Systems Engineering Minimum Application Qualifications

The CSU Systems Engineering Department has four graduate certificates and five graduate degree plans from which a student may choose. The minimum application requirements listed below demonstrate the types of competencies that are generally required for success in our programs and the specific requirements of each program. Basic competencies can be learned through coursework or career path if there is adequate experience. *Please note that meeting the minimum program standards does not ensure admission to the program.*

Pages 2-3 of this document contain instructions for applying to the Doctor of Engineering in Systems Engineering (D.Eng.). If you are interested in a different program, please view our website to access the correct instructions: https://www.engr.colostate.edu/se/getting-started/

✓ = required
★ = strongly recommended

Certificates				
	S.E. Practice	**Human Systems Integration**	**Systems Security**	**MBSE**
Four-year bachelor's degree from a regionally accredited institution	✓	✓	✓	✓
B.S. in engineering, mathematics, or a technical discipline with a GPA of at least 3.0	★	★	★	★
Calculus I course or statement explaining equivalent experience	★	★	★	★
Basic statistics course or statement explaining equivalent experience	★	✓		★
Basic programming course or equivalent experience			✓	

Degrees					
	M.E.	**M.S. Plan A (thesis)**	**M.S. Plan B (project)**	**Ph.D.**	**D.Eng.**
Four-year bachelor's degree from a regionally accredited institution	✓	✓	✓	✓	✓
B.S. in engineering, mathematics, or a technical discipline with a GPA of at least 3.0	✓	✓	✓	✓*	✓*
Calculus I course or statement explaining equivalent experience *(please note some course options within our degrees may have higher math prerequisites)*	✓	✓	✓	✓	✓
Basic statistics course or statement explaining equivalent experience	✓	✓	✓	✓	✓
Secure a faculty advisor prior to completing application		✓		✓	
Minimum 5-8 years' professional experience as, "Systems Engineer," "Engineer," "Scientist," or equivalent					✓
Provide additional information on the proposed practicum topic and sponsor					✓

* If applying for a doctorate program and your B.S. is not in engineering, an M.E. or M.S. in engineering is *strongly recommended*

Doctor of Engineering in Systems Engineering (D.Eng.)

Detailed Application Checklist

Please use the following checklist to be certain you have included everything in your application.

Deadlines: Your application should be submitted and *everything should be received* by
April 1 for fall admission or
November 1 for spring semester admission
It is strongly encouraged that you work well ahead of these deadlines; they are not flexible.

STEP 1: BEGIN YOUR ONLINE APPLICATION

You will create an account and can re-visit the application at any time to continue where you last left off: http://gradadmissions.colostate.edu/apply

- When choosing your program, if you want to do it Online, select the "Distance" option

STEP 2: SUBMIT ALL REQUIRED APPLICATION MATERIALS

You will submit the following through the online application:

☐ **Current resumé** clearly demonstrating at least the following required professional experience as 'Systems Engineer,' 'Engineer,' 'Scientist,' or equivalent:

- 8 yrs or company recommendation for those applying to 72-credit (no applicable master's)
- 5 yrs or company recommendation applying for 42-credit (student already has applicable master's)

☐ **Statement of purpose** (2 pages MAXIMUM). This document should address the Systems Engineering Admissions Committee regarding the following:

- Your professional/academic background and skills, as relevant to pursuing a doctoral degree in Systems Engineering.
- Why you think the D.Eng. program is a better fit than the Ph.D. program. Address your background, current professional role and career aspirations.
- Any pertinent life experiences that support your application but are not reflected in other application materials.

☐ **Practicum Proposal** (2 page MAXIMUM). This document should address the Systems Engineering Admissions Committee regarding the following:

- Please explain what types of practicum topics are of interest to you and your organization.
- Include specific details and a complete development of one of these topics. Your development of the topic should show a primary alignment with the field of systems engineering (even if there is interdisciplinary overlap in a related field). ***This should be technical in nature and be the bulk of the proposal.***
- Describe how your roles and responsibilities in your organization enable this topic, and how your organization will support your practicum and benefit from it.

Submit this proposal to sys_engr_info@engr.colostate.edu and we will upload it for you.

☐ **One transcript copy from every post-secondary institution attended**, even those from which you did not earn a degree (transcripts from CSU are not required).

Beginning Spring 2027, SE *degree* program applications allow use of unofficial/uploaded transcript copies to meet application requirements. Please note that **all** *official* transcripts must be **received** by CSU before a student can enroll in their second term, so it is to your benefit to understand official transcript requirements and be prepared to submit these ASAP if admitted.

Official transcripts may be submitted during the application stage if you wish to speed up your master's transfer evaluation or are also applying for a certificate (both of which require official transcripts to be received). If a mailing address or email address is required to submit, use those shown on the next page.

