What are the components of an application to Caltech's ESE program? What criteria are used to evaluate them?

We admit students who have a demonstrated passion for research. Successful applicants typically have a strong academic background (strong transcript in a curriculum that includes significant quantitative science and/or engineering coursework), sometimes have previous research/scholarly/engineering experience, and generally have strong letters of recommendation from those who know them well and can speak about their ability to be successful at Caltech. We also value demonstrable non-academic qualities including drive, curiosity, and collaborations and independent initiatives outside of academia.

Application component	Sub-components	High	Medium	Low
Personal statement The statement should include: • applicant's motivation for graduate research and goals; • potential research interests and areas of focus in the doctoral program and how these interests align with ESE faculty; and • applicant's prior experiences in science or science education (e.g., relevant classes, research experience, and any teaching, outreach or other educational experiences).	Content	Statement contains: • motivation and interests, well-aligned with pursuit of a Ph.D.; • candidate articulates interest in the specific graduate program and how it aligns with personal goals; and • evidence of previous coursework, independent activities, outreach, or research experience that supports goals.	Statement contains most but not all of the criteria for high ranking.	Statement is unfocused and lacking in criteria of high ranking.
	Writing	Well written and engaging; grammar and organization consistent with strong writing ability.	Few grammatical errors; easy to read.	Poor grammar; a challenge to read and understand
	Program alignment	Mentions one or more faculty members in ESE (or other Caltech programs) and makes link with own interests clear.	Background is appropriate for the graduate program but vague statement about research priorities.	No alignment evident with specific graduate program.
Official transcripts		High GPA in all courses, with transcript indicating selection of rigorous and relevant courses.	Overall strong GPA, but a few courses with weaker grades, or lacking in rigorous courses.	Weak GPA, especially in core STEM courses.

		High	Medium	Low
C.V. / Resume (and criteria) This document should include: • all previous university degrees, programs, certificates, with emphasis on science, engineering, and mathematics; • prior experiences in education (e.g., relevant formal/informal teaching or other educational experiences; and • prior experiences with research and/or engineering activities.		Strong background and experience; this may include published research/writing, research in progress, field work, relevant teaching or outreach experience, self-taught skills, etc.	Limited experience, but shows development and potential for research.	Little relevant experience through classes, research, or independent activities
Positive attributes (expressed in C.V., personal statement, or letters) We value demonstrable non-academic qualities that support the candidates' potential for success in the program. Evidence of drive, curiosity, and collaborations and independent initiatives outside of academia are considered as part of our holistic assessment of applications.		Examples of positive attributes may include but are not limited to: • energy to use talents fully, demonstrated via extracurricular activities, employment, and/or service; • clarity of purpose; • involvement and leadership in academic institutions, community, athletics, outreach, or other groups; and • perseverance when encountering obstacles or failure. Not all of these need be addressed.	Application shows some but not all of the attributes for high ranking.	Application raises concerns that student may be missing key attributes (such as those listed) that may limit success in the program.
Letters of recommendation Letters should come from individuals who know the applicant well. They are especially helpful if they can address skills as a researcher (or how skills in the classroom will translate into such research skills).		Directly addresses qualifications for the program; letters speak to applicant's abilities as high or exceptional in quality.	Letters are general in nature without specific comment on ability to succeed in a graduate program; applicant's abilities described as good or average.	Letters describe applicant's abilities as low or below average in quality.