Real Jobs RI Engineering Roundtable

NOTES FROM 25 APRIL 2018 MEETING

Attendees

Academia

Dr. Phil Miller, CCRI, pmiller@ccri.edu

Jonathan Steele, CCRI, jsteele@ccri.edu

Patricia Blakemore, NEIT, pblakemore@NEIT.EDU

Michael Eggeman, NEIT, meggeman@neit.edu

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Haibo He, URI, haibohe@uri.edu

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Industry

Steve Gruner, Jade Manufacturing Company steve@jademanufacturing.net

Jim Owens, Nautilus Defense LLC, jim@nautilusdefense.com

David Kring, Navatek. Ltd., dkring@navatekltd.com

Dawn Vaillancourt, NUWC, dawn.vaillancourt@navy.mil

Scott Allison, Raytheon, Scott_C_Allison@raytheon.com

Susan Borden, Rite-Solutions, sborden@rite-solutions.com

Tom Santos, Rite-Solutions, tsantos@rite-solutions.com

Bill Goneau, SEA Corp., bgoneau@seacorp.com

After introductions, the employees in industry discussed disciplines, knowledge, skills, and abilities they currently need in job seekers and future needs.

Naval Undersea Warfare Center (NUWC): Artificial intelligence (AI); machine learning; biosciences; data analytics; imaging/optics; modeling/simulation/automation; acoustics; cyber/IT. Look for both undergraduate and graduate students.

Raytheon: Same as NUWC; also seeing more specialization, e.g. electrical engineering and digital systems processing; advanced manufacturing; need hires to be able to interpret test results accurately

Rite-Solutions: In software engineering, using agile, scrum; baking in cyber into development; AI; data analytics; Java; C++; experience using frameworks; need soft skills in communicating and teamwork-capstones can help greatly with this. To work at NUWC, for certifications, basic is now Security+ with an operating system cert as well, most likely LINUX.

SEA Corp.: Same as NUWC; SolidWorks; power; radio frequency engineering.

Jade Manufacturing: Issue with aging workforce and the need to attract newer workers into advanced manufacturing, which can be difficult because "manufacturing" can be a negative for those unfamiliar with modern advanced manufacturing/manufacturing engineering. Today's manufacturing uses computer-aided design/computer-aided manufacturing, replacing old-school manual manufacturing. SolidWorks experience is a must, and soft skills needed include quality control/assurance.

Nautilus Defense LLC: Nautilus is primarily systems engineering, and as such needs a workforce with practical, project experience. Need candidates who are motivated to learn and enjoy continuous learning. Experience working in an open, agile environment is important, as is teamwork since no one single employee will have all the solutions-it takes a multi-disciplinarian team

Navatek, LLC: Navatek is a research and development company and has some different workforce needs than most traditional defense contractors. Skills/knowledge like other contractors include C++ and SolidWorks, and continual learners; current and future workforce needs include quantum computing, data sciences, protyping technicians-generally technical KSAs. Have found RI is weak in PhD engineers.

Academia then went around the table to discuss what each have and are working on for future workforce needs.

Community College of Rhode Island (CCRI): Offers an engineering transfer degree (associate in science degree) where students take the first 2 years of a bachelor's in science in engineering at CCRI and then transfer to URI or another ABET certified institutions. CCRI offers 9 different tracks: biomedical, chemical, chem-biology, civil, computer, electrical, industrial, mechanical, and ocean.

CCRI also has an associate in science degree in engineering systems technology with four areas of concentration: electrical, mechanical, energy utility, or manufacturing, as well as an associate degree in science in advanced manufacturing technology. There is a 2-semester sequence in advanced manufacturing that includes SolidWorks, blueprint reading, computerized numerical control (CNC) machining, and quality control.

New England Institute of Technology (NEIT): Relevant to the defense industry, for associate degrees, NEIT offers technician degrees in advanced manufacturing; electronics, robotics and drone technology; mechanical engineering; and welding engineering. NEIT offers a bachelor's in civil engineering; cybersecurity and network engineering; electrical engineering technology; mechanical engineering technology; and software engineering technology as well as a master's in engineering management (online as well). NEIT is working on developing a master's in cybersecurity.

Every program has a technical advisory committee that includes members from industry which meets 2 times/year. In addition, NIET has SolidWorks labs, rapid protyping labs, a full machine shop to build in metal; and a Lean 6 Sigma program.

University of Rhode Island: URI offers engineering degrees in biomedical (bachelor's, master's, Ph.D.); chemical (bachelor's, master's, Ph.D.); civil and environmental (bachelor's, master's, Ph.D.); computer science (bachelor's, master's, Ph.D.); electrical (bachelor's, master's, Ph.D.); industrial and systems (bachelor's, Ph.D.); systems (bachelor's, master's); mechanical (bachelor's, master's, Ph.D.); ocean (bachelor's, master's, Ph.D.); an international 5-year engineering program (includes a B.S. in engineering

and a B.A. in German, French, Spanish, Chinese, or Italian); and nuclear as a minor. URI has a 5th-year master's program open to all engineering students.

There is a team-based capstone with 2-3 students, each from different disciplines, working on projects sponsored by industries. URI is open to evening flex training for industry.

Takeaways from the roundtable:

- Need grade 7-13 exposure to Defense Industry to garner both interest in STEAM and high-wage, high-skill jobs in RI.
- Soft skills students need to learn can be bolstered by teamwork from projects, capstones, and agile/open experiences.
- Possibility for local workforce training at the CCRI Newport Co. campus
- Companies can support employees attaining their master's so 5-year master's not as important.
- There is a need to reframe "manufacturing"; perhaps "engineering production" or some other way to differentiate today's advanced manufacturing from old-school manual manufacturing.