

Planning your Project – The One-Semester Plan

Tips from a professor who brought teams from Ohio University for 11 years.

Teams have been very successful following a one-semester participation plan. See below for tips.

Before the Contest

Mid-January:

- ▶ Select a Task.
- ▶ Study the Team Manual as a group (werc.nmsu.edu > 2024 Team Info).
- ▶ Study the task problem statement as a group.
- ▶ Attend the EH & S on-demand short course (optional).
- ▶ Begin a project notebook, taking note of deadlines, important design parameters, etc.
- ▶ Pay attention to the contest registration deadlines. Fees increase over time.
- ▶ Keep an eye on air fares if planning to travel by air to Las Cruces. (We have purchased plane tickets as early as October).



Mid-Late January:

- ▶ Conduct a literature review and research possible solutions to the task problem. Take note of all references as you discover them!
- ▶ Seek advice from relevant sources on/off campus (other faculty, institutes and research centers, local engineers, etc.).
- ▶ Investigate the practicality (pros and cons) of each of the most promising approaches.
- ▶ Settle on one approach to work on further.



Late January:

- ▶ Begin assembling and testing bench-scale technology to obtain results for technical report.
- ▶ Identify additional supplies and equipment needed for testing and bench-scale demonstration.
- ▶ Place orders for items so that they can arrive as soon as possible.
- ▶ Begin writing the technical report by creating a Table of Contents and major headings. Fill in each section of the paper (and relevant references) as you gather information, starting with background research. This will save you time in the end.
- ▶ Make appointments with people who will serve as auditors for:
 - ▶ legal and regulatory audit
 - ▶ business and economic audit
 - ▶ health and safety audit



Early February:

- ▶ Submit the 30% Project Review to WERC by the deadline, and alter your initial plans based on the reviewers' feedback.
- ▶ Submit the Experimental Safety Plan (ESP) to WERC by the deadline. Expect one or more revisions.
- ▶ Attend the mandatory Experimental Safety Plan (ESP) course (at least one person on each team must attend)
- ▶ Technical Report writing continues in earnest.



Mid-Late February:

- ▶ Continue writing the technical paper.
- ▶ Refine the bench-scale apparatus, update report with new data.
- ▶ Start planning the poster.

Early March:

- ▶ Conclude any last-minute bench-scale testing, then pack for shipment anything that will be going to Las Cruces.
- ▶ Be prepared to purchase what you can locally and later leave behind. Don't ship small, cheap items (buckets, for example), that cost only a few dollars here but take up space in packaging. (There's a reason the local Home Depot and Lowes love the design contest.)
- ▶ Submit your technical report to auditors three weeks prior to the due date to give the auditors time for the auditors to review their section and for your team to revise the paper, if needed, based on the auditor's comments, before it is submitted to WERC.

Mid-Late March:

- ▶ Submit the equipment transportation form if shipping equipment to Las Cruces.
- ▶ Ship needed items in plenty of time for them to arrive BEFORE the contest starts (the stories I could tell!)
- ▶ Complete the poster and have it printed. (No paragraphs! Use mostly tables, graphs, figures, and bulleted lists, and leave enough blank space to make the poster comfortable to view.)
- ▶ Submit the technical report by the deadline. It is due one week prior to the on-site contest. Don't be even one day late as the point penalty is enough to take you out of the running.
- ▶ Prepare the oral presentation.
- ▶ Prepare the Flash Talk PowerPoint presentation.



Early April

- ▶ Put finishing touches on the oral presentation, poster presentation, and Flash Talks.
- ▶ Submit the Flash Talk PowerPoints.
- ▶ Come to the contest and enjoy showcasing your WERC!



Thoughts on the Technical Report

- ▶ This is the most important piece of the effort.
- ▶ You will make or break your contest ranking based on the quality of the paper.
- ▶ The judges see the paper before the contest, so they will have already formed some opinions about the teams they'll be judging, and you want that opinion about your team to be a good one.
- ▶ Pay attention to the audits and incorporate what they recommend into the final paper. Judges will be looking for this.
- ▶ Students should write the paper with faculty input (rather than faculty writing the paper).

