

LOVE YOUR CAREER



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PRESENTER:
PETER LEWIS

**TIPS FOR TECHNICAL
INTERVIEWS (STEM)**

Purpose of an Interview

- Demonstrate your suitability for the role
- Back up claims you have made in your application
- Provide evidence of your key selling points – skills, attributes, experience, qualifications, interests, achievements as they relate to the role
- Differentiate yourself from the other SUITABLE candidates!

Common Interview Questions

- Tell me about yourself?
- Why did you apply for this job/course?
- Why do you want to work for this company?
- What motivates you ?
- Why do you want to be a Mechanical Engineer?
- Why are you suited to this role?
- Why should I hire you?
- What personal characteristics will you bring ?
- What makes you different from all the other candidates?

- Give me an example of when you demonstrated (skill – problem solving; teamwork; presentation)
 - What did you do?
 - How did you deal with problems that arose?
 - What would you do differently?

Common Interview Questions

- **What are your hobbies/interests?**
- **Why did you choose this course/subject area?**
- **How has your course prepared you for this role/industry (ref to subjects, labs, projects)? Tell me about your final year project?**
- **Favourite aspect of your degree programme?**
- **Present a typical work-related scenario / challenge and ask candidate how they would manage this task/challenge.**
- **Key challenges for our industry?**
- **How do you think your work or other extracurricular experience has prepared you for working in this role/industry/ our company?**
- **Any questions or anything you'd like to add?**

Purpose of a Technical Interview

- Common with engineering, science, IT, STEM employers.
- Back up claims you made on your application re your technical skills.
- Discover/test the extent of your specialist technical knowledge, skills & experience
- Show your capacity to explain technical concepts to non-technical people.
- Show how you apply technical knowledge to something that may be unfamiliar and your approach to problem solving.



What form might it take?

- Standard interview including a series of technical questions
- Technical interview - sole focus on technical questioning (technical knowledge, solving a problem, scenarios, exercises, challenges)
 - May follow initial round of interviews.
 - May form part of an assessment centre.
 - Technical exercise/challenge or case study (often as part of an assessment centre, completed individually or as part of a group)
- On-site or online interview

Technical Knowledge

- Discuss projects/modules/labs you found interesting or related to the organisation/role
- Discuss basic principles /foundational knowledge/ fundamentals. (may be tested on these)
- Provide definitions
- Describe systems, structures, processes
- Regulatory & legislative standards
- Sketch a common process/structure e.g. circuit
- May be shown a drawing and ask to explain basic components and operation around the drawing.
- A short test – e.g. coding, numerical reasoning/calculation
- Brain teasers

If a sketch or diagram would help you explain something, ask for a piece of paper or ask to share your screen and sketch it using some design/art software.



Intel Technical Questions 'Manufacturing Technician'

- Describe – analogue, digital systems
- Sketch – transistor, solenoid
- Project work
- Definitions – Vacuum systems, Ohms Law, Currents

Revise key engineering principles!





Solving a Problem/Scenario

Solve a problem/scenario task you may/may not be familiar with:

- Talk through the problem/scenario/technical process as you understand it
 - What are the issues? What do you need to consider? What would you do?
- Not seen scenario/problem before? Apply **logic** to how you would approach it. Explain your reasoning. Offer a number of possible solutions
- Focus on the methodology, process, logic, not necessarily about getting the right answer.
- May present solution verbally, on paper, whiteboard (you can ask to do this if it is not offered)
- May be asked/given the option to use a whiteboard to talk through the process/methodology

Examples:

- Explain how a certain device or piece of equipment works ; Analyse a wiring diagram or line of computer coding ; Technical exercise/challenge, case study (individual/group – often at assessment centre)

Technical Presentation Tips

- **Purpose** (inform, persuade, inspire....)
- **Subject** (final year project, your/employers choice of topic)
- **Duration** (incl. Q&A?)
- **Facilities available** (e.g. software, flip chart)
- **The Audience** (technical/non-technical, both - pitch to right level!)
 - Show you can communicate technical ideas clearly
 - Show you can organise/structure your presentation so it runs to time
 - Show you can communicate some key ideas.
- **Intro** – what you will cover and why
- **Avoid padding/too much detail.** Bigger picture!
- **3 key points** you want audience to take away. Focus content on these.
- **Visual impact** - graphs and charts, not tables! Use images, diagrams, photos



What skills are employers looking for?

