This is an overview of 4+1 Options in Duke’s Engineering Master’s Programs for Bachelor of Science in Engineering candidates in the Pratt School of Engineering and select candidates within the Trinity College of Arts and Sciences. I’m Susan Brown, and I serve as the admissions advisor for Duke Undergraduates interested in Pratt’s 4+1 programs.
To start, let’s talk about the master’s programs available within Pratt.

The Master of Science is a traditional engineering degree that includes 10 courses in Biomedical Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, and Mechanical Engineering and Materials Science, as well as the University Program in Materials Science & Engineering. Both thesis and non-thesis options are available, and some departments offer project options as well.

The Master of Engineering Management is a degree that began at Duke in 1997. In this program, students take 4 core courses in Marketing, Finance, Management, and Intellectual Property and Business Law. Engineering Management students may take electives in any graduate engineering discipline offered at Duke, but more often than not, they tend to take electives in Engineering Management, with elective tracks in

- Customer Experience and Product Design
- Data Analytics and Machine Learning
- Operations and Supply Chain Management
- Product Management
- Technology Development and Commercialization
- And Technology Founders and Innovators

Students may also create a custom track by choosing classes among these elective tracks or
any engineering discipline Duke offers.

An internship is required, as well as two semesters of seminar and workshop.

The Master of Engineering is much like a hybrid of the other two. It began in 2010 and features 2 core courses in Business Fundamentals and Management, plus 8 courses, the very same courses MS students take, in a variety of disciplines, including

- Artificial Intelligence for Product Innovation
- Biomedical Engineering
- Civil Engineering
- Computational Mechanics and Scientific Computing
- Cybersecurity
- Electrical and Computer Engineering
- Environmental Engineering
- Financial Technology
- Materials Science and Engineering
- Mechanical Engineering
- Photonics and Optical Sciences and
- Risk Engineering

An internship is required as well, and AI, Cybersecurity, and Financial Technology all require at least one semester of seminar and workshop.
What makes a student eligible for 4+1?

- Free course openings through AP Credit, Summer School, Overloading

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<thead>
<tr>
<th>Year</th>
<th>Fall</th>
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<tr>
<td>1st</td>
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What makes a student eligible for 4+1? Typically, Duke undergraduates have free course openings in their senior year through AP credit, summer school and overloading. You might have one free opening in each semester of your senior year, or you may have two openings in spring semester only, as these examples show. 4+1 students use those open course slots to take Graduate engineering courses that map to the graduate degree they want, and then transfer those grad courses to their master’s record, lessening the time to degree to typically, just one more year at Duke.
How many open course slots are needed to make 4+1 work?

- **MS**
  - 4+1 works *only* if you have 2 open course slots in spring semester senior year.

- **MEM**
  - 4+1 works best if you have between 1 and 4 open course slots in your senior year.

- **MEng**
  - 4+1 works best if you have between 2 and 4 open course slots in junior or senior year.

How many open slots do you need to make 4+1 work?

Master of Science 4+1 works only if you have 2 open courses slots in spring semester of your senior year.

Engineering Management 4+1 works best if you have between 1 and 4 open course slots in your senior year, fall or spring semester.

Master of Engineering works best if you have between 2 and 4 open slots in your junior OR senior year.

Why the difference? The Master of Engineering Management and Master of Engineering are run by the Pratt School of Engineering, and their 4+1 is designed with maximum student flexibility. The MS is run by Duke’s Graduate School, which has a more rigid structure for 4+1, but all are great options for Duke undergraduates.
When should I apply?

