

Master of Science in Aerospace Engineering

Plan Description

The objectives of the M.S.A.E. degree are to provide a quality graduate educational program that will complement the existing undergraduate and graduate curricula in mechanical engineering. The aerospace graduate program will improve and enhance the capabilities of those students seeking careers in the aerospace field and supporting engineering work for the aerospace and aviation technology community. The majority of students seeking the M.S.A.E. degree will have undergraduate degrees in the fields of mechanical or aerospace engineering, or closely related fields of engineering, applied physics, or applied mathematics; some will already have graduate degrees in the more conventional areas of engineering or the sciences. Those individuals with engineering (as well as physical science) interests will use the M.S.A.E. to develop careers as well as improve their skills in the aerospace and aviation industry. Students enrolling in the program on a full-time basis will likely assist engineering faculty in obtaining sponsored project funding and performing innovative aerospace and aviation engineering research.

For more information about your program including your graduate program handbook and learning outcomes please visit the [Degree Directory](#).

Plan Admission Requirements

Application deadlines

Applications available on the [UNLV Graduate College website](#).

In addition to the general requirements for admission to the Graduate College, an applicant for the M. S. program must complete the following requirements:

1. Applicants must complete the on-line process in the Grad Rebel Gateway system.
2. Mechanical Engineering applicants must provide two additional items while completing the process in the Grad Rebel Gateway system:
 1. A written statement of purpose indicating interests and objectives in working toward a M. S. degree.
 2. Two letters of recommendation using the online recommendation system. There is no specified format. Each letter should detail the potential of the applicant for success in a Mechanical Engineering Ph. D. program.
3. The applicant must have a bachelor's degree in engineering or a closely related discipline. Admitted students with non-engineering backgrounds will be required to complete a set of **course-work coursework** requirements that will assure successful completion of the M. S. specialization and qualify the student to sit for the Fundamentals of Engineering (FE) exam. The Graduate Program Committee or Graduate Coordinator will specify a list of required undergraduate courses that must be completed within the first year. These courses are in addition to those required for the graduate degree.
4. The applicant must submit an official copy of the Graduate Record Examination (GRE) test scores. The GRE university code for UNLV is 4861. The Mechanical Engineering Department code is 1502. The minimum **required preferred** score is at or above 70 percentile range in the quantitative reasoning section. The Graduate Program Committee

can modify this requirement if necessary. The GRE requirement is waived for students participating in the Integrated BS-MS subplan.

5. The GPC will examine the applicant's academic record and will make the final determination of the applicant's admissibility to the M. S. program. In general, a minimum post-baccalaureate GPA of 3.00 on a 4.00 scale or equivalent is **required preferred** for admission in addition to a GPA of 3.00 on a 4.00 scale or equivalent in all engineering courses.
6. All domestic and international applicants must review and follow the [Graduate College Admission and Registration Requirements](#).

The Integrated BS-MS degree program is designed to provide high-achieving UNLV Mechanical Engineering undergraduate students with the opportunity to take graduate courses that can count toward both the B. S. and M. S. ME degree programs at UNLV. This will hopefully encourage them to continue with a graduate degree by reducing the time needed for degree completion. Up to nine credits of approved graduate-level **course-work coursework** can be taken as technical electives for the grade of B or better during the senior year and those credits will be waived for the graduate degree. The GRE requirement is waived for students participating in the Integrated BS-MS subplan. The following conditions are needed to enroll in the Integrated BS-MS program:

1. A minimum of two semesters of full-time enrollment in B. S. of Mechanical Engineering program is required.
2. Applications are normally submitted with two semesters remaining in the senior year.
3. A minimum of 90 credits of **course-work coursework** applicable to the B. S. of Mechanical Engineering degree with a cumulative GPA of 3.3 or higher must be completed before beginning the joint degree program.
4. Student has to choose the thesis option.

Students are accepted into a degree program as described in the Graduate Catalog. The faculty and corresponding sub-disciplines and sub-plans within the described programs are subject to change at any time.

Plan Requirements

See Subplan Requirements below.

