

# What Do Hiring Managers Look For in Chemical Engineers?

Evan Pfab • CEP

In this article, hiring managers share tips and advice for chemical engineers navigating the hiring process.

Chemical engineers are widely sought after for roles in a variety of different industries. In any role, having the right qualifications and experience is only one piece of the puzzle — being able to secure the job is a whole other feat. The application and interviewing process is one of the main hurdles standing between you and a new job. In order to stand out and fully showcase your potential as a future employee, acing this stage of the hiring process is crucial, regardless of your qualifications.

Knowing how to apply for roles and secure the job in interviews is a skill in and of itself. In this question-and-answer (Q&A) article, hiring managers share insight into what they are looking for when hiring chemical engineers, and offer advice regarding applications, common mistakes to avoid, and interviewing. The Q&A helps clear up confusion about résumés, cover letters, and follow-up emails. Four hiring managers from different companies within the chemical process industries (CPI) participated in the Q&A: Cynthia Murphy-Ortega (Chevron), Ryan Morrison (Evonik), Adel Boussadia (SLB New Energy), and Andrea Wight (ExxonMobil).

Whether you are a new chemical engineering graduate or a seasoned professional looking to change jobs, read on for tips and advice on how to ace the hiring process.

What is an underrated skill you look for in chemical engineers?

**Murphy-Ortega:** Process safety fundamentals and process control skills are two focus areas that are not consistently developed but are of paramount importance to chemical engineers. Experience working with various process simulation and digital tools (such as Aspen HYSYS, MATLAB, PI Asset Framework, and process workbooks) is essential to partnering across teams and delivering value.



Cynthia Murphy-Ortega

**Morrison:** The ability to identify and understand the value of various chemical engineering tasks is such an important skill in industry. Being able to properly justify the benefits of a capital project, process optimization study, or data analysis can lead to much higher rates of success. Coursework typically emphasizes the theory (and rightfully so); however, applying that theory in practice is only half the work.



Ryan Morrison

## PROFESSIONAL DEVELOPMENT

**Boussadia:** We, SLB, are a technology company working to solve the world's energy challenges. Our engineers require critical thinking to be successful in their roles. It is not only about the solution, but the path, the journey, and the continuous lessons learned throughout the process.



Adel Boussadia



Andrea Wight

**Wight:** With the large amounts of data and information available to us constantly increasing, understanding how to apply tools like statistics, data visualization, and machine learning techniques is more important than ever in a rapidly evolving technology landscape.

How do you value graduate education in your overall hiring process, regardless of position? Are there newer graduate degrees you look for now that were not on your radar five years ago?

**Murphy-Ortega:** Chevron values graduate education in a variety of ways. While the majority of our entry-level chemical engineering positions target candidates with BS degrees, we also hire candidates with MS degrees for those positions, laddering the higher level of technical education to a higher starting compensation. Chevron has a select group of positions that target PhD-level chemical engineering candidates, typically organized around research activities. These positions are also recognized with a higher starting compensation commensurate with the candidate's educational background.

Chevron typically does not select MBA candidates for entry-level engineering positions; however, engineering graduates with an MBA may find a variety of career opportunities as their careers progress. We do have targeted development programs for candidates pursuing MBAs, but these are not specific to candidates with engineering backgrounds.

There are several emerging areas that Chevron is focusing on in recruiting. These include renewable energy, carbon capture, digital tools, and systems engineering skillsets. Whether candidates have specialized degrees in these areas or are developing these capabilities as part of their general engineering studies, we value these emerging capabilities.

**Morrison:** In my role, I hire both BS graduates as well as MS and PhD graduates. Our organization benefits from a diverse range of educational levels. I do not prioritize one over the other, but rather have different expectations of the candidates because they have had different experiences. Having been to graduate school myself, I've felt that most advanced degreed students tend to graduate with two additional skills: very focused knowledge and expertise in a

specific technical topic, and the ability to independently drive a complex problem from start to finish. I would expect an advanced degreed hire to be more capable of tackling harder problems with less oversight.

**Boussadia:** We do value graduate education, especially for our technology roles. As SLB has taken on the challenge of decarbonizing the energy industry and is committed to innovation in the new energy space, we look more specifically to the master's degrees and PhDs related to the business areas we are growing, such as carbon capture and storage, geothermal and geoenery, critical minerals (lithium), stationary energy storage, and hydrogen. SLB has a diverse portfolio where chemical engineers can find multiple opportunities, especially if their graduate studies and research are relevant.

