RMIT Greener Government Buildings Project

GGB Learning & Teaching Program:

Tender Proposal Overview
The RMIT Greener Government Buildings (GGB) program provides government funding to identify and implement cost effective energy and water efficiency solutions in RMIT buildings.

As successful tenderer on the RMIT City Campus, Siemens proposed program of engineering works will result in greater than 50% emissions reductions and substantial utility cost savings for RMIT.

A core requirement of tendered proposals was to provide funding for ‘green’ education & awareness programs that promoted sustainability outcomes at RMIT.

Outlined in this slide pack is a collection of draft L&T ideas provided as part of Siemens tender submission. These ideas encompass (i) Green Lectures; (ii) Green Projects, (iii) Green Living, (iv) Green Research; and (v) Green Careers.

Siemens tender response also proposed a series of showcase technologies labelled as ‘Green Innovations’ that can be utilised in GGB L&T programs and to market RMIT as a green leader.
The GGB L&T program is now seeking Expressions of Interest & Project Proposals from RMIT colleges & schools to design their own L&T programs which if successfully selected by the RMIT evaluation committee will be funded as part of the GGB Program.

The Siemens’ Green Programs ideas outlined in the following slides are intended to provide RMIT colleges and schools with a guide to the type of projects that could be considered for funding under the GGB L&T Program. However RMIT colleges and schools should consider their own sustainability goals, objectives and KPI’s for curriculum development and use this to propose L&T programs which meet their own needs.

Where a particular draft Green Program proposed by Siemens is considered by RMIT to be of high value, the RMIT college or school must submit a project proposal to have the draft project funded under GGB. Responsibility for this project would then be transferred to the relevant school.

For details on the L&T program applications stages, documentation and timelines please visit: www.rmit.edu.au/thinkgreen/ggb
RMIT GGB L&T Program – Key Considerations

Consideration should be given to the following variables in designing Expressions of Interest or Project Proposals for submission under the GGB L&T Program:

- Alignment with the RMIT University Strategic Plan
- Alignment with RMIT Sustainability Action Plan
- Focus on ‘transforming the student’s experience’
- Encourages a ‘learning by doing’ approach
- Degree of innovation (technological or intellectual)
- Ongoing research potential / linkages with other research projects
- Collaboration potential across colleges and schools
- Degree of industry participation
- Fosters the creation of living laboratories
- Focuses on systemic change
Siemens Tendered Learning & Teaching Proposal
The Green Lectures Program appoints industry experts from Siemens to share industry based knowledge and experience at RMIT, and forms a basis for other Learning and Teaching Green Programs. The nominated lecturers may also contribute to the evaluation and supervision of the ‘Green Projects’ Program.

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<thead>
<tr>
<th>Industry Expert</th>
<th>Position</th>
<th>Lecture Series</th>
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<tbody>
<tr>
<td>Martin Hablutzel</td>
<td>Executive Marketing Manager</td>
<td>Marketing Messages</td>
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<tr>
<td>Peter Portelli</td>
<td>Director of Strategic Development, OSRAM, Accredited Professor IES course in Sydney.</td>
<td>Sustainable Lighting Design</td>
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<tr>
<td>Randy Gadjent</td>
<td>Senior Energy Engineer</td>
<td>Energy Engineering</td>
</tr>
<tr>
<td>Bernd Vetter</td>
<td>Business Performance Manager, Utility Services</td>
<td>Water Technologies</td>
</tr>
<tr>
<td>Michael Bielinski</td>
<td>Strategic Marketing and Emergent Technologies</td>
<td>Emergent Technologies</td>
</tr>
<tr>
<td>Steve Bagaric</td>
<td>Environment &amp; Sustainability Coordinator</td>
<td>Environmental Management</td>
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Table 1: Siemens Industry Experts
The nominated Industry Experts will jointly co-author one lecture with RMIT professors every semester for their respective course during the normal calendar year.
The Green Projects Program empower students to participate in Sustainability at RMIT and beyond. Aspects of the Energy Performance Contract (such as landscape architecture, and lighting design) will be incorporated into course work, and industry-based work-integrated learning projects will be established, such as the Innovation Fast Track Program.

<table>
<thead>
<tr>
<th>Project Description</th>
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<tbody>
<tr>
<td>Landscape Architecture</td>
<td>The Green Roof element of the project will be designed by RMIT students in landscape architecture.</td>
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<tr>
<td>Innovation Fast Track Program</td>
<td>The school of business nominates 24 students to work with Siemens to identify innovative ideas around sustainability. Students vote on the top three ideas.</td>
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<tr>
<td>Lighting Design Project</td>
<td>This project ‘tenders’ the design component of some lighting measures proposed in this project with cost objectives to student groups studying lighting design.</td>
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<tr>
<td>Piezo Electric Design Project</td>
<td>The Green Walkway provides an opportunity to demonstrate and install piezo electric harvesting technology development at RMIT.</td>
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<tr>
<td>Sustainable Poster Designs</td>
<td>Students design sustainability posters with art and slogans to increase awareness and engage students to promote energy conservation at RMIT.</td>
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<tr>
<td>Greenhouse Challenge</td>
<td>Siemens provides opportunities for final year engineering students to participate in ongoing energy efficiency projects as part of the GCP.</td>
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<tr>
<td>iPad Application Assignment</td>
<td>Technology students develop iPad applications to assist Siemens in Energy Audits. Winning team is paid by Siemens to develop the application.</td>
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<tr>
<td>Water Paintings</td>
<td>Art students submit designs to paint on outdoor water tanks. Every year, a winner is selected to paint a mural on outdoor water tank.</td>
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<tr>
<td>Sustainable Property; Construction, and Project Mgt</td>
<td>Students form a case study around the major plant upgrades at RMIT to increase learning of project management during project implementation. Future classes can revisit components of the project, such as crane lifts, etc. through documents and film segments.</td>
</tr>
</tbody>
</table>
The Green Living Program complements the Green Lectures and Green Projects Programs by integrating sustainable aspects into everyday life at RMIT. Example Green Living programs include LCD Screens, Sustainability Competitions, and implementation of some Green Projects. An Awards and Collaboration Event rewards top efforts in sustainability at RMIT.

