Australian Conrad Challenge
Team Handbook

2017
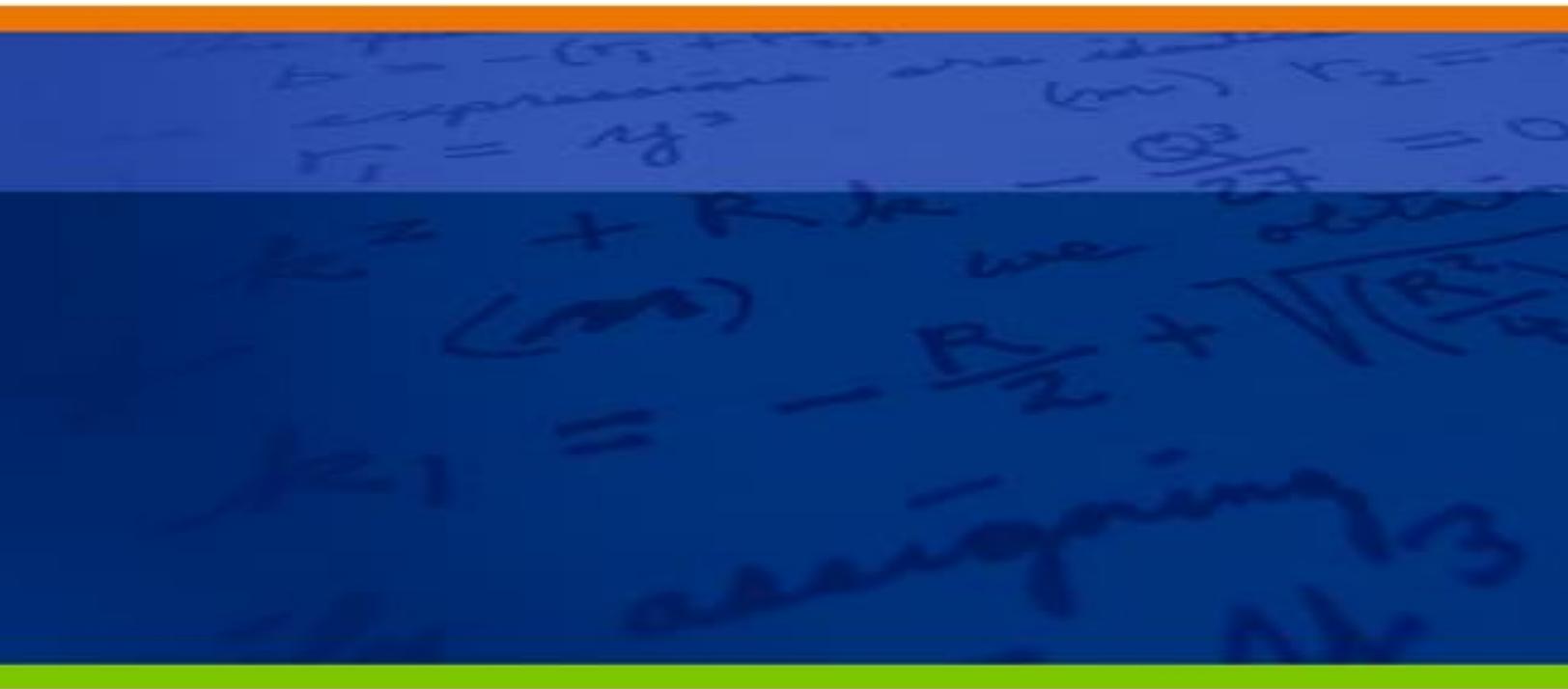
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Welcome to the Australian Conrad Challenge!

The Conrad Spirit of Innovation Challenge brings together a dynamic community of innovators and entrepreneurs driving a collaborative movement to develop extraordinary and viable solutions to benefit our world in one of four areas: Aerospace & Aviation, Cyber Technology & Security, Energy & Environment, and Health & Nutrition.

This annual competition challenges teams to use science, technology, engineering and math (STEM) innovation, as well as entrepreneurship to create a more sustainable world for this and future generations.

