ECC AWDC-Academia Work Session

Preparing Industry-Ready Graduates through Industry-Academia Partnership

September 8, 2021
Welcome
&
Safety Moment
AGENDA

8:30  ECC AWDC Updates
      - AWDC mission, Academia initiative, & Workforce Development update

9:15  Industry-Academia Exchange Program
      - Program overview

9:25  Panel: A day as a faculty intern/industry professor
      - Experience & lessons learned

10:20 Panel: Best practices on improving industry readiness
      - Internship & Best Practice curriculum
ECC AWDC Background & Mission

- Competency and capability of our engineering and craft labor professionals is an enabler of project success
  - ECC has long played a key role working with universities and colleges to ensure alignment on curriculum and industry requirements
  - However, gaps in industry focus on craft labor support for competency development and sustainment was identified as an area requiring additional attention

- Academic and Workforce Development Committee (AWDC) was established in 2020 to focus on both craft skill and professional development
  - Goal: Increase industry focus and attention on engineering staff and craft labor professionals by improving awareness, competency attainment and other support
  - Intention is to establish ECC as the ‘go-to’ organization to serve as catalyst to improve professional staff and craft workforce development

Diagram:
- AWDC
  - ECC Board Advisor
  - Craft Labor sub committee
  - Academia sub committee
  - ECC Board Advisor
  - Topic coordination as required
AWDC-Academia Update

- AWDC- Academia: Prepare industry-ready graduates for today & tomorrow
  - Advocate industry needs
  - Promote changes and actions through industry-university partnership
  - Who teach them (professor), what is being taught (curriculum), and where (e.g. internship)

- 2021 Initiative
  - Industry-Academia Exchange Program
    - Faculty Residency
    - Industry Professor
  - Pilot implementation
  - ECC roles: Define, connect, pilot & guidance
AWDC-Workforce Development Update

- Facilitate collaboration across industry training, workforce and academia to address labor challenges

- Put forward a common directive for workforce training
  - **Simplicity** … simple to access from competency training to onsite solutions
  - **Alignment** … complete alignment of training, industry, funding, academia …
  - **Awareness** … get the words out and gain owner-community support

- ECC can act as the integrator to work across industry created “swim lanes” to increase the focus on craft training.

- The result should be improved yield in safety and execution certainty with the improved training.
2021 ECC-AWDC Initiative

An Overview of the Industry-Academia Exchange Program

ECC AWDC-Academia
2021 Initiative
Industry-Academia Exchange Program

- An exchange of university professors and industry practitioners
  - Faculty Residency
  - Industry Professor
WHY: Industry Readiness (IR)

- IR defined
  - New hires immediately **adding value** to employers
  - Deliver **project success** today and lead **industry revolution** into the future

- Gaps
  - The reality: **30/45%** employers thinks graduates are **not ready** for workforce/capital projects

- Opportunities
  - Acknowledge the issue!
  - Industry-academia partnership … the 70% majority
Corporate vs. Ivory Tower

Professionals
Practice, problem solving, complex & uncertainty, performance, team, communication …

Business
ROI, KPI, manage risk, adapt to change, stay competitive …

Students
Theory, structured problems, academic rigor, individual GPA, graduation …

Higher Education
Research funding, publication, ranking, enrollment …

Faculty
Tenure = research, research, research + teaching & service … PhD required, but not industry experience
### Improving IR

<table>
<thead>
<tr>
<th>Improve IR</th>
<th>Rating /5</th>
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<tbody>
<tr>
<td>Communication &amp; team skills</td>
<td>3.4</td>
</tr>
<tr>
<td>Faculty with industry experience</td>
<td>3.3</td>
</tr>
<tr>
<td>Internship/CO-OP</td>
<td>3.2</td>
</tr>
<tr>
<td>Project-based learning</td>
<td>3.2</td>
</tr>
<tr>
<td>Industry expert teaching</td>
<td>3.0 Neutral</td>
</tr>
<tr>
<td>Industry best and latest practice</td>
<td>2.9</td>
</tr>
<tr>
<td>For engineering students: business &amp; management</td>
<td>2.8</td>
</tr>
<tr>
<td>For construction students: engineering &amp; trade</td>
<td>2.7</td>
</tr>
<tr>
<td>Industry advisory board</td>
<td>2.6</td>
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### Industry ready to help

