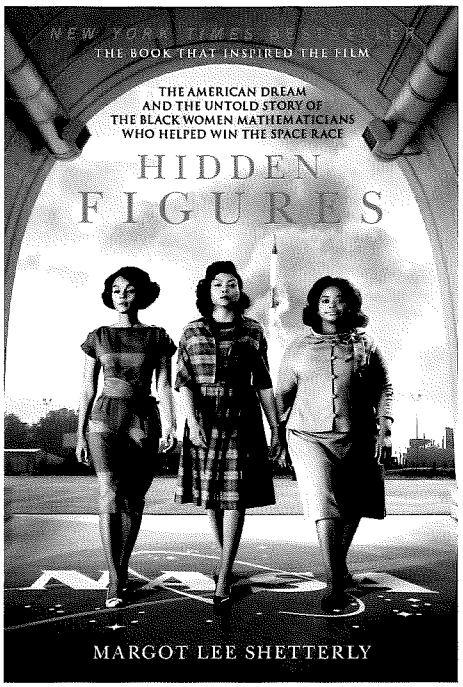
Hidden Figures – women in space inspire girls in STEM

A movie fundraiser, highlighting the role played by 3 African-American women at NASA who were responsible for launching the first successful American space mission, was held in March to promote the Girls in STEM program.

The movie Hidden Figures features the story of Katherine Johnson, Dorothy Vaughan and Mary Jackson, who were the brains behind one of the greatest space operations in history, the launch of astronaut John Glenn into orbit. This was seen as a stunning achievement that restored America's confidence and turned around the 'space race'.

The fundraising evening was organised by the Advanced Technology Project in partnership with the Institute of Electrical and Electronics Engineers (IEEE), Women in Engineering (WIE SA Branch) and DECD.

Women in Engineering's Dr Gretel Png explained that the 3 women who were the subject of the movie provided NASA with the vital mathematical skills needed to launch the program's first successful space mission. *"They are an inspiration and a demonstration of tenacity to all women who wish to succeed in a STEM career pathway,"* she said.



The evening also promoted the DECD STEM Learning strategy which aims to improve STEM teaching and learning to ensure that public education, in partnership with industry, equips students to take their place in a changing, competitive and interconnected world.

During the evening, astronaut ice-cream and choc-asteroids were sold which, added to the ticket sales, raised more than $800 to be used to support STEM workshops in rural schools. These workshops have been developed and presented by a group of volunteer female engineers and scientists from Adelaide's tertiary institutions and industries including the defence industries, BAE systems and the DST Group.

Dr Gretel Png said that the IEEE WIE SA branch aims to raise awareness of STEM occupations amongst high school students, especially girls, and encourage them to consider studying STEM subjects in their final years of school, which will ensure they meet the prerequisites for STEM courses at university.

For further information about joining or supporting Women in Engineering contact Dr Gretel Png (University of Adelaide, WIE-SA Chair) via email gretel.png@gmail.com or Victoria Stevens (BAE Systems, WIE-SA Secretary) via email vic.j.stevens@gmail.com

For information see the website http://ewh.ieee.org/r10/s_australia/

A lot of hot air

A wind tunnel funded under an ATP grant and built by Ian Dewey, the Head of maths and science at Valley View Secondary School, to support projects in physics, programming, maths and the SACE research project was launched at the school's open night in March.

Year 11 physics students being taught how to calibrate the anenometer

"This is a massive leap forward in the level of research that can be done by students in physics and related subjects," said Ian. *"For many years Valley View has delivered a physics program focused on UAVs (uninhabited aerial vehicles) and other remote (radio) controlled equipment and robots. Within the program, students built and tested a simple remote control plane. The top students went on to compete at the Concept to Creation UAV competition. This program has left Valley View with a legacy of equipment, resources and expertise,"* he said.

The new wind tunnel will allow students to increase the depth of their understanding of the physics of flight by studying the flow patterns and forces on wing and foil shapes. Knowledge in these fields will underpin later study in renewable energy (wind farms), aviation and marine applications (propellers, fins, keels and aerofoil sails).

The equipment also opens a range of study opportunities in the SACE Research Project subject, where students will develop the research capabilities of the wind tunnel under the expert mentoring of both RAAF engineers and engineering lecturers from Flinders University. The research projects will focus on calibrating and modifying scientific equipment, a skill which will help them secure employment in a range of industries in the future.

Physics students at Valley View are part of an integrated program that includes a practical and mentoring program with the Engineering Faculty at the Flinders University Tonsley campus.

Students also have access to further mentoring and leadership training with the RAAF. This structure exposes the students to practical physics at both university and in industry greatly enhancing the experiences gained in the study of physics.

"In 2017 we will continue to develop the wind tunnel, build and calibrate a helicopter simulator and work on a range of other projects including a radio-controlled submarine," said Ian. *"Many thanks to the ATP for its support and funding, which has made it possible for Valley View to deliver such useful experiences for students."*

Ian Dewey
Manager, Advanced Technology Project
Valley View High School