- Problem solving
- Logic/Reasoning
- Communication of technical information
- Analytical
- Data analysis
- Critical thinking
- Lateral thinking
- Creative / innovative thinking
- Practical application to work situations
- Technical writing
- Work under pressure
- Project management
- Organisation/Planning
- Numeracy
- Software applications / equipment
- Interpersonal/People Skills
- Teamwork
- Decision-Making
- Adaptable/flexible
- Accuracy/Attention to detail
- Time Management/Prioritisation
- Meeting deadlines
- Leadership
- Commercial Awareness



Days/Weeks Leading up to Interview – Top tips

- Research – know yourself, the role and the company/industry
- Think of likely questions
- Know your CV/Application form
- Research who is interviewing you (LinkedIn)
- Prepare your presentation if required
- Practice, practice, practice (out loud)
- Get appropriate attire for interview (e.g. suit)
- Good sleep the night before



Top Tips – Technical Interviews

- Review what you have studied in previous years.
- Be able to talk convincingly about technical modules, labs, projects you have referenced on your CV.
- Be able to share examples of your technical skills, work you have produced, schematics, use of software.
- Be able to talk about any technical work experience you have completed
- Use relevant terminology appropriately. **Avoid too much jargon and acronyms!**
- Gather any materials you may want to have with you to interview (e.g. portfolio of project work/experience). Can share this with employer and use to illustrate answers.



Top Tips Technical Interviews (more tips)

- Practice answering technical questions out loud (ideally with someone who has technical knowledge).
- Practice/think about problems and scenarios you may be faced with within the job (using job spec as guide).
- Practice solving tech problems on paper/whiteboard
- Refresh basic technical, foundational knowledge. Brush upon the fundamentals.
- Research employer activities and issues facing the industry

During The Interview – Top tips

Before:

- Arrive on time
- Dress appropriately

First Impressions!! - Concentrate on:

- Firm handshake (post-Covid)
- Smile and be friendly
- Sit in alert position
- Speak clearly, actively listen



.....more tips

During

- Seek clarification when necessary
- Say you don't know (better to come clean than struggle on unconvincingly) but do suggest how you would go about finding the information
- Be ENTHUSIASTIC – willing to learn
- Listen to question and answer the question asked of you
- Compose yourself – drink water, breathe slowly
- Emphasise the positive – sell yourself
- Elaborate appropriately – don't talk for Ireland
- Be honest
- Show you can get on with people
- Don't jump in with pre-prepared answers
- Ask for a minute to think



Sample technical questions

- Tell me about the most challenging engineering project that you have been involved with during the past year.
- What processes have you helped develop or singularly created that enhanced engineering performance capabilities?
- Describe the most challenging written technical report or presentation that you've had to complete.
- How much oil is necessary to pollute the ocean?
- How would you explain a complicated technical concept to a non-technical person?
- What checks and balances do you use to make sure that you don't make mistakes?
- Describe your degree subject as if to a five year old in three minutes
- Describe the process of laying a wind turbine on the ocean floor
- How would your degree subject contribute to the production of Mars bars?
- What are the issues of installing underground cables?
- What kind of tech projects do you work on in your spare time?



More Sample technical questions

- What kind of experience do you have collecting and analysing biological data about relationships among and between organisms and their environment? Share an example.
- What is the minimum number of cuts needed to split a cube into 27 smaller cubes?
- Can you explain this jet engine/PWR reactor/geology profile to me?
- What do you do to keep your tech skills up to date?
- What are your favourite tech products to use and why?
- Why are doors rectangular instead of round or square?
- What's the probability of rolling a two on a die the first time?
- What resources do you use to keep up with the newest engineering technology and developments?
- Share an experience in which you oversaw the assembly of a field of wind turbines.
- What is a default and conversion constructor?
- What are the primary components of a computer system?
- Describe the process you use for writing a piece of code, from requirements to delivery.