Congratulations on taking your first step to becoming an innovator and entrepreneur! Are you ready to take your creativity to new heights as you develop your innovative idea into a commercially-viable product to benefit humanity? Then the Conrad Challenge is for you!

As part of the Foundation's commitment to fostering global innovation, St John's Anglican College has been granted an Ambassador role. In 2017, St John's is administrating the Australian Conrad Spirit of Innovation Challenge under licence from the Conrad Foundation.

Get Your Genius On® and design things that matter!

Questions?

Email us at aus_soic@sjac.qld.edu.au

Australian Conrad Challenge Overview

Who
The Australian Conrad Spirit of Innovation Challenge invites students from Australian schools from Years 9 to 11 to work together in teams of 2 to 5 members to use science, technology, engineering, math (STEM), innovation, and entrepreneurship to develop world-changing solutions to create a more sustainable world for this and future generations. Along the way, industry leaders from the best in business, innovation, research and academia worldwide will be there to guide teams' ideas.

What
The Conrad Challenge is an annual, multi-phase innovation and entrepreneurial competition that brings together a dynamic community of innovators and entrepreneurs driving a collaborative movement to develop extraordinary and viable solutions to benefit our world in one of four categories: Aerospace & Aviation, Cyber Technology & Security, Energy & Environment, and Health & Nutrition. In 2008, Nancy Conrad founded the Conrad Challenge in honor of her late husband, naval aviator and Apollo 12 astronaut, Charles "Pete" Conrad Jr. and his passion for education, entrepreneurship and innovation.

When
The 2017 Australian Conrad Spirit of Innovation Challenge (ACSOIC) officially opens with registration and initial idea submission starting on July 31st, 2017 culminating with the finals to be held at St John's Anglican College on the 2nd of November, 2017.

Where
The Investor Pitch (entry phase) will be conducted completely online. First, student teams will register and submit their Investor Pitch on the ACSOIC website www.austspiritofinnovation.com.au From there, semi-finalist teams in each category will be announced and invited to the final phase of the competition. At this time, semi-finalist teams will be asked to create their profile on the Australian Conrad Challenge platform to join our online community and submit their business plans for judging.

For the finalist round held at the Innovation Summit, the top teams will be given the opportunity to present their innovations in-person to a panel of expert judges. The Conrad Challenge recruits volunteer judges from among the best in industry, government, research and academia. The finals round will be held at St John's Anglican College on the 2nd of November, 2017.

Why
Conrad Challenge teams learn they can make a difference in their world through innovation and entrepreneurship while applying science, technology, engineering, math, leadership, collaboration, creative thinking, critical thinking and problem solving. Teams compete for the opportunity to be recognized as the winners of the Australian Conrad Spirit of Innovation Challenge and be invited to the 2018 Innovation Summit to be held at the Kennedy Space Center Visitor Complex in Florida in April, 2018. Additionally, winning teams will receive trophies to mark their achievements, be presented with mentoring opportunities, and receive attention from state and national stakeholders.

Australian Conrad Challenge Timeline

Note: The Australian Conrad Challenge organisers reserve the right to update this timeline as needed.

ROUND ONE: INVESTOR PITCH

First Round Submissions Closes — *Monday the 31st of July at 11:59 pm.*

Finalists Announced and Finalist Team Registrations open—*Monday, 28th of August, 2017*

ROUND TWO: INNOVATION SUMMIT

Innovation Summit at St John's Anglican College – *Thursday, November 2nd, 2017*

Australian Conrad Challenge Categories

The Conrad Challenge gives teams the chance to develop products or services focused on four different categories: Aerospace & Aviation, Cyber-Technology & Security, Energy & Environment, and Health & Nutrition. These categories are intentionally broad to allow students a wide range of opportunities to innovate new ideas. The descriptions below are a guide for determining the best fit for your team's concept. Each team should nominate which category they wish their innovation to fall into. **Teams may only submit into one category.**

Aerospace & Aviation: Describe the human effort in science, engineering and business to fly in the Earth's atmosphere and surrounding space. Aerospace organizations research, design, manufacture, operate, or maintain aircraft and/or spacecraft. Examples include: avionics, aerodynamics, human factors/cockpit design, and propulsion systems.

