

# Synopsys Championship

## Instructions for Project Materials Online

Adapted from the Regeneron International Science and Engineering Fair 2021. These instructions are for project materials to be posted by students into Judging Folders and used during judging in video conferences at the Virtual Synopsys Championship.

### REQUIRED Items:

**File format: All files in PDF format.**

**Naming Files: All files must be named using your three-character Project Code and subject, for example, A10.abstract.pdf.**

### Items required for Judging Folders (See Appendix I for more information):

- I. **Abstract** (250 words) (File name: xxx.Abstract.pdf)
- II. **Regulated Research Institutional Setting Form 1C** (for RRI Projects only) (File name: xxx.RRI Form 1C.pdf)
- III. **Continuation Form 7** (if applicable for continuation projects) (File name: xxx.Continuation Form 7.pdf)
- IV. **Project Presentation (File name:xxx.Project.pdf)**
  - a. The project presentation replaces the project poster used during in-person fairs. Appendix II provides complete instructions of the format requirements and recommendations.
  - b. There are three suggested templates based on project type:
    - i. Science Projects,
    - ii. Engineering/Software Engineering Projects and
    - iii. Mathematics Projects.
- V. **Project Notebook Image/Excerpt (File name: xxx.notebook.pdf)**

Synopsys Championship requires high school projects to submit a laboratory notebook and encourages middle school projects to do so. The notebook contains records of their research timeline prepared as the project progresses with dates and process. Notebooks may be handwritten or typed. Students should upload a PDF of the first page of your lab notebook, two important middle pages, and the last page to provide evidence of its use (4 pages maximum). Save, scan or photograph these pages and save as a PDF file.

## **Additional OPTIONAL materials:**

No optional materials should be posted except an optional 2-minute video (see instructions below). All judges will have access to optional material, just as they would at an in-person display. Key information should be provided in the required materials as outlined above. Optional videos are considered as supplemental.

### **OPTIONAL Video Demonstration/Simulation/Animation (2 minute maximum)**

If a project is best explained by showing a demonstration, simulation or animation, you may post a short video on YouTube and include a link in your Project PDF file. This video must meet all Display & Safety regulations. See Appendix III for more information.

## Appendix I. Documents Posted in Judging Folders

- **Abstract** (250-word format)

*The abstract summarizes the information contained in the rest of this document. An abstract includes: (a) the research question or engineering problem, (b) procedures used, (c) data, (d) interpretation and (d) conclusions. It also may include any possible research applications. It should be limited to these essential elements.*

- **Regulated Research Institutional Setting Form 1C** (for RRI Projects)

*In 2020-2021, when many Regulated Research Institution laboratories and facilities are closed to student researchers, a Form 1C is used when support from mentors and those in a laboratory setting has been provided, even when the student received this support remotely. This can also include situations in which a mentor is supporting research activities on behalf of a remote student to help clarify the student's involvement in each step of the project.*

- **Continuation Form 7** (if applicable)

*Any project that is a continuation of a previous year's work must document that additional research is new and different on Continuation Form 7. Note that projects that were conducted between January 2020 and March 2020 that competed at an ISEF-affiliate fair, may not be presented in 2021 without meeting the continuation criteria.*

## Appendix II. Project Presentation Instructions

You may prepare your Project Presentation using your choice of software tools, but the final document submitted for display to the judges and the public must satisfy the following requirements.

### Format Requirements

1. The Project Presentation must be a single PDF document limited to **no more than 12 pages**.
2. You must use a page size no larger than either American standard 8½"X11" or European standard A4.
3. The PDF document must open with default magnification "Fit Page" so that **the entire page is visible at the same time**. The pages should be created in Landscape mode.
4. Your PDF document must be without animation or active hyperlinks except for an optional video demo. The document must not have instructions to open in "full screen mode." Eliminating this mode automatically precludes page transitions and embedded videos or animations, so do not attempt to include these in your Presentation. (There is provision elsewhere in your submission for an optional video if you need something to move in order to illustrate your project.)
5. The page background color must be a light color, not affect readability and comply with all Display & Safety rules.
6. Text color must be predominantly dark to support readability.
7. All text should be readable easily when viewing the entire page at once. The smallest allowable font size of body text is 14 pt. and an 18 pt. font is recommended. *Exception:* You may use a smaller font size, down to 10 pt., for figure captions or photo credits.
8. All Project Presentation elements must conform to Display & Safety rules as if placed on a physical poster for display to judges and the public.

