes, abilities, and skills for adapting to rapidly changing technologies.

Project Development Status

– Reviewed course descriptions from various institutions

– Reviewed all leading textbooks

– Determined through analysis what stays, what goes, or what needs modification to create the systems approach for each of the selected six courses

– Developed specifications for initial iLabs application

– Started development of new course resources

– Began pilot testing this Fall 2008

– Convene an industry review panel with NVC assistance

    – Will modify courses per industry recommendations

Project Status

- Project has completed the DC/AC, Solid State Fundamentals, Digital, and the Microprocessor Systems course materials.

- Weekly developer meetings began on Friday, September 21, 2007 at 8:00 a.m.

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Web Site Tour

- Demonstrate eSyst web site

  - Review new courses resources

    - Implementation Guide

    - Systems Lab Activities

- Demonstrate the iLabs Student Portal

  www.esyst.org

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Thank You to everyone for participating in the fifth dissemination Electronics Systems Technology Project Webinar

Thank you for attending

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in the keyword search, type:
webinar esyst.

NetWorks Next Webinars

February 13: Recruitment Tips

February 27: Intro to Nano

Visit http://www.matecnetworks.org/growth.php and
click webinar for a full calendar

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Certificate of Participation

If you would like a certificate of participation for 1.5 hours, please email
darlene.cieplinski@domail.maricopa.edu

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