Cyber-Technology & Security: Information technology and security as applied to computing devices such as computers and smartphones; as well as computer networks such as private and public networks, including the Internet as a whole. The field covers all the processes and mechanisms by which computer-based equipment, information and services are protected from unintended or unauthorized access, change or destruction. The field also includes protection from unplanned events and natural disasters. Examples include: artificial intelligence applications, network defense systems, counter intelligence technologies for government, data-driven energy management technologies, smart security technologies, and database models to track, predict, and categorize natural disasters.

Energy & Environment: Includes all fields that study the human use of natural resources and the impact of human activity on the environment. Examples include: energy storage, energy efficiency, renewable resources, sustainable land use, recycling solutions, environmental health, water resources, biodiversity, climate change, waste management, and other clean technology innovations.

Health & Nutrition: Encompasses fields of study regarding the human body and behavior as they relate to wellness and medicine. Examples include: prosthetics, nutrition science, exercise science, medical technology, hunger solutions, mental health, assistive technology, healthcare services, healthcare safety, and biomedical engineering.

Australian Conrad Challenge: Round One: Investor Pitch

Initial Entry: Form a Team, Develop Investor Pitch and Register

Form a Team: Students (from Years 9 to 11) form teams of 2-5 students to develop a product or service within any of the challenge categories: Aerospace & Aviation, Cyber-Technology & Security, Energy & Environment, and Health & Nutrition. Each team must also have a coach (a teacher from their school) to support them along the way. Teams may consist of students from the same or different schools, as well as students from across the world.

Teams choose to develop an innovation in one of four categories: Aerospace & Aviation, Energy & Environment, Cyber Technology and Security, and Health & Nutrition. After selecting a category, teams research a current problem facing that industry and begin to develop their innovative solutions.

Teams must select a Team Name that will transfer appropriately to a company name if advanced to the Semi-Finals, as well as a separate name for their innovative product/service.

1. **Develop Investor Pitch:**

Once the team is formed and the category is selected, teams will research a current problem facing that industry and begin to develop their innovative solution. In preparation for registration, each team must prepare answers to the following questions about their project (each answer must be 100 words or less):

- What is your innovative product/service?
- What problem(s) is your product/service designed to solve?
- What are the key features of your product/service that make it special?
- How is your product/service innovative and different from other product/services intended to solve the same problems?

2. In addition, each team must create a short video (2 minutes or less) to introduce their team, product/service and highlight its benefits. This video will be submitted in the form of a YouTube or Vimeo link on the registration form. By submitting the video, teams are giving permission for the video to be shared publicly by the Australian Conrad Challenge. **Register Online:** www.austspiritofinnovation.com.au

All teams must register online at www.austspiritofinnovation.com.au Information submitted during registration includes: team, member and coach information, investor pitch (answers to the four questions listed above) and the video link. One team member must be designated as the primary contact.

To complete registration, teams will be required to submit the $50 team registration fee at the end of the registration form.

All fields within the form must be completed and the registration fee received by the Australian Conrad Challenge by Monday the 31st of July at 11:59 pm to be considered for the Finals.

3. **Investor Pitch Judging:**

Each submission will be reviewed for innovation and viability as evident in their Investor Pitch answers and video. Teams should focus on:

- Clarity and effectiveness of their concept description.
- Effective depiction of the problem to be solved.
- Thorough description of how the product/service is innovative.
- Explaining the concept's differentiation in the marketplace.

Teams with promising Investor Pitches will be invited to advance to the Finals. These Final teams will be posted to the Australian Conrad Challenge website on Monday, 28th of August, 2017.

Conrad Challenge: Advancement to the Finals

Once your team has been selected to advance to the finals stage, teams will be required to develop their ideas further. **The following elements need to be completed and submitted to the Australian Conrad Challenge website by Monday the 23rd of October at 11:59pm.**

1. **Create Team Profile:**

During this round, teams will expand on their Investor Pitch by creating a Business Plan to support the further development of their innovative product/service.

