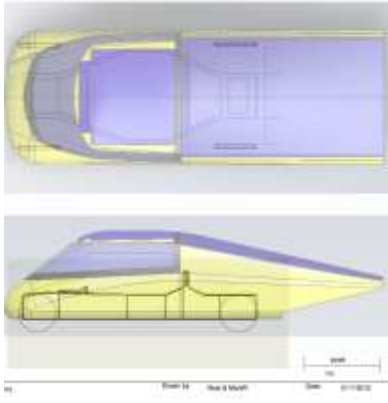




Newsletter
May 2011

Evolution in shell construction



The construction team learned valuable lessons during the building of the fibreglass shell for solar spirit in 2010. The entire process required innovative problem solving skills which resulted in the successful first cast mould. This gave us the confidence to consider constructing another shell made from kavlar with the intent of increased structural strength along with reduced weight. Both of these benefits will increase the efficiency of the vehicle for the Darwin-Adelaide World Solar Challenge. As a result 2nd

term Mech Eng pre voc students are now completing the fabrication of the Kavlar racing shell which will be fitted with the cells. The next step will be to prep the shell for attaching to the chassis.

Students working in composites on the solar car project late last year have been employed and are returning to Regency as apprentices



Buffing the test shell

Events

Solar Spirit will return to the public view this month encouraging enrolments and interest in TAFE SA Engineering courses by appearing at events such as Try A Trade, and later joining activities run by the management of the World Solar Challenge.



On show for sponsors

Electronics

Students in Advanced Diploma of Electronics Engineering and Cert III Electronics and Communications are doing course work which includes battery design and construction, construction of the battery management system, design of telemetry CAN bus to PC interface and power supply and a backup Maximum Power Point Tracker. The application of these projects to the solar car provides immediate real world experience for their new skills.



Solar Cells

The race rules require that we use solar cells occupying an area no larger than 6sqM. This required our electronics, electrical and mechanical specialists to work together to identify the specs required for suitable solar cells. Much work has been done in identifying a supplier who is not only able to provide these but also has the ability to supply in the required time lines. In our most recent review of project timelines we expect delivery of these cells in early July ready to fit. We expect that these cells supplied by Hans Gochermann will fit the spec of our shell design



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The main objectives for the solar car project are to design and build a reliable vehicle which will complete the Darwin to Adelaide Solar Challenge in the most cost effective manner. The environment in which this project will be conducted will adhere to all sound measures of safety, student participation, team work and cost efficiency. Underpinning all of this will be a sense of purpose and enjoyment!

Our mission is to fully immerse renewable energy technologies into educational program delivery resulting in the economic construction of a solar car which will successfully compete in the World Solar Challenge.

We value our 10-year history of successful solar car racing and we are passionate about providing ongoing development of skills, knowledge and attitudes in sustainable energies to our students which will ensure benefits for future generations.

Solarspiritaustralia.com

Profile — prevocational Mechanical Engineering

Who – Mechanical Engineering pre-vocational group:

Students seeking skills and knowledge to enable them to gain an apprenticeship in engineering related fields.

Staff including lecturers (Mark and Wayne), technical and support staff (Daryle and Mark)

What is their involvement- This combined team is responsible for the physical construction of the race car.

When and where – students attend a six month full time program covering Milling, Turning, Welding Fluid Power, Fitting and Fabrication.

For the life of the SolarSpirit construction cycle, the staff rotates several groups of students, one semester at a time

Why – pre trade & car construction

To fully integrate the education and training benefits for students into a realistic and worthwhile project, that being the Solar Spirit.

How – integrated to the education program
A full time program based on both theory and practical at the Regency campus where students commence building small projects and transition into various build aspects of Solar Spirit



First test fibreglass shell

Supporting Secondary Schools

The project team is very much aware of the principles of sustainability. In keeping with these principles we are re-using, reducing and recycling components from our two previous vehicle (Kelly and SolarSpirit prototype) in the construction of SolarSpirit. While we have had no direct involvement with schools' solar teams, we will be donating our excess components to these teams to assist in the construction of their vehicles. For example we are most pleased to be donating the entire top shell of Kelly to Energy Education Australia. This will give them the ability to build up their array and provide enriched educational experiences for secondary students.



Mech Eng students making moulds



Secondary Students also study TAFE courses