

Frequently Asked Questions about the Project-Based or Thesis BME MS Program

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1. What technical depth areas are available?

The handbook provides a few examples of classes that comprise technical depth in a coherent area, but you can propose any group of 15 credit-hours (usually 4-5 courses) to fulfil your technical depth requirement. The courses must be technical in nature (e.g. not any of the regulatory courses offered by BME; for specific questions contact the Department) and must be linked together in some way. Examples of possible technical depth areas include biomechanics and robotics, biomaterials, imaging and instrumentation, machine learning and informatics, etc. Technical depth courses that carry a BME designator also count towards your 12 credits of BME coursework.

2. How do the competencies work?

These are “checkboxes” that demonstrate to your knowledge about each specific topic. The requirements may be met in one of three ways:

1. Coursework – which can also overlap with your technical depth courses and/or your BME courses. A list of courses that may be used fulfil each competency is provided in the Graduate Catalog. For students in the BS/MS program, 4000+ level undergraduate courses covering specific topics may be used to demonstrate graduate level competency (e.g. a 4000 level mathematics course can fulfil the math competency, a 4000 biology course may fulfil the biology competency).
2. Through a waiver request. A waiver will be granted if you can demonstrate experience in a particular area either through prior degree, project/thesis topic, or work experience. Normally, 20-40 hours of experience in a particular field is sufficient to support a waiver request.
3. Through thesis or project work. Up to 2 competencies may be met through thesis or project work. To document this, the student and advisor must both certify that project demonstrates competence at the graduate level.

3. I'm still confused. If I use my project or thesis to fulfil a competency, does it also count as an elective?

No. Competencies are not courses or credits, they are simply topics that you need to demonstrate you know about at the graduate level. So you can demonstrate this in several ways, including through your project or thesis, or by taking a course. HOWEVER, the critical thing to remember is that, regardless of how you meet the competencies, you must complete at least 30 credit hours of coursework and 597/599 credits to finish your degree. So your 6 project or thesis credits ONLY count as project or thesis credits. They do not count towards BME or elective coursework. You need an additional 12 credits of BME and 12 credits of electives, for a total of 30 credits (12+12+6).

4. Do my thesis or project credit hours (BME 597 and BME 599) count as part of my 12 credits of BME coursework?

No. The 12 credits of BME coursework includes only formal coursework.

5. Do my thesis or project credit hours (BME 597 and BME 599) count towards my technical depth?

Yes. You may designate up to 3 credit hours of project/thesis work as technical depth. Similar to competencies, “technical depth” refers to the *content* of the credits you take. You must take 15 credits that a reasonable person would agree are related to a specific technical topic. They can all be formal courses (e.g. 5 3-credit courses, comprised of both BME and electives), or can be a mix of thesis/project and courses (e.g. 3 credits of thesis/project + 12 credits of courses). *Remember: 30 credit hours total, including 6 credits of thesis/project and 24 credits of formal coursework.*

6. Can any class count as technical depth?

No. Although most courses offered by WPI are technical in nature, some are not. For example Scientific Communication, and classes focusing on FDA/regulations are not considered technical. Similarly, Physiology and Cell and Molecular Biology for Engineers are considered life sciences classes, not technical/engineering courses. These are designated in the Graduate Catalog.

No more than one life sciences or regulatory course may be applied towards the technical depth requirement, and the course must be relevant to the depth area. When in doubt, please contact the BME Graduate Program for questions about specific courses.

7. What exactly is a project? How is it different than a thesis?

A project is similar in scope to a MS thesis, but is not limited to research only. Rather, it can be more applied, and can be done in a setting outside of a research lab (e.g. within the context of a co-op, or in collaboration with a clinician). The project requires a proposal, which outlines the goals/purpose, specific aims, and deliverables. The final project must be orally presented publically (or within a company) in an appropriate format. E.g., a poster presentation, seminar, or similar. There must also be a written document (e.g., a technical and/or user manual for something you designed, online portfolio / educational content / training documentation, or whatever the agreed-upon deliverable is). Except when non-disclosure agreements have been signed, it must be made publically available. An example project syllabus is available.

A project has a sponsor and a faculty advisor. The sponsor is the person who is directly involved in overseeing the completion of the proposed work (e.g. the supervisor, clinician, or faculty member with whom you are directly working). The faculty advisor is the WPI Faculty Member who will work with you to fulfil the BME project requirements. For projects completed on campus, the sponsor and faculty advisor may be the same person.

8. I'm a BS/MS and want to do a project along with my co-op. But the rules say that I can't register for BME 5900 until I'm at least 12 credits into a MS degree. What am I supposed to do?

You should look at all of the courses that you are planning to count towards your degree, including those that you can “double count”. Many students complete their senior year with more than 12 credits of MS work. For example, each 4000 level undergraduate course is 2 credits, and each graduate course is 3 credits. You may double count up to 9 credits total, including 4 4000-level classes, towards both your BS and MS degrees. However, we strongly encourage you to count 3 or fewer 4000-level courses, to focus on higher level coursework. You may pursue a co-op outside of the official graduate co-op designator.

9. What if I just want to do a coursework-only Master’s degree? Can I do this as a BS/MS?

You can still do this. Although we have used the term “BS/MS” to describe this, you are not technically planning to complete an MS because a coursework only graduate degree is called an MEng (“Masters of Engineering”) degree. The MEng it hasn’t changed from previous years. It does not require a thesis or a project, although you may include up to 6 credit-hours of Directed Research (BME 598) as part of your degree completion. These would count towards your electives (3 credits) and towards your BME courses (3 credits).

10. How do I identify a sponsor, faculty advisor, and topic for a project (BME 597)?

You are responsible for identifying your own project topic. If you plan to complete this requirement at WPI, you should have conversations with faculty members who are doing work that is of interest to you. These individuals may be willing to work with you to identify a project topic and serve as sponsor for that work. If you are planning a graduate co-op or internship, you should discuss a possible project with your supervisor *at the beginning of the experience* or even prior to beginning your experience. If you are interested in completing a clinical-related project, you may identify a clinician of any discipline (e.g. dentist, physician, veterinarian, physical therapist etc) either through the Clinical Practice course (BME 592), by talking to faculty members, or through personal contacts. *Regardless of your project location, you must work together with your sponsor to identify a project topic, scope, and timeline.*

11. How do I register for BME 597?

You should register for BME 597 *before the semester starts and before beginning work on your project*. Regular add/drop deadlines apply. Registering for a project requires three steps:

- a. Carefully review the generic BME 597 syllabus located at: <https://wp.wpi.edu/bme/grad/> and discuss it with your project sponsor and/or faculty advisor. It is essential that you plan ahead for a good project. *You are responsible for meeting all of the criteria that define a Master’s Project in your final report.*
- b. Complete the BME Project Registration Form and submit it to BMEGradPrograms@wpi.edu
- c. The BME Department will assign you a Faculty Advisor, taking your request, faculty expertise, and prior discussions into account.