[Subplan 1: Non-Thesis](#)

[Subplan 2: Thesis](#)

[Subplan 3: Integrated BS-MS](#)

Subplan 1 Requirements: Non-Thesis

Total Credits Required: 30

Course Requirements

Required Courses – Credits: 9

Complete three of the following courses:

ME 609 Turbomachinery	3
ME 682 Aerodynamics	3
ME 700 Advanced Fluid Mechanics I	3
ME 701 Advanced Fluid Mechanics II	3
ME 702 Computational Fluid Dynamics	3
ME 705 Conduction Heat Transfer	3
ME 706 Convective Heat Transfer	3
ME 740 Advanced Dynamics	3
ME 741 Energy and Variational Methods in Applied Mechanics I	3

Core Courses – Credits: 6

Complete two of the following courses:

ME 704 Finite Element Applications in Mechanical Engineering	3
ME 711 Advanced Thermodynamics	3
ME 717 Transport Phenomena	3
ME 720 Acoustics I	3
ME 721 Acoustics II	3
ME 725 Vibrations I	3
ME 726 Vibrations II	3
ME 729 Advanced Robotics	3
ME 774 Introduction to Theory of Elasticity and Plasticity I	3
ME 777 Application of High-Performance Computing Methods in Science and Engineering	3

Elective Courses – Credits: 12

Complete 12 credits of elective coursework from within the College of Engineering. Courses from outside the College of Engineering may be taken with advisor approval.

Design Project – Credits: 3

ME 796 Design Project in Mechanical Engineering	1 – 3
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Degree Requirements

1. Requires 30 credits of approved graduate courses. At least 18 credits must be earned from 700-level courses, and 15 credits must be in engineering.

2. Students must make satisfactory progress toward degree completion as defined below:
 1. File an approved degree program before the completion of nine credits of coursework.
 2. Complete at least six credits of the approved program per calendar year.
 3. Maintain a grade point average (GPA) of 3.00 on a 4.00 scale with no grades below C. Grades of C- or below are not acceptable.
3. Students must comply with Graduate College policy. If progress is not satisfactory, probation and separation may result, in accordance with the rules of the Graduate College.

Graduation Requirements

1. The student must submit all required forms to the Graduate College as well as apply for graduation up to two semesters prior to completing their degree requirements.
2. Successfully complete a design project.

Subplan 2 Requirements: Thesis

Total Credits Required: 30

Course Requirements

Required Courses – Credits: 9

Complete three of the following courses:

ME 609 Turbomachinery	3
ME 682 Aerodynamics	3
ME 700 Advanced Fluid Mechanics I	3
ME 701 Advanced Fluid Mechanics II	3
ME 702 Computational Fluid Dynamics	3
ME 705 Conduction Heat Transfer	3
ME 706 Convective Heat Transfer	3
ME 740 Advanced Dynamics	3
ME 741 Energy and Variational Methods in Applied Mechanics I	3

Core Courses – Credits: 6

Complete two of the following courses:

ME 704 Finite Element Applications in Mechanical Engineering	3
ME 711 Advanced Thermodynamics	3
ME 717 Transport Phenomena	3
ME 720 Acoustics I	3
ME 721 Acoustics II	3
ME 725 Vibrations I	3
ME 726 Vibrations II	3
ME 729 Advanced Robotics	3
ME 774 Introduction to Theory of Elasticity and Plasticity I	3
ME 777 Application of High-Performance Computing Methods in Science and Engineering	3

Elective Courses – Credits: 9

Complete 9 credits of elective coursework from within the College of Engineering. Courses from outside the College of Engineering may be taken with advisor approval.

Thesis – Credits: 6

ME 797 Thesis in Mechanical Engineering	3 – 6
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Degree Requirements

- Requires 24 credits of approved graduate courses plus six credits of work associated with the master's level thesis, for a total of 30 credits. At least 15 credits must be earned from 700-level courses, and at least 15 credits must be in engineering. The final examination will include a defense of thesis.
- Students must make satisfactory progress toward degree completion as defined below:
 - File an approved degree program before the completion of nine credits of coursework.
 - Complete at least six credits of the approved program per calendar year.
 - Maintain a grade point average (GPA) of 3.00 on a 4.00 scale with no grades below C. Grades of C- or below are not acceptable.
- Students must comply with Graduate College policy. If progress is not satisfactory, probation and separation may result, in accordance with the rules of the Graduate College.
- The student must identify a Thesis Advisor within the first semester of joining the program. The student, in consultation with their Advisor, will form a Thesis Committee that includes at least four members:
 - One Thesis Advisor. A student may have two co-Advisors but they count as one committee member.
 - Two Mechanical Engineering Department faculty members.

