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6 colleges turning out open source talent

By Sandra Gittlen
Contributing Writer, Network World
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Most IT departments have project road maps that will require open-source skills, but finding recent college grads with open source talent can be challenging.

Whether your company is planning an open-source-based big data implementation, installing an open-platform file manager, or adopting an open approach to customer relationship management, experts say traditional computer science departments might not be turning out students you need.

“We still see that the status quo in computer science is very much missing an open-source component,” says Tom Callaway, team lead for Red Hat’s University Outreach program. Therefore, hiring managers and recruiters should look to non-traditional schools that have committed coursework and even degree programs to open source.

“Colleges and universities need to be doing more than just having students use open-source applications or platforms; they need to be teaching them about the culture of open source and how to collaborate within the open-source community,” he says.

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Here are six academic institutions – and instructors – immersing students in the open-source community.

1. New York Institute of Technology

Richard Simpson, associate professor, School of Engineering and Computing Sciences

In his three years at New York Institute of Technology, Richard Simpson has relied heavily on open-source as a key engineering and computer sciences teaching tool. “The thing we always struggle with at a university level is having the latest and greatest version of an application,” he says.

Proprietary applications such as computer-aided design software require time to gain purchasing approval and to integrate with classwork. And students can quickly fall behind the industry standard. “Our priority has always been graduating students ready for work,” he says.

Open-source applications and platforms provide students instant access to the updated versions and new features. “Open source helps us prepare students for the cutting edge and can demonstrate to employers they are familiar with the latest technology,” he says.

He adds that open source offers students a comprehensive package vs. the “lite” version of applications universities usually license. “This allows students to do things in class that are more realistic and ambitious than before,” he says.

For instance, a recent class developed a job search application with open-source tools such as the Eclipse and NetBeans integrated development environments and managed and synchronized their code development using GitHub.

“The students used real open-source tools to build a real open-source application with the same open-source process they’ll use when they step into a job,” he says. “With those fundamentals, they can learn anything.”

2. Rochester Institute of Technology

Stephen Jacobs, professor and associate director of the MAGIC (media, arts, games, interaction, creativity) center

Stephen Jacobs

In the fall of 2014, Rochester Institute of Technology introduced its minor in free and open-source software and free culture, teaching students the intricacies of the open-source movement.

The minor's required courses focus on history, becoming a member of a community and contributing, and the impacts of different licenses and FOSS and free culture business practices, according to Jacobs. "The electives come from degree programs across campus to allow students to bring what they've learned back to their specialty and to the other students and faculty in their major community," he says.

Some students might be hired on (either for coop or post-graduation) in engineering roles. Others, he says, need to know about open source to be business consultants or to hold other broader roles. "At the end of the day, open source in and of itself is about process and community, not about specific technical skills," he says.

3. Michigan Technological University

Joshua Pearce

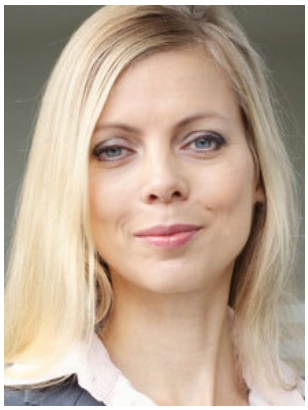
Joshua Pearce, associate professor, Electrical and Computer Engineering

Joshua Pearce went to open source as a primary tool for his 3-D printing class after his go-to proprietary gateway vendor was bought out and the product was canceled. Pearce had built an entire research program on that software and vowed never to get stuck like that again. "I was left with a paperweight," Pearce says.

Today his students use open source modeling languages such as OpenSCAD and the RepRap open source 3-D printing community to build and enhance an open-source 3-D printer. "All students are asked to make some significant improvement to the printer itself," he says.

His open-source, hands-on approach is appealing to local employers such as Ford and GM, which look to hire his students into additive manufacturing jobs. "The concern within industry is that things taught in universities are too pie in the sky and not applicable. We have a longstanding reputation of creating 'bloody-knuckled' tech engineers who dive into the code," he says, adding the school has strong industry-university partnerships.

