

## Systems Engineering Minimum Application Qualifications

The CSU Systems Engineering Department has one graduate certificate 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 professional and technical 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

	Certificate in S.E. Practice	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 ( <i>please note some course options within our degrees may have higher math prerequisites</i> )	★	✓	✓	✓	✓	✓
Basic statistics course or statement explaining equivalent experience	★	✓	✓	✓	✓	✓
Secure a faculty advisor <u>prior</u> to completing application			✓		✓	
Minimum 5-8 years' professional experience as, "Systems Engineer," "Engineer," "Scientist," or equivalent						✓
Sponsor within practicum organization who will collaborate with CSU during practicum (1 letter of rec. must be from this person)						✓

\* 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 **March 1** for fall admission or **November 1** for spring semester admission

### **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:*

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- 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 is meant to address the Systems Engineering Admissions Committee and why you would be a good fit for the program. Topics may include, but are not limited to:
  - Your relevant professional/academic background and skills
  - Why you are interested in Systems Engineering – provide specific areas of interest and application
  - Why you are interested in CSU’s applied D.Eng. program and what you can contribute to CSU

*You will need to have the following sent separately:*

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- 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. The letter should state both their recommendation of the applicant and agreement to serve as Practicum Sponsor. **Your practicum sponsor must submit a current resume along with their recommendation so minimum sponsor requirements can be verified (can be combined into one document for upload).**  
Vital information about the requirements and expectations of practicum sponsors can be found on pages 4 and 5 of this application checklist.
- 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 recommenders through the online application and they will be emailed with instructions to upload the letter. Letters directly from applicants will not be accepted. **It is your responsibility to connect with your recommenders and ensure the recommendations are submitted by the appropriate deadline.**

- One official transcript from every post-secondary institution attended**, even those from which you did not earn a degree (transcripts from CSU are not required).  
To submit official transcripts, contact your previous institutions to request they submit official transcripts to Colorado State University (use institution code 4075). If a mailing address or email address is required, use the one(s) shown on the next page.

- TOEFL and/or IELTS scores:** Students are exempted from the TOEFL or IELTS requirement if the primary official language of their country is English or if they have recently earned a degree from a U.S. university. It generally takes 3-6 weeks for ETS to send the scores to CSU, so allow plenty of time. Photocopies will not be accepted.

**Test of English as a Foreign Language (TOEFL)**

Submit official scores through the Educational Testing Service (select institution code: 4075, leave the department code blank). The minimum score is 80 on the internet-based test (550 on paper-based).

**International English Language Testing System (IELTS)**

IELTS official score printouts should be sent to the Admissions office (address below). The minimum score is 6.5.

<b>Addresses to Which All Official Documentation May be Submitted:</b>	
Physical mailing address	Graduate Admissions Colorado State University – Office of Admissions 1062 Campus Delivery Fort Collins, CO 80523-1062
Email address	<a href="mailto:gradadmissions@colostate.edu">gradadmissions@colostate.edu</a>

**STEP 3: SUBMIT YOUR ONLINE APPLICATION**

- Pay the non-refundable Graduate School Application fee** (only payable after application is submitted)

**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 your application term has passed (Nov 1 or Mar 1). Questions regarding the application process and/or program may be directed to [sys\\_engr\\_info@engr.colostate.edu](mailto: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**
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 entail:

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. Providing updates to the advisory committee at least once per semester during practicum
4. 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 letter of recommendation 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.