You will need to have the following sent separately:

☐ **One letter of recommendation** from a sponsor within your expected practicum site/current company. This sponsor is expected to help coordinate with CSU during your practicum and serve on your advisory committee in the capacity of industry member.

Your practicum sponsor will also need to send us (sys_engr_info@engr.colostate.edu**):**

- **A current resume so minimum sponsor requirements can be verified**.
- **A copy of the signed practicum sponsor commitment form.**

Vital information about the requirements and expectations of practicum sponsors can be found on pages 4 and 5 of this application checklist and you should give your potential sponsor this information along with page 6 (the commitment form).

☐ **Two additional letters of recommendation** from faculty, supervisors, etc. who can speak to your relevant skills accurately and in detail.

You will add names of your recommenders (including your practicum sponsor) through the online application, and they will be emailed with instructions to upload the letter. Letters sent through applicants will not be accepted. **It is your responsibility to connect with your recommenders and ensure the recommendations are submitted by the appropriate deadline.** While the letter from your practicum sponsor will be submitted online, **the sponsor will need to send their resume and practicum sponsor agreement form to** sys_engr_info@engr.colostate.edu and we will upload them**.**

☐ **English proficiency scores**: required for students who do not have a degree from an institution where the primary language of instruction is English and/or international students whose country of origin does not have a primary official language of English. Click here for more information about requirements and exemptions.

Addresses to Which All Official Documentation May be Submitted:	
Physical mailing address	Graduate Admissions Colorado State University – Office of Admissions 1062 Campus Delivery Fort Collins, CO 80523-1062
Email address	gradadmissions@colostate.edu ***Emailed transcripts are not accepted as 'official'*** *unless sent through Parchment, eScript-Safe, or another 3rd party verified e-delivery service*

STEP 3: SUBMIT YOUR ONLINE APPLICATION

☐ **Pay the non-refundable Graduate School Application fee** (only payable after application is submitted) or obtain waiver (check here to see if you are eligible)

STEP 4: CHECK THE STATUS OF YOUR APPLICATION TO ENSURE YOU MEET YOUR DEADLINE

Please visit http://gradadmissions.colostate.edu/apply/status at any time to check that your application checklist is complete. The Systems Engineering Department will not provide updates on materials you are still missing. You are responsible for ensuring all materials are received by the deadline.

Your application will be reviewed **after** the deadline for the application term has passed (November 1 or April 1). Questions regarding the application process and/or program may be directed to sys_engr_info@engr.colostate.edu.

Industry/Organization Practicum Support Guidelines

CSU's Doctor of Engineering (D.Eng.) in Systems Engineering program focuses on mentoring students to hold positions at the highest levels of the engineering profession. The program emphasizes problem solving, leadership, and addressing the enterprise-level challenges that arise during technical development, as well as the ability to balance diverse technologies and competing stakeholder priorities with a system. As technology continues to advance and systems increase in complexity and sophistication, systems in every technology sector require individuals who can perform with high technical competence, professionalism, and understanding of the socio-economic systems and factors which can determine success. D. Eng in SE graduates are prepared to assume that challenge.

Completion of the professional doctorate in systems engineering demands mastery of the processes of Applied and Translational Research. Applied and Translational Research in Systems Engineering fosters the multidirectional integration of basic science, engineering/design-oriented, and enterprise-based research, with the long-term aim of improving the well-being of the public. Applied research expedites the movement between basic research and engineering/design-oriented research that leads to new or improved processes. Translational research facilitates the movement between engineering/design -oriented research and enterprise -based research that leads to better enterprise outcomes, the implementation of best practices, and improved societal and technical well-being. The professional doctorate seeks to develop researchers and practitioners with an in-depth understanding of each of these domains and the demonstrated capability to apply and translate Systems Engineering research to achieve the most beneficial enterprise and societal impacts.

Industry/Organizational Practicum Sponsor

Minimum Requirements of the Practicum Sponsor:

1. **Master's degree or higher in systems engineering, engineering, or another technical field related to SE.** Practicum Sponsor cannot be a *current* CSU student.
2. **At least 10 years of professional technical experience**
3. **The Practicum Sponsor must be an active and practicing member of the systems engineering profession.** This can be demonstrated through current assignments/projects, active membership and participation in systems engineering organizations such as INCOSE, etc. The SE Program will seek demonstrated experience specifically in the field of systems engineering on the Practicum Sponsor's resume.
4. **The Practicum Sponsor should be a person with management-level status within the organization and hold a job title at least equivalent to a job title for which a D.Eng. graduate would qualify (i.e. Chief Engineer, Director of Engineering, SIT Lead, or other systems engineering leadership positions).** Typically, the student should be reporting to the Practicum Sponsor or the Practicum Sponsor should be in the student's managerial reporting line. This can be as an immediate supervisor, department head, vice-president, etc. Students may have assignments in a variety of multidisciplinary areas where it would be advantageous to have a practicum sponsor at a higher level of management in the company. The Practicum sponsor should be highly technically experienced as they will be part of the student's Advisory Committee.