4. Purdue University


Sabine Brunswicker

Sabine Brunswicker, associate professor for Innovation and director of the Research Center for Open Digital Innovation

When Sabine Brunswicker came to Purdue University in 2013, she brought with her the notion that open source should be a priority. “It took effort to expose students to the principles of open source and open innovation,” she says.

Open source plays an integral role in her research and classroom instruction. Her students “don’t just focus on coding,” she says. “They also learn how to act in the open-source community and how to make contributions.”

Sabine Brunswicker, associate professor for Innovation and director of the Research Center for Open Digital Innovation

Anyone who works in a technology-related area, in her opinion, should know how to work with open source. “Open source is important for software engineers and developers but also the managerial levels,” she says. She points to those making purchasing decisions in an organization, lawyers and project managers as examples of non-technical positions that should understand the principles of open source.

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Her researchers, who used to use proprietary statistics programs, also depend on open-source alternatives such as R.

“Open source needs to be embedded in the skill sets of all individuals so they can understand its implications for the organization,” she says. To prepare future leaders, system designers, and engineers for working the ‘open source’ way, she was instrumental in the creation of a new master’s program in the area of open and digital innovation.

5. Western New England University

Heidi Ellis, professor in the Computer Science and Information Technology department

Heidi Ellis

Heidi Ellis is not a fan of “sink or swim” so she goes to great lengths to ease her students into the open-source community. Each semester, she helps them select a project that is open to student involvement and identifies areas where they could make contributions. Ellis introduces her students to the online community, explains that they are working in 15-week terms, and shares the goal of their participation. For instance, one class contributed written installation instructions to OpenMRS, a global open-source electronic medical record system platform.

By doing this, she says, she helps students avoid getting off on the wrong foot with existing contributors and can observe how they handle themselves in the collaborative environment.

A smaller university like Western New England, she says, provides the unique opportunity to nurture these talents. “Trying to do this with a class of 50 students would be a difficult task; doing it with 15 students is more achievable,” she says.

She teaches students the importance of soft skills such as business and process in the world of open source, helping them navigate tricky aspects of the coding world, including proving your abilities. Students can start with bug verification and bug fixes and then move on to contribute code. By the time they complete their Computer Science or Information Technology degree, which includes open source, Ellis says they are able to step into an open-source job. “Contributions to open source hold huge potential for elevating students above the crowd with respect to hiring,” she says.

Ellis is vocal with local business partners about her students’ knowledge of open source, making it easier for them to identify prospective job candidates. “Our partners understand that our students have the ability to produce something the community wants in the way they want it. That’s a huge positive,” she says.

6. University at Albany

Patrick Masson, instructor in Informatics in the College of Computer Engineering and Applied Sciences


Patrick Masson

Patrick Masson is firm in teaching students that they shouldn't wait until everything is perfect to post – a key tenet of the open-source development community. "Release early and release often is a good development practice because it is easier to identify and fix small changes rather than the whole program," he says.

Masson, who also is general manager and director for the Open Source Initiative, an organization devoted to managing and promoting and protecting open source, says open source has revolutionized teaching. "Students can post their work and get feedback directly from the open-source community," he says. "We can foster key principles around collaboration and transparency."

He shares examples of open-source communities with his students, lets them pick one and then gives them questions they can only find answers to by engaging directly with those communities.

Masson says it's essential for teachers to immerse students in these communities because the model of how organizations identify talent is drastically changing. "Companies are going directly to the communities and engaging with contributors," he says, so academic institutions must prepare students accordingly.

Gittlen is a freelance writer. She can be reached at sgittlen@verizon.net.

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Sandra Gittlen, a contributing writer for Computerworld, is a freelance writer and editor in the greater Boston area. She covers a range of topics, including technology, business, healthcare, financial and lifestyle.

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