Distance Education for Micro and Nanotechnology

Rick Vaughn
Faculty Chair STEM, Rio Salado College
Distance Education, MNT-EC

RIO SALADO COLLEGE
A MARICOPA COMMUNITY COLLEGE

NSF

The end of every Zoom meeting.

Who

- Rick Vaughn
- Nancy Louwagie
- Andy Bell
- Tanya Faltens
- Marco Curelli
- Paul Weber
- YOUR NAME GOES HERE

WHY

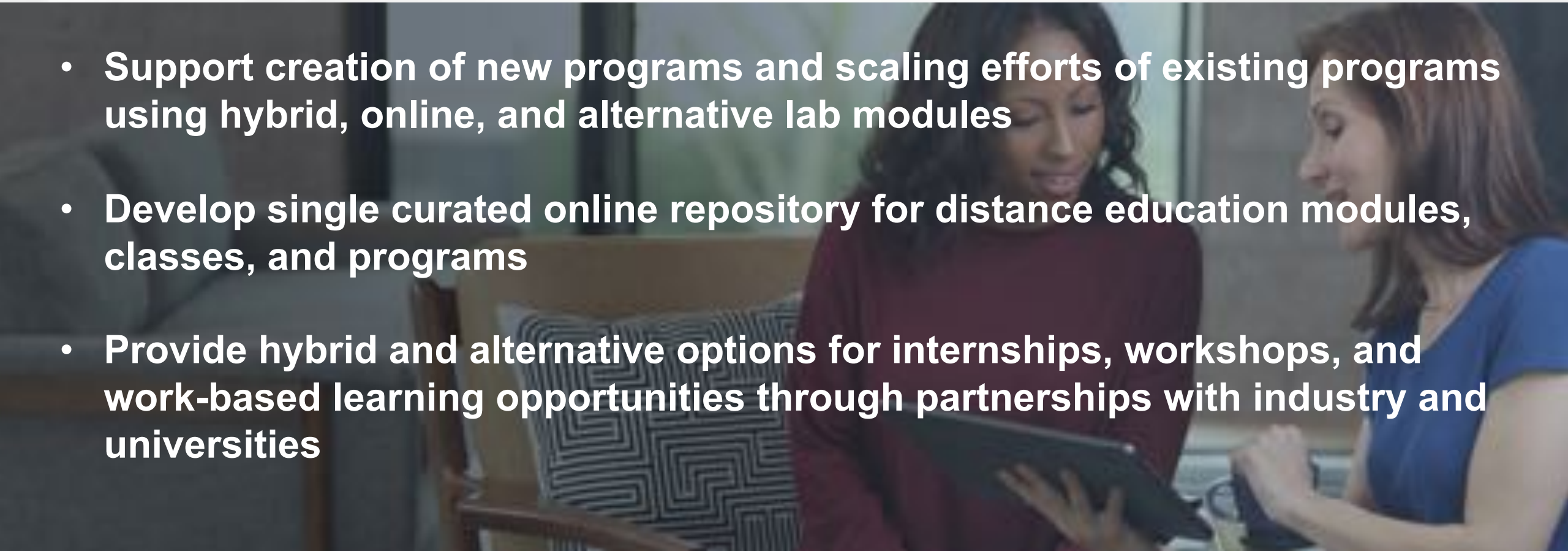
The Distance Education Focus Group (DEFG) fosters collaboration in Micro and Nanotechnologies through high-quality, authentic learning opportunities that are accessible to students in multiple locations.

A DAY IN THE LIFE

WHERE

- Rio Salado College was founded in 1978 to challenge the limits of tradition.
- “The College Without Walls” or “The College Within Everyone’s Reach”
- Physically located in Tempe Arizona as part of the ten-college Maricopa Community College District
- We serve more than 50,000 students a year in a wide-variety of modalities and locations

WHAT - Distance Learning



- Support creation of new programs and scaling efforts of existing programs using hybrid, online, and alternative lab modules
- Develop single curated online repository for distance education modules, classes, and programs
- Provide hybrid and alternative options for internships, workshops, and work-based learning opportunities through partnerships with industry and universities

Distance Learning

- **Identify** MNT distance learning programs along with their credentialing opportunities
- **Establish** processes for enrolling participants in MNT distance learning programs
- **Promote** programs and enroll participants
- **Develop** networks to effectively deliver MNT sub-specialization content (for example, lasers, vacuum technology, characterization, others)

HOW

Activity 1.1: Strengthen current [MNT programs] and foster creation of new MNT programs across the United States

- Promote MNT resources
- Identify key industry locations
- Partner with local schools
- Invite new participants

Activity 1.2: Develop single curated online repository and distance education opportunities

Activity 4.2 Create a needs-based industry database

- Inventory participant educational assets
- Develop repository
- Define distance learning modality ‘buckets’
- Utilize in Partnerships
- Maximize accessibility of assets

WHEN

- NOW

Your project has created great resources.
Let's continue to use them.

Join the Distance Education Focus Group!