### Format Recommendations:

1. Do not use non-standard fonts or colors to "stand out from the crowd" or to be entertaining. It is recommended that you use a font such as Arial, Calibri, Helvetica or Century Gothic.
2. Page titles should all be the same size. That size should be larger than headings within each page. In turn, headings should be larger than body text.
3. Avoid long expository paragraphs. State your points succinctly.
4. Use bullets to set out individual points of interest. Use numbered lists when the ordering of points of interest is important (*e.g.*, instructions to be followed in order, or items needing a reference anchor for citation elsewhere in your Presentation).
5. All body text should adopt a common font style and size. Similarly, all heading text should adopt a common font style and size. There is no recommendation for the style and size relation between body and heading text.

### Project Presentation Templates

Choose one of the following templates to create your presentation.

- Do not include information not specified in this template.
- If you are submitting a continuation project, include only information related to this year's research unless otherwise directed in the instructions below. You may include graphical elements as they would explain or illustrate your work and can be contained within the overall page limits.
- Each of the seven (7) required sections in each template must start on its own page and be in the order provided.
- Titles per section are provided as recommended titles, but alternate titles may be used.
- Each section may extend beyond one page as long as the total does not exceed 12 maximum pages.

**TEMPLATE I: Science Projects**  
**TEMPLATE II: Engineering/Software Engineering Projects**  
**TEMPLATE III: Mathematics Projects**

# Project Presentation Template: Science Project

## 1. Project ID and Title

- The following should be included:
  - Project Code. This three character Code was be provided upon submission of your project application.
  - Project Title
  - Student Name (s)
  - RRI Project: Yes or no
  - Grade (do **not** include your school)

## 2. INTRODUCTION - What is your research question?

- Explain what is known or has already been done in your research area. Include a brief review of relevant literature. If this is a continuation project, a brief summary of your prior research is appropriate here. Be sure to distinguish your previous work from this year's project.
- What were you trying to find out? Include a description of your purpose, your research question, and/or your hypothesis.

## 3. METHODS - Explain your methodology and procedures for carrying out your project in detail.

- What did you do? What data did you collect and how did you collect that data? Discuss your control group and the variables you tested.
- DO NOT include a list of materials.

## 4. RESULTS - What were the result(s) of your project?

- Include tables and figures which illustrate your data.
- Include relevant statistical analysis of the data.

## 5. DISCUSSION - What is your interpretation of these results?

- What do these results mean? Compare your results with theories, published data, commonly held beliefs, and expected results.
- Discuss possible errors. Did any questions or problems arise that you were not expecting? How did the data vary between repeated observations of similar events? How were results affected by uncontrolled events?

## 6. CONCLUSIONS - What conclusions did you reach?

- What do these results mean in the context of the literature review and other work being done in your research area? How do the results address your research question? Do your results support your hypothesis?
- What application(s) do you see for your work?

## 7. REFERENCES

- This section should not exceed one page. Limit your list to the most important references.
- List the references/documentation used which were not of your own creation (i.e., books, journal articles, web reference).

# Project Presentation Template: Engineering/Software Engineering Project

## 1. Project Code and Title

- The following should be included:
  - Project Code. This three character code was provided upon submission of your project application.
  - Project Title
  - Student Name (s)
  - RRI Project: Yes or No
  - Grade (do **not** include your school)

## 2. INTRODUCTION - What is your engineering problem and goal?

- What problem were you trying to solve? Include a description of your engineering goal.
- Explain what is known or has already been done to solve this problem, including work on which you may build. You may include a brief review of relevant literature.
- If this is a continuation project, a brief summary of your prior work is appropriate here. Be sure to distinguish your previous work from this year's project.

