**MEng in SYSTEMS ENGINEERING AND DESIGN (MEng/SE+D)**

 **On-Campus Plan of Study Form**

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| --- | --- | --- | --- | --- |
| **Student Name:** |  |  | **Student ID:**  |  |
| **Date:** |  |  | **Student Signature:** |  |
| **Program Advisor** |  |  | Advisor Signature |  |
|  |  |  |  |  |
| **Course Number** |  | **Course Name** |  | Credit Hours |  | Term/Year |
|  |  |  |  |  |  | **(fall,spring/summer or winter)** | **(2020, 2021, 2022, 2023)** |
| **Systems Engineering + Design Core - 9 credit hours: Breadth** |
|  |  |  |  |  |  |  |
| ISD 520  |  | Introduction to Systems Engineering (Winter,Spring/Summer,Fall) |  | 3 |  |  |  |
| ISD 599C  |  | Development & Verification of System Design Requirements (Fall) |  | 3 |  |  |  |
|  ISD 599D |  | System Architecting, Concept Development and Embodiment Design (Winter) |  | 3 |  |  |  |
|  |  |  |  |  |  |  |
| **Student-Selected Electives – 12-15 credits: Depth**Students may take elective courses from across the university, provided the courses are relevant to the student’s field of study. At least **3 credits** must come from a **systems engineering elective** and at least **3 credits** must come from a design-focused elective. The remaining **6-9 credits** are at the **student’s discretion with program director approval**.  |
| **Systems Engineering Electives:** |
| ISD 523 |  | Risk Analysis I (Winter) |  | 3 |  |  |  |
| ISD 599A |  | Software Systems Engineering  |  | 3 |  | TBD |  |
| MFG 599B |  | Design for Six Sigma (Winter) |  | 3 |  |  |  |
|  |  |  |  |  |  |  |
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| **Design-focused Electives:** |  |  |  |  |  |  |
| AEROSP 483 |  | Space Systems Design (Winter) |  | 3 |  |  |  |
| AEROSP 588 |  | Multidisciplinary Des Optimization (Winter) |  | 3 |  |  |  |
| CEE 480 |  | Design of Environmental Eng Systems(Fall) |  | 3 |  |  |  |
| DESCI 501/ME455 |  | Analytical Product Design (Fall) |  | 3 |  |  |  |
| EECS 561 |  | Design of Digital Control Systems (Winter) |  | 3 |  |  |  |
| ISD 528 |  | Advanced Design for Manufacturability(Fall) |  | 3 |  |  |  |
| ME555/MFG 555 |  | Design Optimization (Winter) |  | 3 |  |  |  |
| NA&ME 570 |  | Marine Design (Winter) |  | 3 |  |  |  |
| NERS 561 |  | Nuclear Core Design (Winter) |  | 3 |  |  |  |
| **Other electives available:**[*Automotive Engineering*](http://isd.engin.umich.edu/degree-programs/automotive-engineering/index.htm)*,* [*Energy Systems*](http://isd.engin.umich.edu/degree-programs/energy-systems-engineering/index.htm)*,* [*Mfg Systems*](http://isd.engin.umich.edu/degree-programs/manufacturing-engineering/index.htm)*, or* [*College of Engineering Course Guides*](https://bulletin.engin.umich.edu/courses/) |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Practicum and Fundamentals – 6-9 credit: Practical Application**1. 9-credit Practicum

(2) 6-credit Practicum and 3 credits for a Fundamentals Course (pre-approved 400-Level or above engineering or science course appropriate for a student’s plan of study.Choose an item. |
| ISD 503  |  | Practicum  |  | 6 or 9 |  |  |  |  |  |
|  |  | A 3 credit course is required if choosing 6 credit Practicum |  | 3 |  |  |  |  |  |

**Master’s Degree Requirements:**

Requires 30 Total credit hours of course work with:

* + At least 24 credit**\*** hours in letter graded (A-E) courses
	+ At most 6 credit hours total may be in letter graded courses at the 400-level.
	+ At least 6 credit hours toward a practicum (graded Satisfactory/Unsatisfactory)
	+ Minimum GPA of 3.0/4.0 (B average) must be maintained at all times.

**\*** Students considering a 9 credit Practicum should first consult with the Systems Engineering Graduate Coordinator.

You must seek and obtain approval for your Plan of Study from the MEng/SE+D Program Office. To request exceptions to the core courses and electives, approval must be obtained from the MEng/SE+D Program Director and then the approval must be submitted via email to the MEng/SE+D Program Office (isdsed-gradcoord@umich.edu).

**Course Requirements and Plan of Study:**

**Systems Engineering + Design - 9 credit hours: Breadth**

* + ISD 520: Introduction to Systems Engineering (Winter, Spring/Summer, or Fall)
	+ ISD 599C: Development and Verification of System Design Requirements (Fall)
	+ ISD 599D: System Architecting, Concept Development and Embodiment Design (Winter)

**Student-Selected Elective – 12-15 credits: Depth**

Students may take elective courses from across the university, provided the courses are relevant to the student’s field of study and are offered online. At least **3 credits** must come from a **systems engineering elective** and at least **3 credits** must come from a design-focused elective. The remaining **6-9 credits** are at the **student’s discretion with program director approval**.

**Systems Engineering Electives**

* + ISD 523: Risk Analysis I (Winter)
	+ ISD 599A: Software Systems Engineering (TBD)
	+ MFG 599B: Design for Six Sigma (Winter)

**Design-Focused Elective**

* + AEROSP 483: Space Systems Design (Winter)
	+ AEROSP 588: Multidisciplinary Design Optimization (Winter)
	+ CEE 480: Design of Environmental Engineering Systems (Fall)
	+ DESCI 501: Analytical Product Design (Fall)
	+ EECS 561: Design of Digital Control Systems (Winter)
	+ ISD 528: Advanced Design for Manufacturability (Fall)
	+ MECHENG/MFG 555: Design Optimization (Winter)
	+ NA 570: Marine Design (Winter)
	+ NERS 561: Nuclear Core Design (Winter)

**Other electives available**

* + [*Automotive Engineering*](http://isd.engin.umich.edu/degree-programs/automotive-engineering/index.htm)*,* [*Manufacturing Systems*](http://isd.engin.umich.edu/degree-programs/manufacturing-engineering/index.htm)*,* [*Energy Systems*](http://isd.engin.umich.edu/degree-programs/energy-systems-engineering/index.htm)*, or* <http://www.engin.umich.edu/college/academics/bulletin/courses/>

Note: Students may develop their own specialties based on their interests.

**Practicum – 6-9 credit: Practical Application**

1. 9-credit Practicum

OR

(2) 6-credit Practicum and 3 credits in a pre-approved 400-level or above engineering or science course appropriate for a student’s plan of study.