3. One Graduate College representative. The student, in consultation with their Advisor, is responsible for inviting a committee member from within the university but outside the Mechanical Engineering Department. This person is responsible for ensuring consistency and fairness throughout the UNLV graduate programs.

Graduation Requirements

1. The student must submit all required forms to the Graduate College as well as apply for graduation up to two semesters prior to completing their degree requirements.
2. The student must submit and successfully defend their thesis by the posted deadline. The defense must be advertised and is open to the public.
3. After the thesis defense, the student must electronically submit a properly formatted pdf copy of their thesis to the Graduate College for format check. Once the thesis format has been approved by the Graduate College, the student will submit the approved electronic version to ProQuest. Deadlines for thesis defenses, format check submissions, and the final ProQuest submission can be found [here](#).

Subplan 3 Requirements: Integrated BS-MS

Total Credits Required: 21-27

Students admitted into this subplan have taken 3, 6 or 9 credits of graduate level courses that were applied toward their B.S. degree in Mechanical Engineering at UNLV. These credits reduce the total needed to complete the M.S. degree.

Course Requirements

Required Courses – Credits: 9

Complete three of the following courses:

ME 609 Turbomachinery	3
ME 682 Aerodynamics	3
ME 700 Advanced Fluid Mechanics I	3
ME 701 Advanced Fluid Mechanics II	3
ME 702 Computational Fluid Dynamics	3
ME 705 Conduction Heat Transfer	3
ME 706 Convective Heat Transfer	3
ME 740 Advanced Dynamics	3
ME 741 Energy and Variational Methods in Applied Mechanics I	3

Core Courses – Credits: 6

Complete two of the following courses:

ME 704 Finite Element Applications in Mechanical Engineering	3
ME 711 Advanced Thermodynamics	3
ME 717 Transport Phenomena	3
ME 720 Acoustics I	3
ME 721 Acoustics II	3
ME 725 Vibrations I	3
ME 726 Vibrations II	3
ME 729 Advanced Robotics	3
ME 774 Introduction to Theory of Elasticity and Plasticity I	3
ME 777 Application of High-Performance Computing Methods in Science and Engineering	3

Electives – Credits: 0-6

Complete 0-6 credits of elective coursework from within the College of Engineering. Courses from outside the College of Engineering may be taken with advisor approval.

Thesis – Credits: 6

ME 797 Thesis in Mechanical Engineering	3 – 6
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Degree Requirements

- Total credits required depends on the total number of approved graduate-level **course-work coursework** taken as technical electives (with a grade of B or better) during the senior year.
- Requires 15-21 credits of approved graduate courses plus six credits of work associated with the master's level thesis, for a total of 21-27 credits. At least 15 credits must be earned from 700-level courses, and at least 15 credits must be in engineering. The final examination will include a defense of thesis.
- Students must make satisfactory progress toward degree completion as defined below:
 - File an approved degree program before the completion of nine credits of coursework.
 - Complete at least six credits of the approved program per calendar year.
 - Maintain a grade point average (GPA) of 3.00 on a 4.00 scale with no grades below C. Grades of C- or below are not acceptable.
- The student must identify a Thesis Advisor within the first semester of joining the program. The student, in consultation with their Advisor, will form a Thesis Committee that includes at least four members:

1. One Thesis Advisor. A student may have two co-Advisors but they count as one committee member.
2. Two Mechanical Engineering Department faculty members.
3. One Graduate College representative. The student, in consultation with their Advisor, is responsible for inviting a committee member from within the university but outside the Mechanical Engineering Department. This person is responsible for ensuring consistency and fairness throughout the UNLV graduate programs.

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Plan Graduation Requirements

Refer to your subplan for Graduation Requirements.

[Subplan 1: Non-Thesis](#)

[Subplan 2: Thesis](#)

[Subplan 3: Integrated BS-MS](#)