**Wight:** Graduate work of any kind can enhance the knowledge and experience the candidate can bring to their professional work, although typical entry-level chemical engineer positions will not require education beyond a BS. Graduate programs improve one's ability to use critical thinking and be more strategic in one's thought process. This is valuable in today's world of technology development and deployment.

What are some non-traditional courses or skills and experiences you like to see from candidates?

**Murphy-Ortega:** Some skills we look for include data analytics — *e.g.*, the ability to transform a mountain of random data into artwork that tells a story; foundational coding skills, such as Python, that empower analytics and enable better decision-making; and financial acumen to better understand the financial and business impact of technical decisions.

**Morrison:** Numerous candidates have internship or co-op experiences these days, and those are exceptionally important as they offer opportunities to practice chemical engineering. I particularly like to see clear identification with the value of the work they were performing. What I also like to see is leadership in extracurricular activities (clubs, sports, organizations, volunteering, etc.). Those types of experiences show that you want to get involved in many things and want to influence them through a leadership role.

**Boussadia:** We like to see digital expertise and data processing skills since they are present in all of our technology areas. Courses, certificates, and experiences related to programming languages and large data processing tools are desirable.

**Wight:** Commitment to service is a value we seek out. In addition to the typical qualities or technical and leadership skills expected of a professional chemical engineer, seeing a visible demonstration of service to one's community and the well-being of others is an important element in judging a person's character. It shows empathy and an ability to connect to a group or larger purpose. Through service, we

gain a perspective of what another person might experience differently than ourselves. It can make an employee a more compassionate team member and ultimately, a more effective leader who understands and can motivate their team.

### Which soft skills are you mainly looking for in a chemical engineer, regardless of position?

**Murphy-Ortega:** Communication skills and the ability to influence others are very important skills that we look for in engineers. Internally, we call this “storytelling,” and we rate candidates in this skill based on observations from interviewing and engaging with them. Good storytelling also shows that a candidate understands how to address an audience. Storytelling is a critical skill to be effective at Chevron since we are continuously aligning partnerships to innovate and work as a team.

**Morrison:** Some important soft skills that I look for include active listening, self-reflection, and a learn-do-teach mentality. Active listening is a great skill that demonstrates a desire to thoroughly understand a conversation. Self-reflection shows that you can learn from the past and adapt for the future. Lastly, a learn-do-teach mentality shows an interest in learning, applying learnings, and teaching others.

**Boussadia:** The list of soft skills for a chemical engineer can be exhaustive, so I will focus on the three that I find the most critical:

- integrity: at SLB we act with integrity to achieve our success
- teamwork: we innovate together and use the strength of our diversity to learn and grow
- communication: clear and effective communication allows us to focus on what matters to be the most successful.

**Wight:** I can’t stress enough the importance of communication, in all its forms. Written communication, which is observed in the résumé and email communication with a recruiter, indicates the thoroughness and quality of the work that an individual will produce. Verbal communication, which is observed during the interview process, is critical for an employee to participate in team discussions and articulate results and the impact of their work. Nonverbal communication, like body posture and style of voice (not volume), indicates confidence and maturity. This is an indicator of the ability of the candidate to influence others effectively in the workplace. Career centers at universities can offer much support in this area, which students often do not take enough time to utilize.

### How important is a well-written cover letter in the job search process?

**Murphy-Ortega:** Cover letters are a good way to give a more detailed explanation of your experience and interests. However, they are not required for university talent unless

otherwise stated. A cover letter is seldom the difference between being chosen to be interviewed or hired. A well-written résumé that provides specific examples of a candidate’s key accomplishments and learnings in each activity listed is far more important than a cover letter.

**Morrison:** I do not consider cover letters to be as important unless I know the person already. To me, a cover letter is more impactful when it is delivered directly to an individual, as it can be more personalized (*e.g.*, direct email to a hiring manager). Too many times I see a general cover letter that is just a paragraph description of a candidate’s résumé, and it ends up not having much value. When using a cover letter, it is more important that a candidate genuinely communicates what they are seeking in a role.

**Boussadia:** The cover letter is the vehicle for potential candidates to stand out and shine during the application process. It is important to take the opportunity to highlight the skills and achievements that are not reflected in the résumé but are relevant to the position applied for.

**Wight:** A cover letter is a useful form of introduction, particularly when one is not utilizing career fairs or other in-person opportunities for networking. It helps capture a brief summary of the skills the candidate brings to a specific position, or something unique and memorable about the candidate’s experience that brings value to that position. To serve its purpose, it should be well-formatted, organized clearly, and no more than one page.