<table>
<thead>
<tr>
<th>Lifestyle</th>
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<tbody>
<tr>
<td>Student Portal</td>
<td>Promote competitions for development of iPhone applications or web software that communicates sustainability at RMIT University through the student portal.</td>
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<tr>
<td>Student Life</td>
<td>Promote a sustainability competition between schools or buildings, with awards for top performance.</td>
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<tr>
<td>LCD Screens</td>
<td>Green Screens will be provided in strategic locations on campus to communicate RMIT University’s progress towards the goal of 25% reduction in carbon emission by 2020. Upcoming events and information can also be displayed on screens.</td>
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<tr>
<td>Green Posters</td>
<td>The best Sustainable Posters that are designed in Green Projects (as nominated by the newly formed council) will be printed on paper approved by the FSC and canvassed on site to bring sustainable into every day life at RMIT. Siemens will fund the poster campaign and award the top poster design as developed in the Green Projects Program.</td>
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An awards and collaboration event will recognize overall accomplishments in sustainability at RMIT University, and also top individual contributors.
The Green Research Program pursues leading research opportunities that provide mutual benefits for Siemens and RMIT in the context of sustainability. Some aspects of Green Innovation projects (such as Green Car Charging Stations) can be adopted on a smaller scale for research projects contained in course work or final year projects.

PROPOSED PROGRAM

In consultation with the School of Design, Siemens identified two potential Research topics that fit this description. Siemens has allowed for $100,000 each to research these topics. Additional information is included in Section 9.2.

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<thead>
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<th>Research Topic</th>
<th>Description</th>
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<tr>
<td>Productivity Improvements Associated with Green Retrofits of Existing Building Stock</td>
<td>While productivity gains in new ‘Green’ building stock are well understood, there is a lack of research in existing building retrofits. The findings from this research will aid Siemens in understanding additional productivity benefits of its Energy &amp; Environmental Solutions projects.</td>
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<tr>
<td>Effectiveness of Energy Awareness Campaigns</td>
<td>This research will explore the nuances associated with energy awareness campaigns, what shortfalls exist, and what potential remedies are available. This aligns with Siemens core business.</td>
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Tertiary, undergraduate research can also be performed on the Green Innovations provided as part of this project, which can be incorporated into course work, or final year projects, with other potential topics.

<table>
<thead>
<tr>
<th>Additional Undergraduate Research Topics or Course Projects</th>
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<tbody>
<tr>
<td>Green Fuel Cells</td>
<td>Green Car Charging Station</td>
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<td>Green Solar Generation</td>
<td>Green Walkway</td>
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<tr>
<td>Green Monitoring</td>
<td>Chiller Performance</td>
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<tr>
<td>Green Roof Impacts</td>
<td>Water Monitoring</td>
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The Green Careers Program improves Siemens integration at RMIT Events, with a focus on increasing access to RMIT graduates. This program aims to maximise RMIT graduate applications to Siemens locally, as well as internationally to foster a global approach to careers.

During the RFP process Siemens met with Janice Robertson & Robert Austin of the RMIT University Career Development & Employment department to understand how Siemens can improve their access to RMIT University graduates. Siemens propose to utilise a variety of the existing RMIT University program shown below to ensure the maximum possible number of graduates apply for Siemens graduate recruitment program both in Australia, and internationally.
The Green Innovation Program provides leading edge technology from Siemens, and offers educational forums for RMIT University. The Green Innovation Program includes a Green Fuel Cell, Green Monitoring, Green Roof, Green Car Charging Station, Green Power Generation, and the Green Walkway. These programs are intended to be integrated with the learning and teaching programs developed by RMIT.

| **Green Innovations** | Siemens will install a 2kW BlueGEN ceramic fuel cell to provide a ‘mini power station’ by converting natural gas into electricity. This will enable RMIT University to expand on their existing clean power generation projects while providing visibility to the universities commitment to sustainability. Submetering will allow Energy consumption and carbon abatement to be measured and displayed via the student portal.  
**Green Fuel Cell** | Siemens will collaborate with RMIT University students to design and build ‘Green Roof’ projects in selected areas. This enables landscape architecture students to design and construct roof gardens as part of a course work project. A design competition will be held with selected winning projects funded to progress to implementation.  
**Green Roof** | The Green Car Charging station will provide multiple research and other educational prospects. With the installation, testing, and research of electric car charging, RMIT will be positioned at the forefront of sustainable mobility practices, and provide a leading educational experience.  
**Green Car Charging Station** | Expanding upon existing Solar PV at RMIT, Siemens propose to install an array that will provide RMIT University with the ability to measure the performance of different types of solar panels under different operating conditions. Data from the array will be recorded by the Sunny SensorBox system and can be utilized by student and staff for research projects.  
**Green Power Generation** | RMIT University is in the process of developing piezo electric technology which converts kinetic energy into electric energy. The high volume of foot traffic on campus provides the perfect opportunity to install energy harvesting piezo electric technology into the existing tiling or flooring to generate energy as visitors walk through campus. The energy generated through walking can be converted to light as a visible demonstration.  
**Green Walkway** |

The Green Innovations outlined below are proposed as focal technologies that RMIT colleges and schools can build their sustainability L&T project proposals around. Siemens invites RMIT colleges to submit project proposals for additional Green Innovation technologies which demonstrate additional educational value for students & staff alike.