PDR Guidelines

Important Note: Specifically for URC2021 teams will need to address COVID-19 impacts and mitigation during reviews. Report lengths will be increased (compared to previous years) to support this additional information. This is an essential element of reports for URC2021 and must be addressed in detail by teams! Judges realize that COVID-19 is impacting each region/team differently and want to know how each team is planning for its unique situation. Safety continues to be our top priority, and teams are encouraged to visit the URC COVID-19 page.

Format and Submission Details

Preliminary Design Review (PDR) Reports are limited to a total of 5 pages. **Pages 1-3** may contain text and graphics (images, figures, etc.); **pages 4-5** may only contain graphics with captions. Pages should be in letter paper size (8.5 in. x 11 in.), with margins no smaller than 1 in. (2.5 cm), text in Calibri 11 point font (or similarly sized font), and single spaced. Graphics and images are allowed within the page limit. PDR Reports may be submitted at any time prior to the deadline, and will be reviewed by judges on a rolling basis. PDR Reports must be submitted no later than the due date (November 29, 2020). This is a considered a non-competitive review milestone, meaning that reports will only be assessed on their own merits.

A header at the top of the first page must identify the URC team's name, university, city and country, the student team lead, and an additional optional point of contact.

Electronic submissions are required in *.pdf file format only. Files should be uploaded via a form link that will be sent directly to Student Team Leads (the file may be uploaded by any student team member with a Google account).

Report Content

The PDR Report is expected to focus on the team structure, resources, COVID-19 impacts/mitigation, project management plan, and preliminary technical design. Judges will be assessing each team's overall level of readiness to undertake the URC competition, specifically whether teams will be ready to submit a System Acceptance Review package by early March, and be prepared to compete by June (if selected). Judges view this report as a tool that will help teams to solidify and articulate the essential elements of a successful team early in the competition cycle.

The following are essential elements of information that teams are **required** to address. Teams may discuss any other topics that they feel are appropriate.

1. Team Structure

Discuss your team's structure, to include the leadership and overall membership. A summary of the backgrounds of team members (which academic departments are represented, relevant experience, etc.) should also be discussed. Briefly discuss your team's recruiting plans, and educational outreach plans.

2. Team Resources

Discuss your team's financial and facility resources. This should include a budget, your fundraising and financial management plan, and your access to appropriate design and fabrication spaces. Finances should be listed in USD (United States Dollars). The budget should be presented as a table, including income categories and total to date, expense categories, total required, funding required, and income sources that satisfy the deficit (if any).

Simply stating that you will build a budget and raise funds is considered insufficient - please describe your budget, fundraising plan, etc.

3. COVID-19 Impacts and Mitigation

Describe in detail how COVID-19 is specifically affecting your team, and your team's mitigation of these impacts, to include:
- Overview of COVID-19 restrictions that have been imposed at the country (if relevant), local, and university level;
- Discussion of how the COVID-19 impacts have disrupted your team's work (teams may discuss impacts dating back to the URC2020 competition cycle);
- Discussion of impacts known or anticipated to your team's work through the remainder of URC2021 (including campus/facility/rover access, and ability to meet in-person);
- Discussion of your team's mitigation steps, both at the detailed level (e.g. changes to meetings and logistics) and the project level (discussion may be included in Project Management Plan discussion);
- Discussion of how your team is working to ensure continuity of knowledge as experienced team members graduate.

4. Project Management Plan

Discuss your team's overall approach to the URC system development life cycle (e.g. plan, design, manufacture, integrate, test). This plan should explain how you intend to solve the problems, not necessarily the exact solution. Technical design details may be provided to support the project management plan discussion.

The Project Management Plan should address the impacts of COVID-19 as discussed in the previous section. In most years teams are expected to address only the current competition year; however for URC2021 teams are allowed and encouraged to address URC2020 - 2021 as a two-year development life cycle.

Additional required elements of the Project Management Plan include:

- A work schedule in the form of a Gantt chart specifying responsible people/subteams, tasks throughout the URC system development life cycle, and dates (specify who is doing what when);
- Document sharing and knowledge management plan;
- Systems engineering and integration plan;
- Testing and evaluation plan.

The Gantt chart should include at least the period September, 2020 through June, 2021. Specify when the team is testing remote communication, navigation, manipulation and science tasks required for competition. The chart must be of sufficient resolution so it is readable when enlarged.

5. Preliminary Technical Design

Teams should present their preliminary technical design for major rover systems (e.g. mobility, communications, arm, command and control, science payload). Details are encouraged, but not required.

Tips From the Judges

- Use all five pages allowed.
- Pay specific attention to the COVID-19 section and Project Management Plan, addressing guidance on the URC COVID-19 page.
- Read and follow all of the instructions.
- A full biography of each team member is not required when addressing Team Structure! Be thoughtful about the space devoted to each section of your report.
- Simply stating that your team has a subsection of the plan ("we will create and follow a test and evaluation plan") will be considered insufficient. The goal is to demonstrate to judges that your team has a plan tailored for you that will help you be successful.
- Do not rely on your team's past success as a substitute for addressing the required elements of information.
- While 5 pages may seem short for the information requested, the format is designed to keep your report focused and concise.
- Use pages 4 and 5 effectively by including:
  - A graphical organization chart show how the team is organized;
  - Budget table (list income sources, anticipated expenses by category, and what remains to be raised, all provided in USD);
  - Gantt chart (specify dates, not just the number of elapsed weeks; specify tasks, not just milestones);
  - Picture(s) of design graphics, or any fabricated components/systems.