Once the finalist teams are announced, the Australian Conrad Challenge will email the team member identified as the primary contact during the team registration. The email will include instructions on how to create the team's profile. **Each team will be required to submit their expanded submission by Monday the 23rd of October at 11:59pm through Australian Conrad Challenge** www.austspiritofinnovation.com.au   Instructions for submission will be shared on this webpage.

2. **Develop Business Plan:**

A business plan is a written description of your business's future. It tells what you are going to do and how you are going to it. It outlines the strategy for how your business will take your innovative idea to viable product solution. By writing a business plan, your team will look to the future and set goals for your product and business. You will explain how those goals are attainable and how your business would propose to meet those goals. The business plan tells investors what you plan to do and how your business and investors can benefit from the business goals. A business plan represents all aspects of the business planning process alongside sub-plans including marketing, finance, intellectual property management, human resources management, and operations management, among others.

Each team's Business Plan must be submitted as a PDF file on the Australian Conrad Challenge website and include the following sections:

I. **Business Prospectus** (**1000 words maximum)** – An explanation of the concept's market, expected development costs and sales strategy. Sections should include:
   a) Business Description – Describe your product/service and what makes your concept different from existing businesses. Describe the industry in which your concept best fits and demonstrate knowledge of the industry practices for similar businesses. Describe the factors you think will make your business successful.
   b) Market Analysis – Explain the market that your business is attempting to reach using its product/service. Do you plan to sell products commercially, license them to other companies, pursue government contracts, or some combination of these options? If it is commercial, who are the potential buyers?
   c) Competitive Analysis – Describe similar product/services already on the market or in development. Why is your concept better than those already in existence?

d) <u>Cost</u> – Estimate the expenses in creating, operating, and marketing the business and its product/service. You will need to include the proposed team budget for attending the Innovation Summit should your team advance to the Final Round.

e) <u>Funding Sources</u> – How will you gather funding needed to create your product (i.e., government research and development grants, venture capital, private investors, etc.)?

II. **Technical Concept Report (1500 words maximum)** – An explanation of the product's technical and scientific details. Sections should include:

a) <u>Technical Summary</u> – Outline key technical and scientific principles your concept utilizes in its design and functionality.

b) <u>Need Statement</u> – Describe the problem area or need that your concept will address. Provide information and resources on why the concept is important and how it will be used in the selected industry.

c) <u>Background Technology</u> – State existing technology upon which the product/service is built. Note any competing technologies or relevant patents and explain how your proposed concept is innovative and better than existing technologies that produce similar results.

d) <u>Concept Details</u> – Describe in detail the concept's conceived function, operations, proposed development and any other information about the technical or scientific merits that will make this product successful.

III. **Graphic Concept Representation** – Develop a graphic depiction of your product/service that will help the judges understand your concept. This could be a computer graphic program drawing (e.g., Photoshop), a 3-D computer model, or a photograph(s) of an actual prototype or model. If preferred, this component can be submitted separately from the PDF including the Business Prospective and the Technical Concept report. Accepted files include JPEG, GIF, TIFF or PDF.

IV. **Product Video** – Create a video (no longer than 5 minutes) detailing your team's innovative concept. This video serves as your team's final pitch to advance to the Final Round. Why is your concept needed today? How is it unique? Explain how your team is going to bring this concept to reality. If the team would like to keep their video confidential prior to the Final Round, MP4 video files will be accepted as well as Vimeo or YouTube links.

3. Business Plan Judging:

Judging of the submitted and complete Business Plans will be conducted by a panel of subject matter experts from industry and academia. **This judging will contribute to the judges' final decisions about the Finalist winners but will not be made public until after the Power Pitches during the Finals Stage.**

Judges will score each Business Plan based on the following up to 100 points:

I. **Technical Innovation (20 Points):** *How new or unique is the idea? Does the product already exist? We look for innovation in any of 3 forms:*
   - The technology itself.
   - A combination of existing technologies into a new system.
   - Innovative business concepts - The team should show how their product uses one or more of these types of innovation.

