



Roles BME students take in their organizations?

For BME roles, they typically are not hiring for a “BME skill-set”; it’s more for their in-general technical skill-sets or their project management skills (team leadership, etc.), depending on the program.

Job Title	Description
Quality Regulatory Leadership Program (QRLP)	<ul style="list-style-type: none"> • 2 year program: 3 eight month rotations across the business (requires master’s degree) • Work on business critical assignments within Quality, Regulatory, and Medical environment; this can include dealing with the FDA, audits, and regulatory bodies (not using technical skills but more of general problem solving skills) • Leadership coursework at with the company • Business acumen courses: Lean Six Sigma, Change Acceleration Process, Project Management & Presentation Skills • Hands on coaching and mentoring, variety of assignments, teamwork, regular reviews and defined deliverables • Exposure to senior leadership via project reviews • Program may provide the opportunity for international travel/assignment based on business needs
Operation Management Leadership Program (OMLP) & Internship	<ul style="list-style-type: none"> • 2 year program: 3 eight month rotations • Rotational assignments in Manufacturing Shop Operations, Sourcing/Materials, Lean Leader, Manufacturing or Process and Environment, Health & Safety • Dynamic virtual and classroom curriculum encompassing the complete eco-system of supply chain • One week world-class leadership development experience • Active coaching throughout the program • Not as technical as Engineering Development Program, more about project management skills and learning on the job
Engineering Development Program (& Internship)	<ul style="list-style-type: none"> • Full-time: 2 year program w/ 4 six month rotations; Internship: Min. 10 week with similar roles as EDP full-time • Rotational assignments are engineering projects driven by business priorities



	<ul style="list-style-type: none"> • Technical role (see skills below for what jobs they could perform) • Formal reports and presentations to senior leadership • One week world-class leadership development experience • Active coaching throughout the program • If BME is recruited, they are asked to pick a track: electrical, mechanical, software
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What technical skills do they look for in BME students?

Job Title	Skill	Expectation Level			
		Freshman	Sophomore	Junior	Senior
EDP	<ul style="list-style-type: none"> ▪ Electrical: designing RS body coils, do things like design circuit boards, anything that electrical engineer would do, work closely with generators team, could do a little more programming if interested, if interested in bio-imaging could do that (bit of a gray area) – image reconstruction, FPGAs (programming) ▪ Software: whether BME or not, would be expected to do image reconstruction (work 	Don't expect a lot here because very rarely recruit; tough b/c need 3.0 min GPA to extend an offer; if freshman is really good get back to us after first semester	Strong understanding of physics, of mathematics, some statistics, entry-level engineering courses (physics-based like statics and dynamics, dabble in thermo), wouldn't expect them to know things like CREO (ProE) but would expect them to know CAD modeling (so that they could	All same things except at higher level; deeper understanding in thermodynamics and heat transfer, fluids, more comfortable using modeling tools in 3D space; basic FEA skills; should have developed more critical thinking skills (more questioning why we do things and thinking	Don't expect area of expertise because entry level; do a technical interview where there's a panel of 4-5 engineers and ask technical questions; should be able to handle that – goes for internships and full-time (same interview process because higher



Stakeholder: Large Medical Device Company

	<p>with things like Predix – massive data analytics cloud), user interfaces for physicians (streamlined and self-explanatory); getting tricky b/c the company is trying to get really digital</p> <ul style="list-style-type: none">▪ Mechanical: thermal engineering to fluid dynamics to structural to rotary dynamics to mathematics (R software), design, analysis (ANSYS is huge, CREO is huge), statistical tools (Minitab), Excel is huge one, knowing how equipment works (accelerometers, what kind of software – LabVIEW is really big), what kind of thermal sensors are there, how can you pick up radiation heat; Know how to use hands-on tools like force transducers, CNC		<p>open CREO/ProE and be able to open it and learn it quickly) – some familiarity to be able to build off of; expect for any type of software (Minitab, ANSYS); should definitely have had CAD modeling (that is a for sure); FEA stuff is something they can open up (not a black box, not a SME in it but enough familiarity with it to go with it)</p>	<p>outside of the box, asking more questions when they come into an assignment); soft skills (presentations and meetings)</p>	<p>expectations)</p>
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	<p>machines, lathes, basic power tools</p> <ul style="list-style-type: none"> A lot of the skills are “learn on the job, but need to understand principles of how the equipment works” 				
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Job Title	Skills
OMLP	Lean and six sigma, statistics (expect every major to know this), process optimization – lots of IOEs are hired, streamlining processes and workflows
QRLP	Learn by experience, but any experience is a big advantage (most people come in not knowing things); Course on how regulatory bodies work and function; how you have to be compliant – would be at really good advantage

What soft skills do they look for in BME students?

Soft Skill	Description
Presentation skills	They expect students to be comfortable speaking up and presenting at team meetings.
Team player	Would be useful where they spend an entire week working on a problem to improve the throughput of that entire process. Being an energetic team player would help them flourish in that environment
Inquisitive / critical thinking	A lot of things are learned on the job, and they would expect students to ask questions on why things are done the way they are and to think outside of the box.

Notes (Note any additional points that were discussed, but not covered above):

- This company is very specific to their products and work environment (i.e. heavy mechanical focus). If we talked to other med device / pharmaceutical companies we’ll probably get very different opinions.**

- Where do you see the biggest gaps in technical skills for BME?
 - Yes she sees gaps; where she works her site is very mechanical intensive; every time BME intern comes through site don't last very long b/c use core mechanical principles
 - For quality and operations management seem to do very well in those programs (If BME's are interested in entering technical engineering company but not doing R&D)
 - Don't have hardcore BME roles – have to pick ME, EE, software role – being put against traditional majors (so typically already behind)
 - How fast of a learner are they – can they catch up?
 - Even the playing field at the start:
 - Students say they took biofluids – but for whatever reason making the connection between biofluids and regular fluid mechanics isn't there
 - BME took two biofluids courses, but really struggled with fluids problems
 - She assumes that biofluid course content can be applied to all fluid dynamics but hasn't seen this from BME students
 - BME said they took tissue mechanics – give basic static problem and they struggle with it
 - At her site very technical – design, research, prototyping
 - Other sites that are less involved in design (outsource) – just make sure critical specs are met (less intense technical) – see BME's do well there (i.e. operations, quality, etc.)
 - BME's struggle with hands-on skills
 - Force transducers, CNC machines, lathes, power tools
 - Less of a problem at less hands-on sites
 - If BME knows how to use tools, they are impressed – they makes the assumption that they don't know how to use them
 - If only at the company for 3-6 months not enough time to teach them all these basics