## 3. METHODS - Explain your methods and procedures for building your design.

- What did you do? How did you design and produce your prototype? If there is a physical prototype, you may want to include pictures or designs of the prototype.
- If you tested the prototype, what were your testing procedures? What data did you collect and how did you collect that data?
- DO NOT include a separate list of materials.

## 4. RESULTS - What were the result(s) of your project?

- How did your prototype meet your engineering goal?
- If you tested the prototype, provide a summary of testing data tables and figures that illustrate your results.
- Include relevant statistical analysis of the data.

## 5. DISCUSSION - What is your interpretation of these results?

- What do these results mean? You may compare your results with theories, published data, commonly held beliefs, and/or expected results.
- Did any questions or problems arise that you were not expecting? Were these problems caused by uncontrolled events? How did you address these?
- How is your prototype an improvement or advancement over what is currently available?

## 6. CONCLUSIONS - What conclusions did you reach?

- Did your project turn out as you expected?
- What application(s) do you see for your work?

## 7. REFERENCES

- This section should not exceed one page. Limit your list to the most important references.
- List the references/documentation used which were not of your own creation (i.e., books, journal article, web reference).

# Project Presentation Template: **Mathematics**

## **1. Project ID and Title**

- The following should be included:
  - Project Code. This three character Code was provided upon submission of application.
  - Project Title
  - Student Name (s)
  - RRI Project: Yes or no
  - Grade (do **not** include your school)
  - City, State, Province, Country

## **2. INTRODUCTION - What is your research question?**

- Explain what is known or has already been done in your research area. Include a brief review of relevant literature.
- Explain what is known or has already been done in your research area. Include a brief review of relevant literature.
- If this is a continuation project, a brief summary of your prior work is appropriate here. Be sure to distinguish your previous work from this year's project.

## **3. FRAMEWORK - Notation and framework.**

- Introduce the concepts and notation needed to specify your research question, methods, and results precisely.
- Define relevant terms, and explain prior/background results. (Novel concepts developed as part of your project can be presented here or in Section 4, as appropriate.)

## **4. FINDINGS - Present your findings and supporting arguments.**

- What did you discover and/or prove? Describe your result(s) in detail. If possible, provide both formal and intuitive/verbal explanations of each major finding.
- Describe your methods in general terms. Then:
  - Present rigorous proofs of the theory results – or, if the arguments are long, give sketches of the proofs that explain the main ideas.
  - For numerical/statistical results, include tables and figures that illustrate your data. Include relevant statistical analysis. Were any of your results statistically significant? How do you know this?

## **5. CONCLUSIONS - What is your assessment of your findings?**

- How do the results address your research question? And how have you advanced our understanding relative to what was already known?
- Discuss possible limitations. Did any questions or problems arise that you were not expecting? What challenges do you foresee in extending your results further?
- What application(s), if any, do you see for your work?

## **6. REFERENCES**

- This section should not exceed one page. Limit your list to the most important references.
- List the references/documentation used which were not of your own creation (i.e., books, journal articles, web reference).



## Appendix III. Optional Project Video Instructions

Record a video (maximum duration 2 minutes) demonstrating your hardware or software. Post your video on YouTube and include a link to the video in your project file.

### What to include in your video:

1. **Introduce Yourself:** State your full name(s) and your project title.
2. **Explain Your Project:** Summarize your research into main points:
  - a. What did you do?
  - b. What did you find?
  - c. Demo your hardware or software in action

#### To note:

- You can use any props or visuals you may have that are within the Display & Safety guidelines.
- Do not include anyone in your video other than the student researchers of the project.

### Best Practices for Filming:

These videos will not be edited. To ensure your video is the best representation of your work, please keep these best practices in mind while filming:

- Please speak in English or provide English sub-titles.
- Film yourself in a well-lit and non-distracting environment so the viewer's focus stays on you and your work.
- For best results, film your video horizontally (landscape).
- Keep the camera still and in place during filming.
- Speak clearly and loudly enough that the recording is able to pick up every word you say.
- Avoid long pauses.
- Listen to your video after recording to ensure your voice is clear and audible, and that the video has not picked up too much background noise.