Assets at Rio Salado

Professional Marketing – Lane Terralever Approximately $70,000

Nanotechnology at Rio

Assets at Rio Salado

Virtual Clean Room at Arizona State University (ASU)

Developed as part of a Research Experiences for Teachers (RET) funded by the National Nanotechnology Coordinated Infrastructure (NNCI) now Nanotechnology Collaborative Infrastructure –Southwest (NCI-SW)

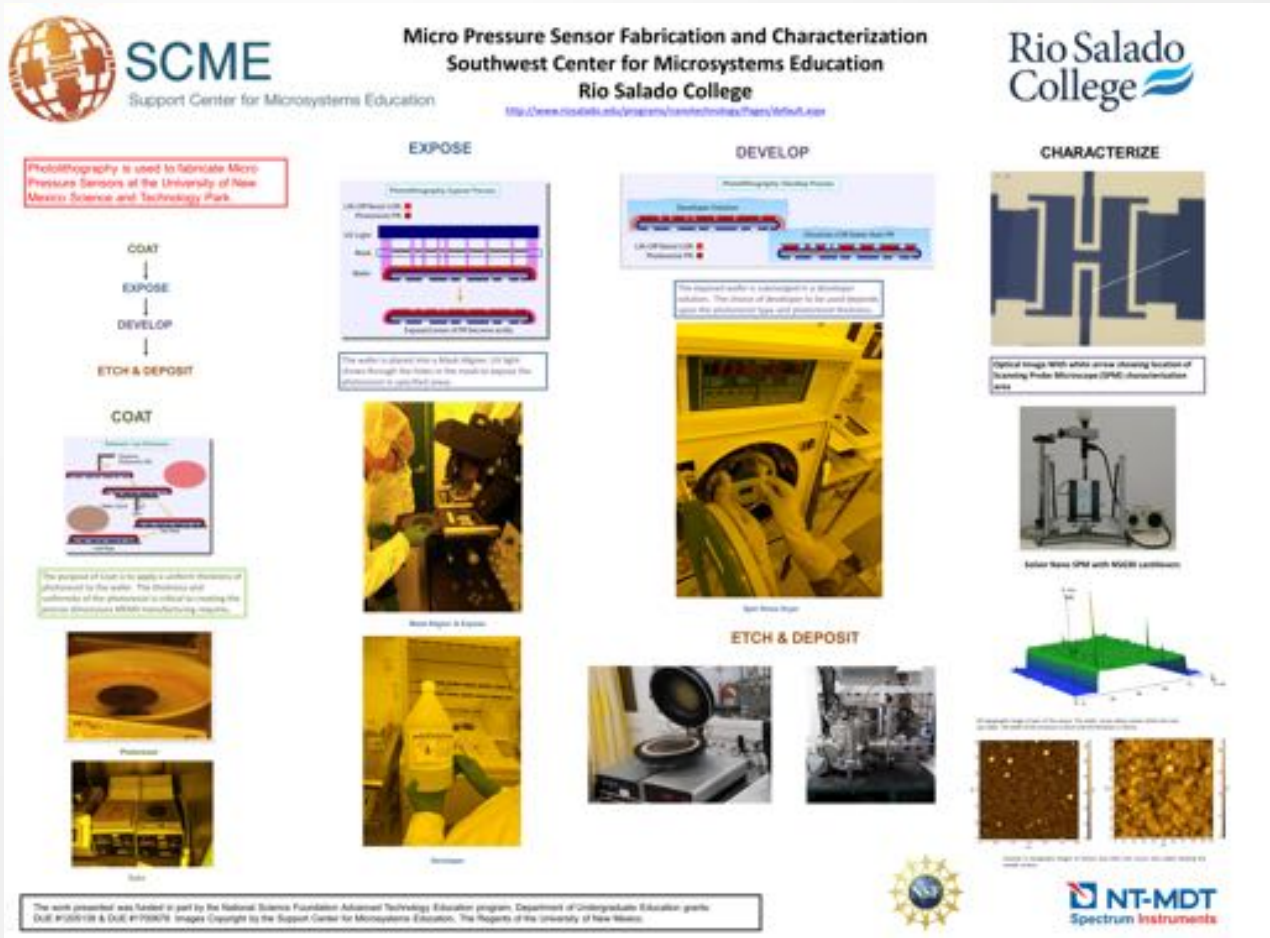
Approximate Cost: $5000

- Virtual Clean Room
- Google Glasses - 3D VR

Assets at Rio Salado

Undergraduate Research with the Southwest Center for Microsystems Education (SCME)

SCME



Assets at Rio Salado

Curriculum Materials

Source: Penn State University Nanotechnology Applications and Career Knowledge (NACK) Network

Current: Maricopa Center for Curriculum Transfer and Articulation (CCTA)

Future: Optics and Photonic Circuits

FUTURE DIRECTIONS

- Customized Curriculum and Courses
- Co-Enrollment and/or Articulation
- Distance or hybrid/regionalized versions of all labs
- Curated repository of resources with concierge-style service
- Assistance with online conversions/hybridization of traditional materials/labs
- Expand opportunities for distance education internships, workshops, and work-like experiences
- Maximize accessibility of these resources

Accessibility

- Universal Design for Learning
- National Center on Accessible Educational Materials

SUMMARY

The Distance Education Focus Group (DEFG) fosters collaboration in Micro and Nanotechnologies through high-quality, authentic learning opportunities that are accessible to students in multiple locations.

We will

- support the creation of new programs and scaling efforts of existing programs using hybrid, online, and alternative lab modules;
- develop a single curated online repository for distance education modules, classes, and programs;
- provide hybrid and alternative options for internships, workshops, and work-based learning opportunities through partnerships with industry and universities;
- identify MNT distance learning programs along with their credentialing opportunities;
- establish processes for enrolling participants in MNT distance learning programs;
- promote programs and enroll participants; and
- develop networks to effectively deliver MNT sub-specialization content (for example, lasers, vacuum technology, characterization, others).

JOIN US

Rick.Vaughn@riosalado.edu

(480) 517-8661