What am I
good at?
(Skills)



What is
important to
me? (Values)



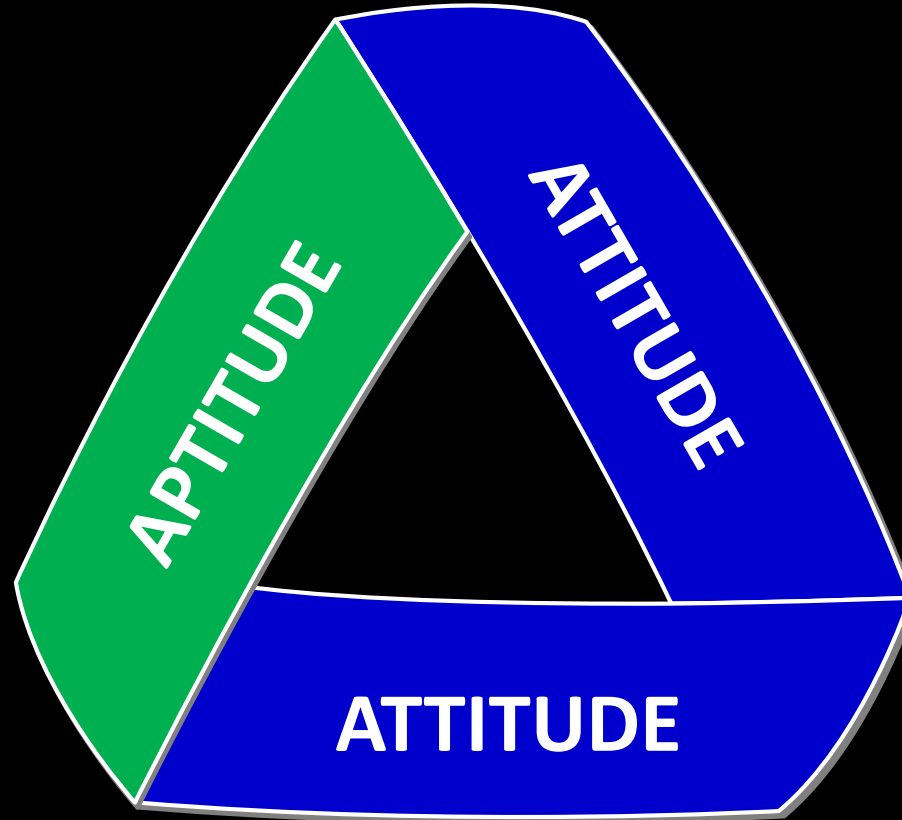
A group of five diverse people are gathered around a bright orange table in a meeting. They are looking at various documents, a laptop, and a tablet. The atmosphere is collaborative and focused. The text 'Where do I fit? (Personality)' is overlaid in the center of the image.

Where do I fit? (Personality)

Employer's **MOTIVATIONAL** Profile

Can you do it?

Do you (potentially)
have the necessary
skills and knowledge?



Will you do it?

Are you interested
and motivated?

**Will you fit the
role/environment/culture?**



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TELL ME ABOUT A TIME WHEN?

YOU OVERCAME A DIFFICULT CHALLENGE

YOU COMMUNICATED EFFECTIVELY

YOU DEALT WITH FAILURE

YOU WORKED EFFECTIVELY IN A TEAM

YOU MANAGED A PROJECT

YOU WORKED WITH CLIENTS/CUSTOMERS

Skills Exercise

- Identify your top 3-4 skills you feel you have to offer / that are relevant to the job
- Then identify some examples you can use to provide evidence for these skills and to talk about at an interview

Examples can be drawn from:

- Academic programme (projects (team/individual, research, labs etc.)
- Extra/Co-Curricular Activity in College (clubs, societies etc)
- Work experience (paid/unpaid, course-related or not)
- Personal Interests/Activities, Causes, Community Involvement
- Positions of responsibility
- Personal achievements