<table>
<thead>
<tr>
<th>Master of...</th>
<th>Science (MS)</th>
<th>Engineering Management (MEM)</th>
<th>Engineering (MEng)</th>
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<tbody>
<tr>
<td>Apply</td>
<td>Fall of Senior Year for provisional admission in Spring of Senior Year</td>
<td>Spring of Junior Year for admission in Fall of Senior year</td>
<td>Spring of Junior Year for admission in Fall of Senior year</td>
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<td>Fall of Senior Year for admission in Spring of Senior year</td>
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<td>Fall of Senior Year for admission in Spring of Senior year</td>
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<tr>
<td>Matriculate</td>
<td>• Spring of Senior year • Summer of 5th year • Remain undergrad for 4 years</td>
<td>• Summer of 5th year • Remain undergrad for 4 years</td>
<td>• Summer of 5th year • Remain undergrad for 4 years</td>
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<tr>
<td>Pay tuition</td>
<td>Undergrad 4 years MS 5th year</td>
<td>Undergrad 4 years MEM 5th year</td>
<td>Undergrad 4 years MEng 5th year</td>
</tr>
</tbody>
</table>

When should you apply?

You may only apply for MS 4+1 in the fall of your senior year for PROVISONAL admission in the Spring of your Senior year. Students are matriculated (that means formally enrolled) in the spring of senior year, and are dual enrolled as both an undergraduate and a graduate student that semester.

You may apply for Engineering Management or the Master of Engineering in the spring of your junior year for admission in Fall in your senior year, fall of your senior year for admission in spring of your senior year, or spring of your senior year for admission in fall of your 5th year. You’re matriculated in summer term 1 of your fifth year, and you remain an undergraduate for all 4 undergraduate years, as you’ve never dual enrolled.

For any of the 4+1 programs, you pay undergraduate tuition for 4 years, and then pay graduate tuition in your fifth year.

For MS, the time to apply is rigid, and that makes it simple. For MEM and MEng, flexibility may lead to confusion. My tips are

• If you want to take courses under EGRMGMT or M-E-N-G, you need to apply for
admission before the deadline for the term in which you want to take those classes. This is especially true because all of its courses are grad only and you’ll need a permission number.

• Similarly, if you want to know that you’re admitted before you take up free time with graduate engineering courses, I suggest that those follow the same guidelines: apply for admission before the deadline for the semester you plan to take the courses. If you want to take the courses in Fall of your senior year, apply by the Fall deadlines while a junior.

• Some students need a bit more time to bring up their GPA, or they may be juggling a job search. They may choose to take departmental courses before being admitted, in the hopes that their GPA will increase, or that the course content will be valuable either way. They typically apply as late as possible – by the Fall deadlines in the spring of their senior year for admission in fall of the fifth year.

For any of those timelines, your enrollment term will be Summer Term I in your 5th year – that’s the term in which you’ll become a graduate student.
I’d like to talk about how the graduate courses you take as an undergraduate are used for the master’s programs. For the Master of Science, only courses taken in the spring of your senior year and as part of your graduate transcript (remember, you’re dual enrolled) will count toward the MS degree. This is rigid, but neat and clean. You have an undergraduate record, and a graduate record, and as long as you register for courses in the right record, the system works.

For Engineering Management and Master of Engineering, it’s a bit more complicated. EGRMGMT and M-E-N-G are grad-only designated courses, so you may take those after you are admitted to the MEM or MEng program with a permission number. Because undergraduates can take graduate courses in BME, CEE, ECE, and MEMS, you may take departmental courses anytime during your undergraduate program, but there’s a caveat that I’ll get to in a minute. You transfer those graduate courses to the MEM or MEng programs once your BSE, BA, or BS is complete, usually in the fall of your fifth year. Note that the GPA for those courses stays on your undergraduate record and they appear on your graduate record as transfer credit.

Here’s the caveat. Graduate courses can’t be used for any part of your undergraduate record if you want to transfer them to your MEM or MEng record. Courses may only count towards one degree.
What was the fine print for MEM and MEng?

*Grad courses can’t be used for undergrad record if you want to transfer them to your MEM/MENG record. Courses may only count towards one degree.

In order to successfully transfer grad classes taken as an undergrad, the grad classes can
NOT count for
• Your major
• Your 2nd major
• Your minor
• Any certificate
• 34 credits required to complete the undergrad degree

The courses you plan to transfer must be used ONLY for transfer to the grad program.