II. **Technical Practicality (20 Points):** *Will this product work technically?*
   - The team must show that its product does not break any laws of physics.
   - The team does not have to show proof that the product will work, but should show an understanding of what research or experiments are needed to prove that it will work.

III. **Marketability (10 Points):** *Understanding of the key markets for their product must be demonstrated.*
   - Who is the buyer?
   - Will the team pursue government Research & Development (R&D) grants, licensing to another company, or create an entrepreneurial startup?
   - Is there data showing how similar products have been successful?

IV. **Costs (10 Points):** *The team should break down estimated costs (including costs for the team to participate at Innovation Summit) of taking this product to the ultimate market (whichever end-market the team describes).*
   - Costs should include any material estimates, R&D (including grants), market studies, and labor costs.
   - Teams should be as detailed as possible.

V. **Industry Relevance (15 Points):** *How important is the idea to the industry?*
   - Does the product represent a substantial improvement in its industry or are there already products on the market that fill the need?
   - The team should list examples of similar products, including patent searches or other examples of technology on the market, and explain how its product is an improvement of what already exists.

VI. **Funding Mechanisms (10 Points):** *Does the team understand the basics of how its product could be funded?*
- If it is relatively simple, can the team raise money for prototypes and begin sales through friends and family?
- Does the team need to consider grants, loans, or bringing on investors or partners in their efforts?

VII. **Team Story (15 Points):** Introduce your team to the potential investors.
- How did the team form?
- What roles did each member play?
- What barriers or hurdles did the team overcome to develop its idea and complete its business plan?

Australian Conrad Challenge: Round Two: Innovation Summit

Finals: Prepare and Present Concept at the Innovation Summit

Finalist Team Registrations open—Monday, 28th of August, 2017

Innovation Summit at St John's Anglican College – Tuesday, November 2nd, 2017

Just as entrepreneurs pitch their startups to investors, the finalist teams will present their concepts to a panel of experts. Teams are evaluated on the innovation of their concept and the viability of their products/services. One overall winner will be named and recognised as Australian Conrad Challenge Winners

A detailed itinerary and schedule will be distributed in to all participants.

1. **Prepare Team Presentations:**

Presentations will include a 6-minute presentation of the team's concept, followed by a 5-minute feedback session from the judges. Presentations should summarize and explain both the technical and business aspects of the team's concept including:

- Internal – How does your product/service work? Prove your product is technically sound by applying viable technology and scientific principles. Support your work with research.
- External – Discuss any potential external factors that may impact your concept. How is your product/service innovative? Why is it important?
- Illustrate Need – Why is there a need for your product/service? Discuss the market demand for your concept. Who is the target audience? Who are your potential competitors within the market?
- Design – Present graphical representations of your product/service to further explain your concept. Describe what elements were considered when creating the design and the functions they serve.
- Next Steps – Explain your team's plans for further developing this product/service.
  - Executive Summary – Present your team's next steps to bring your concept to market.
  - Statement of Work – What is your team striving for? A series of experiments, working prototype, a market study or something else. Outline your team's goals and the immediate next steps you will take to attain those goals.
  - Existing Knowledge – Describe what data and information your plan builds upon in order to achieve the desired goals.
  - Financial Plan – Understand the cost of your product. How will it be funded? Present a budget listing itemized costs for each item described in the R&D process, including any labor, materials, facilities or other costs.
  - Timeline – Include the estimated deadlines to achieving your next step goals.

Competition: Rules and Regulations

Please read the "Rules and Regulations" in their entirety before registering with the Australian Conrad Challenge. The Australian Conrad Challenge organisers reserves the right to update competition rules at any time for any reason.

Team Eligibility
1. Entrant teams must consist of 2 to 5 students, who must be in high school or equivalent secondary school in Australia (or New Zealand) and in Years 9 - 11 when they register for the Challenge.
2. Entrant teams must have one team coach (teacher) 18 years of age or older.
3. Teams must provide a Team Name which could serve as a business name. Teams should select a separate name for their product name (For example: Team Name might be Albatross and the product might be Asteroid Capture System).
4. Teams may submit one project in only one of the four main categories.
5. The team's idea must be theirs, developed as a group. Each team member should contribute to the conception of the overall idea. The idea may include elements and components created by others, as long as the proper credit is given.
6. Each team member and the team coach must read and understand the terms and conditions set forth in the competition rules & regulations. Registration means that the team and the coach will abide by all rules and follow the Code of Civility (detailed below).

