

Role-Based Simulations

Role-based simulations place students in a realistic, discipline-specific scenario where they assume roles (e.g., engineer, project manager, regulator, scientist, community stakeholder). Students must make decisions, negotiate, apply technical and professional knowledge, and manage consequences in a safe, guided learning environment.

Complexity : 

Group size: small-medium

Format: online, on-site

Learning objectives / benefits

- Apply domain-specific knowledge to solve complex problems.
- Strengthen communication skills.
- Safe environment for practicing high-risk or high-stakes situations.

Implementation

- **Create an authentic scenario** and define **distinct stakeholders** with goals, constraints, and information. Include details that will help the students interact during the simulation and prepare them for uncertainty.
- **Assign roles, define rules**, and outline the simulation flow. Let them prepare for the role and prepare. If you have students who are not active in the simulation, assign them a function (evaluate the interaction, write down critical moments, or alternative solutions)
- **Run the Simulation:** Students enact their roles, make decisions, negotiate, and respond to evolving conditions. The **teacher serves as moderator**, managing time and intervening if the discussion gets critical.
- **Debrief and let the students reflect** on the outcomes of the simulation, mistakes, alternative decisions and reasoning.

Recommendations

- **Start small.** Begin with simple simulations before moving to complex, multi-role scenarios.
- **Reduce unpredictability.** Provide students with guidance on likely stakeholder reactions (e.g., pain points, negotiation limits, and when to withhold information). You can also let students pre-decide how their role will respond.
- **Support emotional safety.** Realistic cases can feel intense; create a safe environment and check in with students.
- **Be ready to intervene.** Student choices can be unpredictable. Effective simulations require a moderator prepared to step in and redirect when needed.
- **Keep students motivated.** Ground scenarios in realistic cases and clear roles to sustain engagement.

Further reading

University of Illinois Urbana-Campaign (2023) [Role Play](#), Engagement in Engineering Education.

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