The responsibilities for an Industry/Organizational Practicum Sponsor include:

1. Assisting a student in the identification of a systems engineering project practicum of sufficient significance to the organization to make a measurable impact
2. Committing to guide the student in the completion of a systems engineering practicum
3. Completing a portion of the written departmental annual evaluation form required of doctoral candidates.
4. Providing updates to the advisory committee at least once per semester during practicum
5. Participating as a member of the student's advisory committee.

Industry/Organizational Practicum Sponsor Confirmation Procedure

Initial confirmation of the Industry/Organizational Practicum Sponsor will be accomplished during the application process, when the Sponsor writes a letter of recommendation for the applicant detailing both their recommendation and their expected level of support and involvement in the practicum activities. **The Practicum Sponsor must include their current resume with their agreement form so the above qualifications can be verified.**

Formal confirmation is accomplished when the student completes their GS6 Program of Study and forms their committee. The student will select their advisory committee with assistance from the D.Eng. Program and their default advisor, and the Practicum Sponsor will be formally evaluated and nominated by the Department Head to serve on the committee. The Practicum Sponsor will be considered to be a full voting member of the advisory committee upon approval by the Graduate School.

Objectives of the Practicum

Objectives of the D.Eng. in Systems Engineering Practicum are as follows:

1. To demonstrate the student's ability to apply advanced expertise to make an valuable systems engineering contribution in an area of concern to the organization or industry in which student participates
2. To demonstrate the student's capability in applying a systems engineering approach in a professional position to a professional project

Beginning the Practicum

Students are expected to complete most, if not all, of their coursework prior to beginning practicum credits. During the first semester of practicum credits (ENGR 786), students will work with their Practicum Sponsor and advisory committee to prepare a Practicum Proposal, detailing the expected practicum activities and goals. *Students must pass the preliminary exam, which is the evaluation of this proposal and the student's relevant skills, prior to beginning any on-site practicum activities.*

The practicum is an important part for understanding, applying, and demonstrating SE methodologies, principles, and skills for complex projects for the D.Eng. SE. The practicum will consist of 9 credits typically over 3 semesters. The applied research in this practicum should address a SE problem, issue, or application particularly valuable to the employer.

Reporting and Evaluation Procedure

The student will engage with their Practicum Sponsor and Advisory Committee to compose the technical documents necessary for the aspects of the Applied and Translational Research model. While in practicum credits, the student periodically (monthly, quarterly, etc.) prepares a report to their advisory committee summarizing practicum activities. The Practicum Sponsor submits a report to the student's committee at end-of-semester intervals and at the end of practicum. The final written report comments on the student's performance as a systems engineer and includes an evaluation of the extent to which each objective was satisfied. Upon completing the practicum credits and requirements, the student prepares the professional dissertation, recording practicum activities and outcomes.

Note on the Practicum

Students and mentors have the freedom to organize the practicum aspect of this degree. Hence, there is no one problem or model that is endorsed – all are valuable in their own way to the extent that they enhance the student's learning experience.

DEPARTMENT OF SYSTEMS ENGINEERING
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Fort Collins, Colorado 80523-6029
www.engr.colostate.edu/se/
Office: (970) 491-7067

SYSTEMS ENGINEERING
COLORADO STATE UNIVERSITY

Practicum Sponsor Agreement Form

I, _____ (printed name), agree to serve as practicum sponsor

for _____ (printed applicant name), should they be accepted as a

doctoral candidate into the D.Eng. degree program at Colorado State University.

I understand that in this capacity I will:

1. Assist the candidate in the identification of a systems engineering project practicum of sufficient significance to the organization to make a measurable impact.
2. Guide the candidate in the completion of the practicum.
3. Regularly communicate with the student, and possibly the faculty advisor and other committee members as requested.
4. Provide input on an annual evaluation form of the students' current degree progress and goals for the next year.
5. Participate as an affiliate faculty member on the candidate's advisory committee for their dissertation, which includes:
    a. completing mandatory HR processes by Colorado State that require a background check and other paperwork (about 1-3 terms into the degree program).
    b. Provide updates to the advisory committee at least once per semester during practicum and dissertation phases.
    c. Reading and evaluation of the student's preliminary materials and dissertation.
    d. Synchronous attendance at the prelim and dissertation.
    e. Participation (as a voting committee member) at the student's preliminary presentation, dissertation presentation, and written dissertation.
    - *Department administrative staff will assist you in the processes of becoming an affiliate faculty member.*
    - *Usually the preliminary presentation and thesis defense can be attended virtually.*

Signature:_____ Date:_____

Instructions to the proposed practicum sponsor: Please email a pdf of this signed agreement, with a copy of your CV or resume, to **sys_engr_info@engr.colostate.edu**.