Let’s go over that again: Graduate courses can’t be used for any part of your undergraduate
record if you want to transfer them to your MEM or MEng record. Courses may only count
towards one degree. That means, that in order to move graduate courses in your graduate
record, the graduate courses CANNOT count for your major, your 2nd major, your minor, any
certificate, or any of the 34 credits required to complete the undergraduate degree. The
courses you plan to transfer must be used ONLY for transfer to the graduate program.
Here are admission statistics from a recent term, along with GRE scores and GPA for admits in MEM and MEng. I didn’t have MS data, but I imagine it’s pretty similar. Duke undergrads post a higher admission rate than the typical applicant pool, simply because departments know you.
**Application Requirements**

**MEMP+MEng**
- Statement of purpose/short answer essays
- Resume
- 3 letters of recommendation
- Unofficial transcripts
- Video introduction/interview
- GRE is waived for 4+1s (send to code 5156 if using)
- Application Fee
  - $75 application fee for MEM and MEng (waived!)
  - $95 application fee for MS and PhD

**MS & PhD**
- Work experience is not required.
- Official transcript required to enroll
- At least one Recommendation should be academic

Admission requirements are posted. All programs typically require a statement of purpose or short answer essays, resume, 3 recommendations, and unofficial transcripts, as well as a video introduction and sometimes, an interview. The GRE requirement has been made optional for 2022, but if you want to take the test, send your scores to Duke’s school code 5156. MEM and MEng waive the application fee for all 4+1s – just email me when you start your application. You may ask a department for a fee waiver for MS, but waivers are pretty limited for that program.

Here are a few other tips. Work experience is, of course, not required for any of these programs. An official transcript is required to enroll, but that one-time Duke transcript fee entitles you to as many transcripts as you want. Finally, at least one, preferably two, recommendations should be academic in nature, from a professor, or your advisor, or your research lead. Other recommendations can include internship supervisors or they can be from a club activity, volunteer opportunity, or sports activity.
Application Systems

MEMP+MEng

All applications through Duke’s Graduate and Professional School Application

- Master of Science: https://gradschool.duke.edu/admissions
- Master of Engineering: https://meng.pratt.duke.edu/apply
- Master of Engineering Management: https://memp.pratt.duke.edu/apply

Application Deadlines

- Master of Science
  - October 1 of your senior year for provisional admission in the spring

MS & PhD

- Master of Engineering + Master of Engineering Management
  - Spring:
    - First round deadline: October 1
    - Second round deadline: November 1
  - Fall:
    - First round deadline: January 15
    - Second round deadline: March 15

Again, because MEMP and MEng are offered by the Pratt school of Engineering and the MS by the Graduate School, the programs have separate applications and various admission deadlines.

The MS takes applications in the fall of your senior year for provisional admission in the spring, and the deadline is October 1.

MEM and MEng accepts applications in fall or spring and offer several rounds. I suggest that you apply in the earliest round you can, and if you want to take the GRE, take it at least one month before applying. Spring admission deadlines are October 1 or November 1, and Fall deadlines are January 15 or March 15.
To apply, create an account within the system – see links on the prior slide. Here’s an image of the application system. See that “Start New Application” is circled.
Choose the Correct Application

To start the correct application for the Master of Engineering and Master of Engineering Management programs, choose the Pratt School of Engineering application. For the Master of Science program, choose the Graduate School application.
In both applications, you’ll indicate that you’re a 4+1 in the Program Information tab.

For the Master of Engineering and Master of Engineering Management programs, you’ll choose your graduation date, and the system will automatically choose summer term 1 following that date as your enrollment term. Your application will still be considered for the active term, and you’ll get your decision according to the timeline for that term, such as Spring 2022, but using the summer after your graduation as your enrollment term ensures that you won’t be dual-enrolled.
For the Master of Science program, you are applying for dual enrollment in the Spring of your senior year only.
What questions can I help with? You are welcome to email me at Susan.Brown@duke.edu, and if you’d like to meet via Zoom, I’m happy to do that. I hope that this information has been helpful, and I hope to see you soon!