The Australian Conrad Challenge organisers reserve the right to disqualify a team at any point in the registration, submission or judging process if the team does not meet one or more of these rules, in the sole judgement of the Australian Conrad administration.

Concept Submissions
This section refers to all concept elements submitted by the team to be considered for the Conrad Challenge. This includes but not limited to the Investor Pitch, Team Video and Business Plan.

1. All elements submitted by the team must be entirely the work of the student team members. **Team coaches may guide the students, but may not do any writing of the submitted elements or have an excessive influence on the concept design.**
2. All submissions must be in English.
3. Submissions must not copy or use other materials without properly citing the source.
4. The basic information (team name, product name, team location or school, and possibly student member names and link to Investor Pitch Video) for any team advancing to the Semi-Finals or Finals will be posted publically on the Australian Conrad Challenge website.

5. It is the responsibility of each team to determine how much detail about their concept is publicly disclosed. All submissions through the Australian Conrad Challenge website will be made privately and only viewed by the Australian Conrad Organisers and Judges. It is advised not to post any proprietary information about your concept on the group wall. Please refer to "A Word About Confidentiality and Patents" in this Handbook for more guidance.

6. The Australian Conrad Challenge Organisers reserve the right to use basic team information and photos taken at the Innovation Summit to promote the Australian Conrad Challenge competition and Innovation Summit. Possible team information for use includes, but is not limited to, the following: concepts, videos, pictures and team member names. The Australian Conrad Challenge will not use such information for any other purpose without team consent.

Australian Conrad Challenge Community Code of Civility

As part of our commitment to making the Conrad Challenge, OUR WEBSITE (the "Site") is a great place to meet and interact with others young innovators around the nation who have a passion and commitment to science, technology, engineering, math, innovation and entrepreneurship, you agree to abide by this Code of Civility. By participating on the Site and Online Community, you give your commitment to abide by this Code when contributing to all Australian Conrad Spirit of Innovation Challenge resources and programs, including for example profiles, team pages, forums, chats, posts and comments, emails, social media sources, etc. ("Communication Services"), and to help create a positive experience for all the community's users.

We reserve the right in our sole discretion to eject or ban any user from participating in the Conrad Challenge, the Site or the Online Community who behaves in a manner deemed inappropriate, offensive or who violates guidelines of this Code of Civility. The Australian Conrad Organisers and its partners and service providers are not responsible for any user-created content or other activities. All activity on the Site is also governed by the Site's Terms of Service ("TOS").

Honest Communication

As a general matter, all contributions are expected to:

- Be in compliance to this Code of Civility.
- Be accurate (where they state facts).
- Be genuinely held (where they state opinions).
- Be in compliance with applicable law in Australia.

Respect Yourself and Others

- We require everyone to treat each other with respect. Any use Communication Services to threaten, harass, stalk or abuse others participating in these services is unacceptable and is strictly forbidden.
- We reserve the right to remove posts that advocate or encourage expressions of violence, bullying, general cruelty, bigotry, racism, illegal activity, hatred or profanity. This includes postings that are deemed inappropriate, offensive or that violate guidelines in the Terms of Service or this Code of Civility.
- Falsely impersonating a Conrad Foundation or Conrad Spirit of Innovation Challenge representative, employee, agent, manager, host, or any other person other than yourself, is forbidden.

Protect Your Privacy

- We caution you against giving out unnecessary personally identifiable information (such as social security numbers, credit card numbers, driver license numbers) online, which may be inadvertently obtained by others or, in rare instances, used for illegal or harmful purposes. Talk to your coach, parent or the Conrad Challenge administration if you have a question or concern. To read the Site's Privacy Statement, www.austspiritofinnovation.com.au

No-Spam Policy

- Please don't "spam" through our Communication Services, none of our users like it. To spam includes sending identical and irrelevant submissions to many different discussion groups, mailing lists, chats or communities. Usually, such postings have nothing to do with the particular topic of the group or are of no real interest to those on the mailing list all spam will be deleted and the person who sent it may be ejected from the Online Community and/or the Conrad Challenge.

