

Understand  
Analyse  
Predict  
Improve

# 15th International Summer School

## Applied System Operational Science To Defence Equipment

12 – 16 July, Woodbury Park, Exeter, United Kingdom

System Engineer ✓  
Reliability Analyst ✓  
Supportability Manager ✓  
Maintainability  
Engineer ✓  
Integrated Logistic  
Support Manager ✓  
RCM Analyst ✓  
Initial Provisioner ✓  
Equipment Procurement  
Manager ✓  
Integrated Logistic  
Support Engineer ✓  
Reliability Engineer ✓  
Logistic Support  
Analyst ✓  
Maintainability Manager ✓  
Spares Forecaster ✓  
Reliability Manager ✓  
IPT Leader ✓  
Whole Life Cost  
Analyst ✓  
Availability Manager ✓  
Logistics Engineering  
Manager ✓  
Supportability Engineer ✓  
Project Manager ✓  
..... ✓

not just another course in

reliability .....

maintainability .....

supportability .....

availability .....

operation .....

maintenance .....

logistic support .....

operational reliability .....

discover why the application of  
**System Operational Science**  
is essential for meeting  
operational requirements

Best Practices, Processes, Methods and Tools



*Design, Build, Procure,  
Operate, Support and  
Sustain*  
– **Lead, don't Follow**

### Why attend a Summer School in Applied System Operational Science?

#### The Business Case

Applied System Operational Science provides the processes, methods and tools necessary to design, support and sustain defence equipment that meets operational requirements. Managers, engineers and analysts use its principles and practices to understand, analyse, predict and improve the effectiveness of equipment and the performance of maintenance and support processes.

Examples of Applied System Operational Science include –

- measurement and prediction of reliability, maintainability, and supportability performance
- analysis of maintenance and support strategies, processes and policies
- determination of resource demand
- measurement of operational reliability, availability and effectiveness

Attending the Summer School will give you access to leading edge science-based knowledge that can –

- drive forward your organisation through innovative thinking and analysis
- increase your personal professionalism and competence

by

- increasing understanding of your function and its role in system or component operational performance
- reducing reliance on guesswork, rules-of-thumb or over-simplified metrics
- developing realistic prediction techniques based on objective analysis of the future rather than simply on past statistics

#### Case Studies

Case Studies that continue throughout the Summer School are used to demonstrate principles and methods. They are drawn from the defence and other relevant operating environments where there can be transfer of technology and best practice.

### Day One

#### An Introduction to Applied System Operational Science

##### Morning

##### *An overview of System Operational Science*

- Applying System Operational Science to Defence Equipment
- Delivering and Sustaining the System Operational Function
- Elements and Relationships –
  - Machine characteristics (function, performance and attributes)
  - Human performance
  - Process performance - Operation, Maintenance and Support
  - Operational Environment
- Metrics – Availability, Readiness, Operational Reliability, and other Measures of Operational Effectiveness

##### Afternoon

##### *System Operational Science in Action*

- Case Studies –
  - Rapid Deployment of Military Aircraft Fleet
  - Improving Civil Aircraft Fleet Dispatch Reliability
  - Avoiding Outages in Electricity Generation
  - The Formula 1 Racing Process – *Winning with a One Shot Device* (presented in the Mirce Academy F1 Reliability and Effectiveness Centre and the Nigel Mansell World of Racing)

### Day Two

#### Application to Operational Reliability

##### Morning

##### *Improving Reliability*

- Inherent Reliability – meaning, measuring and realistically achieving it
- In-service Reliability – meeting targets for fleet, machine, and component
- Maintenance Free Operating Period – Step up to the challenge

##### Afternoon in the Lab

##### *Reliability Analysis*

- **Statistical Past and Probabilistic Future** achieve more reliable equipment and components through better analysis

### **Day Three**

#### **Application to Operational Maintainability and Maintenance**

##### **Morning**

###### ***Designing in Maintainability***

- Modularity / Multiple Indentures – advantages and disadvantages
- Repair v Replace