The Bottom Line

- ▶ The time commitment for the students is significant if they want to succeed, but the experience they gain is invaluable.
- ▶ We've three different team compositions, and all are successful:
 - ▶ as extra-curricular activity—students do this in addition to their regular course load
 - ▶ as technical-elective credit—students do this as part of their regular course load
 - ▶ as senior design course project—students do this as part of their required course load
- ▶ It is rare for a team to win any award their first time out.
- ▶ LEARN from the experience, carry it back with you, and use it when you prepare for your second and future years of participation.
- ▶ It might be a cliché, but there is as much learning and as much reward in the doing as there is in the winning.
- ▶ As contest founder Abbas Ghassemi always said, "You're already all winners just by being here." It really is true! It takes perseverance to make it to the contest.

At the Contest

Sunday: Registration, Setup, & Opening Events

- ▶ Remember to have fun this week!
- ▶ Arrive at contest site by mid-afternoon on Sunday, especially if you are new to the contest, so you can see how things are set up.
- ▶ Unpack your shipment immediately, checking for any damage or breakage. (Home improvement stores are 15-20 minutes away.)
- ▶ Begin to set up your bench-scale demonstration. WERC will provide mounting materials for you to hang your poster on the wall of the booth.
- ▶ Attend the Flash Talks, opening dinner, welcome meeting, and safety briefing (mandatory).



Monday: Oral Presentations & Bench-scale Oversight

- ▶ Oral presentations (morning) – see details below.
- ▶ Poster presentations (afternoon) – see details below.
- ▶ Bench-scale demos cannot be run until the Safety Officer has commissioned the equipment.
- ▶ After your team has been commissioned, you may run samples through your apparatus (if applicable), and turn it in for analysis, if you can.
- ▶ Judges do not visit the bench-scale area this day in any formal capacity, but they may wander around and talk to you.

Monday Details: The Oral Presentation

- ▶ Practice it and polish it, of course, but don't overdo it.
 - ▶ as faculty, we watch them practice maybe three or four times, although they'd often practice it on their own many more times.
 - ▶ especially practice to get the timing right. Points are deducted for going over time.
- ▶ Don't read from cue cards.
- ▶ Spread the talk among several students (whatever the guidelines in the Team Manual allow).
- ▶ Pay attention to the time and don't run long (but don't finish too soon, either).
- ▶ If the faculty advisor attends (and I personally don't recommend this, even if contest rules allow it), sit quietly in the corner and don't talk no matter how much you feel the urge to do so (points will be deducted). Just smile at your team and support them.
 - ▶ Only the students should answer judges' questions.
 - ▶ Faculty advisors will harm their cause (and embarrass them) if you keep chiming in.
 - ▶ The students are adults—let them be adults.

Monday Details: The Poster Presentation

- ▶ Teams will move their posters from the bench-scale area to the banquet room and place it on an easel. If your poster is larger than the mounting board provided at the contest (see Team Manual), bring your own means of keeping the poster from flopping on the easel.
- ▶ Judges will be given time to review the posters in a closed session, then the teams will enter the room and stand by their posters, ready to answer questions. There is no need to prepare a presentation.
- ▶ Space is limited. Only 2- 3 members of the team should attend the poster. Other team members may stand at a distance and observe.
- ▶ Faculty advisors should not be present. There is not enough space, and the teams need to be given primary responsibility for their project.

Tuesday:

Bench-Scale Demonstration with Posters

- ▶ Bench-scale demonstration day. This is usually the teams' favorite event.
- ▶ Two to three sets of judges will come to your booth to discuss your prototype for one half hour per set of judges. This is your opportunity to show them what you were talking about during the oral & poster events.
- ▶ Have your poster hanging in your booth to point out relevant graphs, figures, etc.
- ▶ Prepare a 1-minute introduction to your project to greet each set of judges, then be prepared to answer their questions.
- ▶ Divide the presentation among several students, including those (if any) who did not present during the oral presentation and/or the poster presentation.
- ▶ Your technology needs to work. If you can run it for each set of judges, great, but you don't have to demonstrate it to them for various reasons (for example, the process may take longer than a half hour, the sample has already been treated, you already ran it for the previous group of judges, etc.).
- ▶ Finish treating the sample and turn it in by the deadline.
- ▶ Keep the bench area neat and observe safety requirements.
- ▶ Take care of the environment! Bench-scale setups are decommissioned around 2:00 PM. Teams must sign up with the safety staff for a time slot to begin the decommissioning process. Teams must follow all EH&S protocols, including proper labeling and handling of waste. Instructions will be given onsite.

Wednesday: Wrap-up

- ▶ In the morning, consider some local touring while judges deliberate.
- ▶ In the evening, dress up, and enjoy the banquet and Awards Ceremony!