Thanks for following this Code of Civility and joining the Conrad Challenge!

Coach Information

About Our Coaches
The Australian Conrad Challenge is a dynamic way for teachers, parents and after-school coordinators to provide context and depth to their curriculum by integrating STEM education, innovation and entrepreneurship with 21st century skills. As adult participants in the Australian Conrad Challenge, coaches receive access to peers and worldwide experts who can provide unique perspectives of the industries they serve.

Why Coach a Team?
- Help your students excel in comprehending STEM principles.
- Engage students by combining STEM principles with entrepreneurship to enhance classroom curriculum.
- Create an interdisciplinary environment for learning through innovation, creativity and design.
- Provide a real-world context to curriculum.
- Incorporate 21st century skills including leadership, collaboration, creativity, problem solving, patience, persistence and team building into the classroom.
- Participate in an online community dedicated to STEM, entrepreneurship and innovation.
- Help develop a national and international network of passionate young innovators.
- Have fun teaching and learning with your students.

A Coach's Responsibility
- Encourage students to create or join a team and assist them with team registration.
- Facilitate and encourage your students to discuss their ideas with subject matter experts in the Online Community.
- Ensure students have completed all submission requirements.
- Serve as the supervisor for the team by approving competition submissions and managing team travel arrangements.
- Foster a co-operative and collaborative spirt amongst team members and teams from other schools.
- Complete the official forms required for the competition if selected as a finalist or beyond.
- If selected as a finalist, serve as chaperone for your team at the Innovation Summit.

Time Commitment
Time commitments are flexible to your situation and the complexity of your team's project. We recommend the following guidelines when planning your schedule:
- Initial Entry – Minimum of 1 hour/week to guide your team through the Investor Pitch and Video entry submissions
- Advancement to the Finals – 2 to 4 hours/week to support the team in prototype development and submitting a Business Plan (business prospectus, technical plan and graphic representation)
- Finals – minimum of 1 hour/week to support the team prepare for Innovation Summit presentations (finalize Development Plan, marketing pitch presentation, finalize prototype prepare for technical Q&A, etc.). Serve as team chaperone at the Innovation Summit.

A Word About Confidentiality and Patents

When you conceive, design and create an innovative product as part of the Australian Conrad Challenge competition, you are creating intellectual property that belongs to you. When you start work on your product, you should think about whether you want to try and protect your intellectual property through patents or confidentiality agreements. You may want to share your ideas with the public at large and decide not to seek any special legal protections for them. The choice is up to you. You should bear in mind, however, that venture capitalists and other investors usually consider whether the intellectual property in an innovative product has been kept confidential or claimed in a patent application, in deciding whether to invest in efforts to commercialize the product.

For this reason, the Australian Conrad Challenge is asking all judges to keep confidential any technical or business information they learn by reading the Business Plan submitted by the teams as part of the Semi-Final Round. However, all materials you post to our website, and your entry round Investor Pitch, will not be confidential. They are intended to interest the public and potential investors in your ideas!

The Australian Conrad Challenge organisers encourage all teams to consider filing a provisional patent application covering their product and including any important confidential details from their Product Documents before submitting any materials that you think may include your unique ideas and inventions. You can find information regarding the process and requirements for filing a patent application at the Australian IP offices at https://www.ipaustralia.gov.au/patents

If you have any questions about the value or procedures for filing a patent application, we encourage you to consult your own patent attorney or agent who can give you advice tailored to your particular product. Unfortunately, because of the number of submissions, we cannot provide you any specific advice regarding whether to file a patent application.

Australian Conrad Challenge Resources:

Visit Us:

www.austspiritofinnovation.com.au

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Contact Us:

Email: Aus_SOIC@sjac.qld.edu.au