### How can a candidate stand out in interviews, especially in virtual ones?

**Murphy-Ortega:** Candidates that stand out in interviews generally exhibit one or more of the following characteristics:

- They exhibit strong communication skills by maintaining good eye contact, speaking clearly, and demonstrating good body posture.
- They listen to the questions asked and provide thoughtful responses that answer the question with an appropriate amount of detail, citing examples from their past.
- They demonstrate a genuine interest in the company that they are interviewing with, clearly articulating why they are interested in the company and coming prepared with questions specific to that company and their industry.

**Morrison:** The strongest candidates are those who know their experiences inside and out. They know what they have and have not accomplished, and can clearly articulate their experiences. Candidates also stand out by being authentic and sincere with their answers, or in other words, not being robotic and overly scripted with their answers. A heavily scripted answer makes an interviewer question whether the answer is real or not. We also appreciate candidates that are able to reflect on and communicate what their experiences have meant to them or provided them. We are much less

interested in a detailed explanation of the tasks they have experienced. Candidates can also stand out by having a clear view of what they would like to do in the first steps of their career.

**Boussadia:** Virtual interviews should be handled similarly to in-person interviews. Selecting a quiet and well-lit space, having a stable internet connection, being on time, and avoiding distractions during the interview are recommended. Another advantage of a virtual interview is the ability to research your audience and prepare adequately.

**Wight:** Ultimately, I am looking for a candidate who shows me something about who they are and what they love to do. I need to see evidence of technical skill (how well you can explain a project or task you completed), leadership (what you did to move a team or group forward), and service (the ability to recognize and support something beyond yourself and your own interests). But when the examples used to display those things also intersect with something you truly love and have passion for, there's a sparkle in the eye, an enthusiasm in the voice, or a subtle shift in body posture to lean forward. Those convey to me who you truly are and what you love to do. It is definitely harder to do that in a virtual interview, so practice by recording yourself or having someone you trust observe you in a mock virtual session. Is your unique personality and style coming across the way you hoped? During the actual interview, ensure good internet connection, microphone volume, and lighting. And be sure to limit background noise to help overcome distractions.

### What is one of your favorite questions that applicants ask during an interview?

**Murphy-Ortega:** My favorite question from candidates is, "What keeps you at Chevron?" It gives me an opportunity to talk about the wonderful culture of openness and support we have here. It's something you don't always see from the outside looking in.

**Morrison:** I had one candidate ask me, "What question would you ask in my shoes and what is the answer?" That question has been so memorable for me as it made me think about what might be important for them to know, and it honestly took me a second to answer. I ended up hiring the candidate, but not just because of that great question.

**Boussadia:** Two good questions are "What is different about SLB?" or "Why did you choose to work for SLB?"

**Wight:** I like to see candidates ask meaningful questions about career development and long-term opportunities available. This shows a well-thought-out interest in their own continued growth, which helps them gain skills and the ability to apply those skills as they grow into higher levels of responsibility. It also suggests the candidate is looking for a good long-term employment fit for themselves, consistent with our own hiring objectives.

### Are there any questions you recommend that a candidate avoid asking during an interview?

**Murphy-Ortega:** No, any question is fair game in my opinion. We want candidates to feel comfortable asking the questions they have. We believe the most creative solutions emerge in an environment where diverse voices are heard, ideas are considered, bold thinking is valued, and people can grow into their fullest potential.

**Morrison:** Avoid asking questions like "What does your company do?" This shows you've not done any research into the company. Also avoid questions about compensation or benefits, as those are better suited if you receive an offer.

**Boussadia:** Candidates should target questions that allow them to collect information about the company's culture, the role, the work environment, and the objectives to be achieved. At SLB, we value transparency and aim to give candidates enough information to make educated decisions.

**Wight:** Recruiters have an expectation of respect for their own time and effort in the interviewing process. If a candidate asks questions about easily available public information about that company (e.g., What does your company do/make?), that suggests the candidate does not have real interest in the position. It can make a candidate come off as unprepared or careless in preparing for an interview.

Questions about job expectations (travel, hours, training, relocation, etc.) or company culture are absolutely appropriate to ask if it is important to the candidate. A job interview is like a first date — we are both deciding if we are a good mutual fit for a future working relationship. If something is important to you in your employment decision, you should ask about it.

