



| Department | Course Name | Course Number | Semester |
|------------------------|-----------------|---------------|----------|
| Mechanical Engineering | Experimentation | 0904904 | |

2025 Course Catalog Description

This course covers design of experiment, experiment conduction procedures, and analysis of experimental data. Various experiment design methods and their respective characteristics are studied. In particular, factorial and fractions of two-level, three-level, and mixed-level factorials designs are discussed in greater detail. Statistical methods of experimental data, robust statistics methods; reliability and accuracy of statistical modelling and data analysis are covered with computational examples. Individual projects on applications of material studied will be assigned.

Instructors

| Name | E-mail | Section | Office Hours | Lecture Time |
|------|--------|---------|--------------|--------------|
| | | | | |

Prerequisites

| | |
|-------------------------|---------|
| Prerequisites by topic | |
| Prerequisites by course | 0904903 |
| Co-requisites by course | |
| Prerequisite for | |

Topics Covered

| Week | Topics |
|------|--------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |
| 11 | |
| 12 | |
| 13 | |
| 14 | |
| 15 | |

Evaluation

| Assessment Tools | Expected Due Date | Weight |
|------------------|-------------------|--------|
|------------------|-------------------|--------|



| | | |
|--|--|--|
| | | |
| | | |

Contribution of Course to Meet the Professional Components

Relationship to Student Outcomes

| SOs | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---------------------|---|---|---|---|---|---|---|
| Availability | | | | | | | |

Relationship to Aeronautical Engineering Program Objectives (AEPOs)

| AEPO1 | AEPO2 | AEPO3 | AEPO4 | AEPO5 |
|-------|-------|-------|-------|-------|
| | | | | |

ABET Student Outcomes (SOs)

| | |
|----------|--|
| 1 | An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics |
| 2 | An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors |
| 3 | An ability to communicate effectively with a range of audiences |
| 4 | An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts |
| 5 | An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives |
| 6 | An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions |
| 7 | An ability to acquire and apply new knowledge as needed, using appropriate learning strategies |

Updated by ABET Committee, 2025