



Roles BME students take in their organizations?

Job Title	Description
Electronics Programming	<u>Industry</u> BSE: Microcontroller programming for medical robotics, designing Arduino-based tools, conducting computational modeling. MSE: Image processing, cardiac signal processing. PhD: Clinical coordination, clinical trial management.
PhD Student	<u>University</u> BSE: Scientific and engineering research.

What technical skills do they look for in BME students?

Job Title	Skill	Expectation Level			
		Freshman	Sophomore	Junior	Senior
Intern, Test Engineer, Device Tech	Circuits	N/A	N/A	Basic circuits knowledge, can solve circuit equation.	Intermediate circuit knowledge, experience in testing and debugging
	Programming	N/A	N/A	At least one industry standard language (C++, MATLAB)	Can program microcontrollers or use other technical languages (LabVIEW)
	CAD	N/A	N/A	Can navigate and design using CAD software.	Same.
	Design Process	N/A	N/A	None.	Concomitant exposure to the design process, if not established experience.

Job Title	Skill	Novice	Intermediate	Advanced	Level you would expect to see this expertise (Fresh,



Stakeholder: R1 University Research Lab

					Soph, Junior, Senior):
Intern, Test Engineer, Device Tech	Mathematics	Basic engineering courses (Calculus I through DiffyQ).	Same as Novice.	Equivalent of EE: has taken complex linear algebra, data structures, and/or machine learning, and did well in them.	Developing from Freshmen to Junior years. Advanced math from sophomore to senior years.
	Quantitative Analysis	The person at least swears that they are quantitative-focused.	Familiarity with descriptive statistics and jargon.	Experience with probabilistic modeling and language.	Junior to senior years.
	Design Skills	No evidence of design experience.	Designed in a class setting and completed a project.	Has conducted large-scale independent or group design project.	Senior year.
	Electronics	Can solve $V = IR$.	Same as Novice.	Has ability to debug arbitrary circuits and develop novel circuitry from scratch.	Sophomore to Senior years.
	Modeling	No experience.	Has used COMSOL or CAD software for a class, and did well with it.	Independently developed novel, sophisticated models.	Sophomore to Senior years.
	Programming	No experience.	Has used technical programming or microcontroller programming for a class, and done well with them.	Can develop novel programs in multiple technical environments.	Freshmen to Senior years.
	Research	Can interpret	Experience with project	Has sought out	Senior year.



	Skills	technical literature.	management.	opportunities to use skills in research or industry beyond the classroom.	
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What soft skills do they look for in BME students?

Soft Skill	Description
Writing	This component becomes extremely important for the research career path with a PhD. Generally, educated language use and application is desired without respect to discipline. More advanced applications that might include a technical writing sample would include evidence that the person can complete a science paper in proper format. Essentially, there is no better evidence of capable writing than the implied statement of "A professor with a reputation approved this paper and let me publish it."
Team Engagement	The most successful recruits are those that are most interested in how they can be helpful to others on the team. In the industry, Cindy claims that it is "Better to do an amateur job in helping the group than to do your own work that follows only your own expertise (that will eventually become unimportant).
Graphics Editing	At some point there will be a need to produce graphical information in most of these career roles, and so the ability to produce rather than delegate graphical work is icing on the cake.