### How can you tell if someone will be able to fit into your company culture?

**Murphy-Ortega:** When a candidate exhibits good self-awareness and mindfulness. We work on many teams and part of working with others is not only understanding your teammates, but also understanding yourself.

**Morrison:** We assess candidates on our core company values during the interview. When we see strong answers that align well with our company values, then we expect they will fit into our company culture.

**Boussadia:** SLB values are at the center of our identity and our culture:

- people: because our exceptional and diverse people are the pulse and spirit of who we are
- technology: because our passion for exploring enables us to solve the world's energy challenges
- performance: because together we deliver outstanding results to build a sustainable future.

During the interview process, we usually present the candidates with situational questions that will allow us to assess

their behaviors and their alignment with our values.

**Wight:** Company culture is challenging to define and it's constantly evolving. It's often subjective. It isn't really about style, philosophy, or demographics. When I think about whether a candidate is a match for my company, I reflect on aptitude and willingness. For aptitude, I evaluate whether the skill and experience of the candidate match what I need for this position today, as well as the longer-term growth in employee competency. For willingness, I evaluate what the candidate has conveyed to me about what inspires them, the work they enjoy doing, and the career aspirations they have for themselves. If their desires are not going to be met with the job expectations, geographic locations, career development planning, or future work needed by my company, then we are not the right fit for that person. If we don't consider whether our job position and career path can meet the candidate's personal and career goals, we are doing a disservice to the candidate's future career growth.

#### What are some key mistakes you commonly see engineers make during the job search and interview process?

**Murphy-Ortega:** A common mistake I see is candidates being too high level or generic when answering questions. An interview is a way to show your experience, so don't be afraid to dive into the details. This goes back to the storytelling skill. A candidate should give enough detail to be understood, but not get bogged down in the minutia or be so high level that the answer has no substance behind it. It's a balance and takes lots of practice to be good at distilling down experiences to address a specific question from an interviewer.

**Morrison:** Some common mistakes I've come across during the application process include cover letters with another company's name, poor descriptions of one's experiences in a résumé, and leaving off significant details from a résumé (GPA, graduation date, contact information). During the interview process, the biggest mistake I've seen is a candidate coming with a lack of knowledge about the company. If you seriously want a job with that company, then you should do some research into the company.

**Boussadia:** A common mistake is adopting a mass application strategy without fully reading the job description or the qualification requirements. I recommend a strategic application approach of thoroughly reading and understanding the job posting so that you can properly highlight your relevant skills and experiences in the résumé. It is always an advantage to research the company and have an interest in their projects and missions before attending the interviews.

**Wight:** Lack of preparation is the biggest mistake I see that hurts an interview assessment. This can be tardiness to an interview, attire inappropriate with the interview environment, poor or nonexistent résumé material, lack of

easily available knowledge of the company, or not having any questions to ask of the interviewer during the interview. Here again, career centers at universities offer much support to help in preparation, mock interviews, and researching companies in advance for knowledge and ideas on appropriate questions.

#### What is the best way to follow up after an interview?

**Morrison:** A personalized thank you note/email is a very nice touch and leaves an impression. I've seen some candidates send emails to everyone that interviewed them with a personalized element to each email. It says that the candidate really listened to the interviewers and got to know each of them.

**Boussadia:** During the interview, ask how long the candidate selection process will take and when feedback is expected. It is also important to identify the stakeholder giving feedback and their preferred way to communicate.

**Wight:** When I was in the interviewing process two decades ago, it was important to follow up with a formal thank you letter. These days, email has mostly replaced the physical paper mechanism of a thank you communication, but a candidate who sends any kind of thank you note shows gratitude for the interviewer's time and high interest in the position. It also gives the candidate an opportunity to re-summarize the most important skills and experience they have for the position. The follow-up establishes a continued interaction with the recruiter, which will be helpful for any additional questions on decision timing or future opportunities.

#### What advice would you give to someone who has all the qualifications but does not hear back from recruiters?

**Murphy-Ortega:** My advice is to please be patient. Recruiters and hiring supervisors are usually quite busy trying to fill multiple jobs. In many cases, the recruiter doesn't have authority to make a hiring decision and is waiting to hear back from a hiring supervisor or other person who can make the decision. If you do have questions, you can always contact the recruiter.

**Morrison:** Some recruiters are great with feedback and some are awful, and you will unfortunately experience both. Before you finish an interview, it's recommended to understand the timeline for next steps so that you level your expectations. It is important to understand that hiring decisions can be difficult and may require some patience. If you have competing timelines, then it is very important to communicate that at the same time. That way, you can reach out for an update when you don't hear back within a communicated timeframe. Unfortunately, a continued no reply most likely means you are not being considered further.

