FOCUS Lectures

Australian Government
Department of Defence
Science and Technology

ENGINEERS AUSTRALIA

INSPIRATION • INSIGHT • INNOVATION

Dr Mark Patterson

Human engineering:

Maximising Australian Defence Force personnel performance in austere environments

Engineers Australia and the Defence Science and Technology (DST) Group are proud to invite members, professionals and the general public to attend an upcoming FOCUS Lecture 'Human engineering: Maximising Australian Defence Force personnel performance in austere environments'. These lectures will be held in Canberra, Adelaide and Melbourne in June and July 2017.

Human engineering: Maximising Australian Defence Force (ADF) personnel performance in austere environments

The human is not a highly engineered platform that responds uniformly across the fleet. When working in the heat, it is a balance between managing the health risk and the military capability. Working warfighters too hard can result in exhaustion and heat stroke, whereas stopping personnel prematurely can limit the utility of training and operational outcomes. There is gross variability between humans, which presents a serious challenge to managing the health risk while maintaining military capability. Measurement of environmental heat stress is essential to informing heat injury management procedures. Measuring the environmental heat stress in military operations can be challenging. DST has partnered with industry to minimise these challenges and enable a greater ability to measure environmental heat stress.

Selection of the right human platform so soldiers can safely and effectively perform their occupational tasks is fundamental to minimising injuries and maximising Defence Capability. DST has been instrumental in developing Physical Employment Standards for the ADF.

The design and development of the soldier combat ensemble, and in particular armour protective components, require careful consideration of the human user. Body armour not only restricts body heat loss, the load and bulk can affect mobility and the conduct of essential operational tasks. DST continues to provide considerable S&T input to the consideration of current and future body armour systems.

Dr Mark Patterson
Group Leader Physical Ergonomics, Land Division, DST Group | 2015 Defence Minister's Award for Achievement in Defence Science

Mark completed a BSc (Human Movement; 1993), research MSc (Hons; 1995) and PhD in thermal physiology and fluid regulation (1999) at the University of Wollongong. He held the position of a research fellow at University of Strathclyde (1998-2001), working on sweat gland physiology and exercise in cold climates.

Mark commenced work for DST Group in 2001, primarily working in the area of human physical performance, particularly related to heat injuries and maximising work performance. He led the thermal physiology program that examined minimising heat injuries via monitoring, treating, managing and modifying protective equipment and systems. This work has led to the patent, commercialisation and a Defence Safety Award for the environmental heat strain monitor that is currently employed by the Army.

Mark also led the exploration of the trainability of females to adequately perform Army Combat roles. This work has transitioned into the Physical Employment Standards Project that is led by Mark's team. Mark and his team have also strongly supported Diggerworks in enhancing the soldier combat system, particularly in the development of the Tiered Body Armour System.

In 2008, Mark became the Physical Ergonomics Group Leader and now leads a team of physiologists, biomechanists and ergonomists that aims to maximise the performance of the warfighter and their combat system.

Dates & Venues

Click on the location to register for the FOCUS Lecture

When	Where
Canberra Thursday, 15 June 2017 | 6.00 pm - 7.30 pm	UNSW at the Australian Defence Force Academy LT07 Lecture Hall, BLDG 32, Northcott Dr, Campbell ACT
Adelaide Wednesday, 28 June 2017 | 5.30 pm - 7.00 pm	Engineers Australia Adelaide, Auditorium Level 11, 108 King William St, Adelaide SA
Melbourne Wednesday, 5 July 2017 | 5.30 pm - 7.00 pm	Engineers Australia Victoria, Innovation Hub Level 31, 600 Bourke St, Melbourne VIC

Agenda

Registration | Welcome tea & coffee

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Q & A Session

Tickets

All tickets: Complimentary

Registration enquiries:
focus@engineersaustralia.org.au

CPD

Eligible for one (1) Continuing Professional Development (CPD) hour.

FOCUS Lecture registration includes:

- Attendance at the FOCUS Lecture and Q & A session
- Networking opportunities at the welcome tea and coffee
- Access to senior Defence and industry delegates during the event
- Access to the presentation slides

Sponsored by Defence Science and Technology Group (DST)

DST is the Australian Government's lead agency responsible for applying science and technology to safeguard Australia and its national interests. As one of Australia's largest employers of scientists and engineers, DST delivers expert, impartial advice and innovative solutions for Defence and national security.

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ASDE is a technical society established by Engineers Australia in order to provide a forum to engage with various engineering fields and contribute to the practice of Defence engineering. For further information, please email the ASDE: asde@engineersaustralia.org.au

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