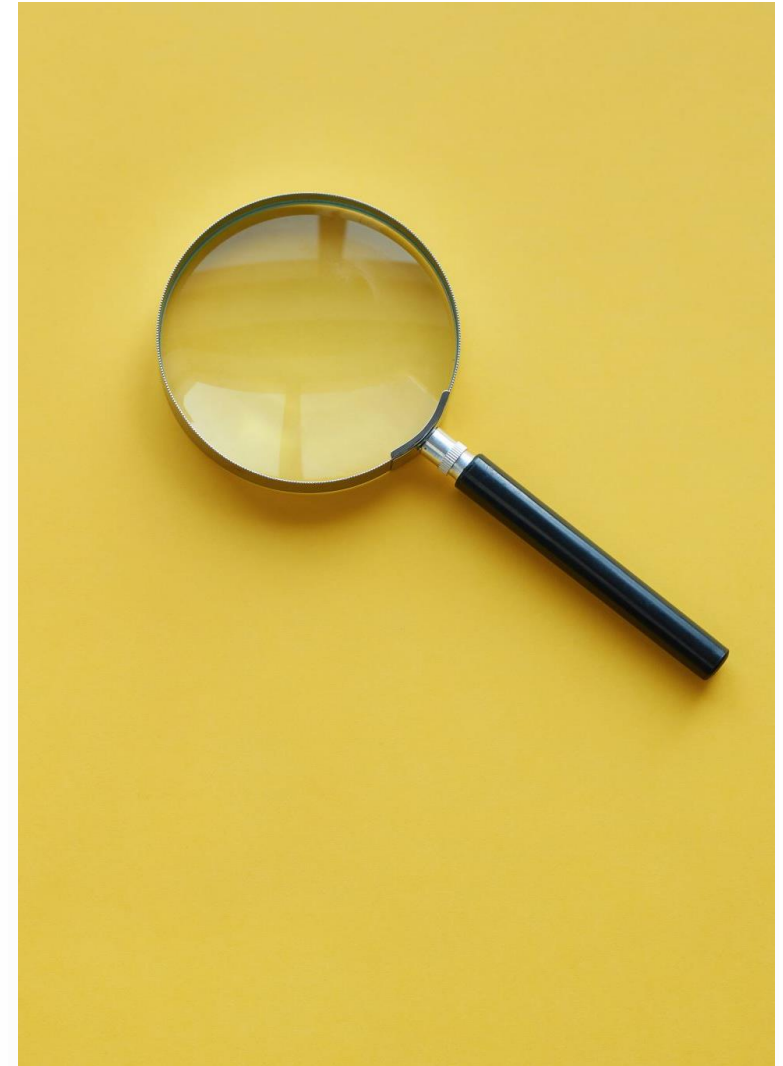
Achievements – what are you proud of?

- Did you ever look at the way something was done, and changed it around to do it more efficiently?
- Did you ever satisfy a particularly demanding customer?
- Did you ever make a suggestion that was adopted by your classmates, team or co-workers?
- Have you ever completed something successfully, you didn't believe you could do beforehand?
- Have you ever worked at something for a long time, and despaired during the process, but it came good at the end?
- Have you ever trained or taught people?
- Did you ever receive some form of recognition e.g. award, certification



Interview Resources / Skills Descriptors

- <https://www.tudublin.ie/for-students/career-development-centre/students-and-graduates/getting-ready-for-interviews/>
- <https://www.tudublin.ie/media/website/for-students/careers/docs/Skills-descriptors-and-prompts.pdf>



Context

- what was the challenge, task to be done, where, when, your role, consequences etc - detail needs to be provided here

Action

- what did you do, what was your **rationale** for your decisions - '**because**' is a key word; Use active verbs - organised; planned; (dis)assembled; calibrated; managed; arranged; oversaw; researched; gathered; undertook; observed; etc

Result

- what was the outcome of you acting in the way you did; good bad or indifferent; what were the key factors that led to that outcome. What did you do, what was your rationale for your decisions - '**because**' is a key word;

Reflection

- what did you learn from the experience - about yourself; the skill (teamwork; problem solving; structuring a project) - what would you do differently next time - again because is a key word to use

Context	A key feature of the degree in Marketing is participation in a number of time framed group syndicated case-studies set by academic staff. These are then presented for academic and peer evaluation. A group mark is awarded. On one occasion a fellow team member was gauged to be not contributing fully to the process thus jeopardizing team dynamics and final result.
Action	Having noticed the situation, I decided to confer with colleagues as to the best approach to take. I suggested taking the responsibility to approach the individual and raise concerns about behaviour. I enquired about difficulties with the workload/type and also tried to ascertain whether there were any underlying personal difficulties.....
Results	My approach was appreciated and indeed there were underlying personal factors involved. An arrangement was made to provide the said individual with a workload that suited her/his individual strengths. The group dynamic changed, communication skills developed and good standard group marks were secured.
Reflection	In retrospect I can now acknowledge/respect the importance of setting ground rules. I was however very happy that my communication skills shone through in building a rapport and trust with my teammate.

Questions?

Career Development
Centre

careers.city@tudublin.ie