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**Boussadia:** Companies are typically looking for defined education, skillset, and experience per role. Reading and understanding the requirements and putting the skills that are relevant to the position at the forefront of the résumé and the cover letter will allow the candidate to stand out and be contacted. I also recommend being visible on professional talent platforms and at conferences to expand their talent network.

**Wight:** Candidates should ask about the decision timeline, and they should feel free to reach out to ask for a status

**CYNTHIA MURPHY-ORTEGA** is the Manager of University Partnerships and Association Relations at Chevron Corp. Her organization manages Chevron's relationships with universities, professional societies, and institutes throughout the world. She joined Chevron in 1991 as an engineer with the Richmond Refinery in the San Francisco Bay Area and has held various engineering, maintenance, operations, financial, business planning, and process safety management positions. Murphy-Ortega later developed and managed Chevron's technical competency development programs for new hires in refining and exploration and production roles. She also worked in the Process Planning Group and performed process modeling on large-scale projects. As the Organizational Capability Manager with the Process, Analytical, and Catalysis Dept., she supported technical competency management, staffing/recruitment, new hire and competency development, and business planning. She participates on various boards at universities and associations across the U.S. with an emphasis on STEM education and diversity, equity, and inclusion. She has also been active in AIChE through the years and currently serves on the Corporate and Industry Leaders Council and the Societal Impact Operating Council (SIOC). Murphy-Ortega has a BS in chemical engineering from the Univ. of California, Davis.

**RYAN MORRISON, PhD**, is an engineering manager at Evonik, where he works in their Process Technology and Engineering business line. He leads an early career development program for engineers called the Engineering Talent Acquisition & Development (ETAD) program and is based out of Mobile, AL. Morrison is responsible for his business line's recruiting and branding activities in the U.S., as well as ongoing training and development activities for the ETAD program participants. He previously has held other process engineering and management roles within Evonik. He has a BS in chemical engineering from Georgia Institute of Technology (2005) and a PhD in chemical engineering from the Univ. of Texas at Austin (2010).

**ADEL BOUSSADIA** is a talent acquisition manager at SLB New Energy, where he leads talent acquisition efforts in the new energy sector across the globe. He is an engineer turned recruiter with 15 years of industry experience. His diverse career path with SLB has included roles ranging from field engineer to operations management across various locations in the U.S., Canada, and Brazil. In 2018, he expanded into the recruitment arena, managing numerous roles in full-cycle recruiting and a diverse portfolio from mid-career recruiting and contingent labor to university relations. In 2022, he transitioned to the SLB New Energy division to foster growth within the clean energy sector, inspired by a brief hiatus in 2017 where he pursued his passion for renewable energy by studying Renewable Energy Systems at the Ecole de Technologie Supérieure (ETS) in Canada. Boussadia aims to leverage his experience and knowledge to drive energy innovation for a balanced planet. He has a BS in electrical engineering from the National Polytechnic School, Algeria.

**ANDREA WIGHT, PhD**, is a senior principal engineer with ExxonMobil, responsible for technology development and deployment in chemicals processes. During her 19 years with ExxonMobil, she has worked in many different aspects of the recruitment and hiring process, including coordinating phone (and now Zoom) interviews, onsite interviewing for campus and experienced hires, and serving as a hiring manager and site recruiting lead. She currently leads recruiting efforts and ExxonMobil student interactions at the AIChE Annual Student Conference. Wight has a BS in chemical engineering from Tulane Univ. (1997) and an MS/PhD in chemical engineering from the California Institute of Technology (2004).

update on their application consistent with that timeline. Again, job interviewing is like dating, and sometimes the answer is no, this is not the best fit for both of us at this time. Recruiters are trying to find the right match, ideally for a long-term working relationship, and qualifications of technical skill are only one thing that's being evaluated. More intangible items like cultural fit, soft skills, and long-term career aspirations are also factors that help determine mutual good fit. If the answer from a recruiter comes back as no, do not give up. Continue to broaden your job search to other positions and other companies as well. There are many opportunities out there, some of which can be found in unexpected ways and places. Ultimately, you are striving to find the job and career that is right for you.

### In closing

While there is no secret recipe for landing a new role through the grueling job-search process, there are certainly ways you can improve your chances and better showcase your skills and qualifications. Put some of these tips from hiring managers to use when applying or interviewing for your next chemical engineering role.

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