

# Degree Schedule – Graduate Certificate in Aerodynamics

Due one semester prior to completing certificate requirements.

The certificate requires nine (9) credits. Students must earn a grade of B or higher in each of the courses counting toward the certificate.

**Students:** Complete the form in Microsoft Word and email the docx file to your [graduate program director or assistant.](https://www.mtu.edu/gradschool/prospective/directors/#certificate)

**Graduate program:** Review the information provided, indicate your approval as noted, and [submit to the Graduate School](https://sites.google.com/mtu.edu/grad-school-form-submission/home) online. (link only accessible to Graduate Program staff)

The Certificate in Aerodynamics develops a foundation of fundamental fluid dynamics of gases from low to high-speed flows. The Aerodynamics Certificate will serve: (1) certificate-seeking students, who wish to obtain the skills to analyze the flow of gases as part of their professional development, and (2) degree seeking students who require the fundamental understanding of aerodynamics for their research or students with a passion for the topic.

This 9-credit certificate consists of one 3-credit required course and two 3-credit electives. Only three credits may be at the 4000 level.

## Student Information

Complete the information requested below.

Name Last or Family Name, First Name or FNU

M-Number (M12345678) M

Your name will be printed on your certificate as it appears in our University records with either your legal or preferred first name. Please choose how you would like your name to appear on your certificate and type it in full. Students may contact the [Registrar’s Office](https://www.mtu.edu/registrar/students/information/preferred-name/) to change their preferred name; employees may contact Human Resources.

Selection for name Choose an item.

Typed name Name as it should appear on certificate

## Certificate Mailing Information

Your certificate will be mailed approximately six to eight weeks after the semester that all requirements have been met to the person and address that you provide below. If you request mailing to an address that you do not reside at, please indicate “in care of” and the name of the person living at the address. Please note that this will not update your regular mailing address at the University.

Mailing address Enter name and address of the person to mail your certificate

## Accelerated Certificates

Certificate programs may allow up to three (3) credits earned while an undergraduate at Michigan Tech to be used to fulfill the requirements of their bachelor’s degree and graduate certificate. To earn an accelerated certificate, students must:

* [apply for admission](https://www.mtu.edu/gradschool/prospective/apply-now/) to the certificate program following current procedures,
* follow all current policies regarding the reuse of credits, and
* mark the accelerated class(es) with “AC” in the “Semester and Year Taken” column in the tables below.

## Required Coursework (3 Credits)

In the table below, mark the classes taken for the certificate with the semester the credits were earned.

| Semester and Year Taken | Course Number | Course Title | Number of Credits |
| --- | --- | --- | --- |
| Semester | MEEM 5210 | Advanced Fluid Mechanics | 3 |

## Elective Coursework (6 Credits - Maximum of One 4000 level Course)

In the table below, mark the classes taken for the certificate with the semester the credits were earned.

| Semester and Year Taken | Course Number | Course Title | Number of Credits |
| --- | --- | --- | --- |
| Semester | MEEM 5230 | Advanced Heat Transfer | 3 |
| Semester | MEEM 5240 | Computational Fluid Dynamics for Engineering | 3 |
| Semester | MEEM 5265 | Physical Gas Dynamics | 3 |
| Semester | MEEM 5215/4120 | Computational Fluids Engineering | 3 |
| Semester | MEEM 4230 | Compressible Flow/Gas Dynamics | 3 |
| Semester | MEEM 4202 | Intermediate Fluid Mechanics and Heat Transfer | 3 |

## Coursework Substitutions

Fully complete the table with the information requested. Include any courses for the certificate that are not named in the above tables. Approval of courses not listed above is at the discretion of the program granting the certificate.

| Semester and Year Taken | Course Numberex: CH5555 | Course TitleInclude the course number (as listed above) of the substitution and a brief rationale.The table will expand to fit your text. | Number of Credits |
| --- | --- | --- | --- |
| Semester | Course Number | Course number of substitution, and rationale | Credits |
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| Semester | Course Number | Course number of substitution, and rationale | Credits |

## Approvals

**Graduate program**: indicate your approval by typing your name below (if possible). Uploading the form to the Graduate School indicates your approval even if the form fields are not available. The Graduate School approves the form after receipt and verification.

Type name of approver

Graduate Program Director, Aerodynamics Certificate OR Date

Department Chair of Mechanical Engineering-Engineering Mechanics

**Graduate School Use Only:** Total Credits:

[ ]  AS [ ]  ACC [ ]  RCR [ ]  SFAREGS, SHADEGR, SHADIPL, SZAGDGR