<table>
<thead>
<tr>
<th>Industry ready to help</th>
<th>Rating / 5</th>
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<tbody>
<tr>
<td>Join university advisory boards</td>
<td>3.8</td>
</tr>
<tr>
<td><strong>Industry experts teach</strong></td>
<td>3.8</td>
</tr>
<tr>
<td>Share training materials</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>Provide faculty internship</strong></td>
<td>3.3</td>
</tr>
<tr>
<td>Support accreditation efforts</td>
<td>3.1 Neutral</td>
</tr>
<tr>
<td>Contribute to scholarship</td>
<td>3.1</td>
</tr>
<tr>
<td>Support student competition</td>
<td>2.8</td>
</tr>
<tr>
<td>Offer research/teaching grants</td>
<td>2.6</td>
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</tbody>
</table>

... and the industry is ready to help
Who Teaches Matters ...

- **THE NEED:** *Inexperienced professors* would not produce "industry-ready" graduates

- **SOLUTION:** An exchange of university professors and industry practitioners
  - *Faculty Residency* for professors (on leave from university to industry)
  - *Industry Professor* for practitioners (on leave from industry to university), or both simultaneously

- *Haven’t we done that?* … informal, sporadic, personal/luck …

- **ECC ROLE:** Define, connect, pilot & guide
What is in it for me? 4 WINS

- **Students**: link theory with **applications**; make learning more **meaningful & fun**; understand the “additional” profession requirements; **career** planning

- **Faculty**: professional development (keep up with the **latest**), effective & relevant **teaching**, **applied research** … **network** with the industry

- **Industry**: better PR and **branding**; university **recruiting**; help prepare **IR graduates**; an **expert consultant** as a sounding board, an agent for change

- **Universities**: better attract & retain **students**, **applied research**, stronger industry-academia partnership
Industry Professors

- Qualification
- Work scope
  - Part time vs. guest lecturing
  - Teach your subject of expertise & passion
- Get permission/employer support
- Local vs. remote
- Compensation
- Teaching support (course materials, TA, IT ...)
- Legal ... who owns the content?
- Innovative practice
  - Team teach with professors ...
Industry Professor

- Professor of Practice
- Team teach …
  - Project control
  - Cost engineering
  - Effective communication
- Official start on Sept. 1, 2021
Faculty Residency

- Planning and recruit
  - Match candidates with work scope
  - Overhead vs. project assignment
- Summer, part-time, or sabbatical year?
- Compensation, worker’s comp., liability insurance
- Supervision & reporting
- Academic deliverables
- Legal … confidentiality, publication review, and IP
- Innovative practice
  - Attracting faculty … Hourly pay + research contract …
Faculty Residency, Summer 22

- 8-10 weeks faculty program
- Carbon reduction benchmarking research focusing on the downstream sector
- Application in fall 2021
Path forward & Thank you!

- Guidebook
- Pilots
- Welcome your participation

Committee
- Tony Bazzini
- Steve Cabano
- Jim Craig
- Ineke Finlayson
- Lingguang Song
Panel Discussion - 1

A Day as a Faculty Intern/Industry Professor: Experience & Lessons Learned

Dr. Mohamed Diab
Professor
Minnesota State University
(virtual attendance)

Prof. Anthony Marraro
Director of Continuing Education
Texas A&M University

Prof. Tony Bazzini (Host)
ExxonMobil (retired) & Professor of Practice, Univ. of Houston
10-min Coffee Break
Panel Discussion - 2

Best Practices on Improving Industry Readiness of Graduates: Internship & Curriculum

Dr. Stephen Mulva
Executive Director
CII

Dr. Lingguang Song
Department Chair & Professor
University of Houston

Mr. Steve Cabano (Host)
President
Pathfinder, LLC.
THANK YOU

Questions, interests …?

- AWDC: Tony Bazzini
- Academia/Higher Education: Lingguang Song
- Workforce Development: Stephen Toups