##### **Afternoon in the Lab**

###### ***Maintenance Best Practice***

- Opportunistic maintenance
- Health and usage monitoring
- Diagnostics and prognostics

#### **A Special Evening Presentation**

#### **Human Error in Maintenance – A Neglected and Costly Phenomenon**

### **Day Four**

#### **Application to Operational Supportability and Logistics**

##### **Morning**

###### ***Supportability of the Future***

- The *One Fits All Approach*
- Commonality and common mode failures
- Common platforms, the way to reduce: inventory, technical publications, the need for special type training and tooling, while improving performance
- Logistics networks v Logistics Chains

##### **Afternoon in the Lab**

###### ***Increasing Accuracy in Spares Forecasting***

- Spares pools
- Buffer stocks
- Fill rates and back orders
- Out-of-service analysis
- 100-off / usage calculations

### **Day Five**

#### **Application to Operational Integration**

##### **Morning**

###### ***Bringing it all together***

- Whole Life Costing – integrate through cost
- Estimating Relationships and Reality

##### **Afternoon in the Lab**

###### ***Operational Effectiveness – Making it Happen***

- Trade-Off – getting the mix right
- Operational Effectiveness – achieving and sustaining it

#### **Technical Presentation followed by the Summer School Dinner**

### **Schedule**

Each day will start at 0900 and normally end at approximately 1730 hours. There will be a coffee and tea breaks in the mornings and afternoons and lunch is provided.

The Summer School will also include an Evening Presentation with a Guest Speaker.

The Summer School will close with Technical Presentation and Dinner on Friday evening – dress will be business.

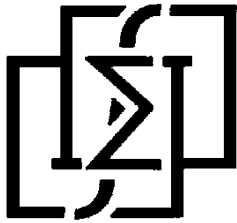
Full joining instructions will be issued to participants approximately two weeks before the event.

### **Cost**

The fee is shown on the enclosed Registration Form. The fee includes – workshops, technical presentations, guest presentations, software demonstrations, notes and materials, supporting programme, lunches and light refreshments.

***Group discounts are available – see the Registration Form for details.***

Please note that the cost of accommodation is not included.



# Mirce Akademy

Defence Equipment .....You're  
in good company with us

- Ability Engineering, UK
- Airbus, UK
- Airbus, France
- Airbus, Germany
- Airbus, Spain
- Alenia Marconi Systems, UK
- Alenia Marconi Systems, Italy
- Astrium, UK
- Agusta Westland Helicopters, UK
- Australian Defence Headquarters, Australia
- Australian Navy, Australia
- BAE SYSTEMS, UK
- BAE SYSTEMS, Royal Ordnance Defence, UK
- Blohm and Voss, Germany
- BMT Reliability Consultants, UK
- British Army, UK
- Claverham, UK
- Daimler-Chrysler Aerospace, Germany
- Dassault Aviation, France
- Data Systems and Solutions, UK
- Defence Forces Material Command, Finland
- Defence Material Command, Denmark
- Defence Logistics Organisation (DLO), Ministry of Defence, UK
- Defence Procurement Agency (DPA), Ministry of Defence, UK
- Defence Science and Technology Laboratories (DSTL), UK
- Dunlop Aviation, UK
- EDS, UK
- EID, Portugal
- EIDSOFT, Portugal
- EKO ILS, Germany
- Eurofighter Simulation Systems, Germany
- Finnish Air Forces, Finland
- Genhan Systems, South Africa
- Hagglands Vehicle, Sweden
- Hellenic Air Force, Greece
- Hellenic Army, Greece
- Hellenic Navy, Greece
- Hunting Engineering, UK
- Indra Systems, Spain
- Industrie Holding, Austria
- Intracom, Spain
- Isdefe, Spain
- Kongsberg Defence and Aerospace, Norway
- Lockheed Martin Underwater Systems, USA
- Lockheed Martin UKIS, UK
- LSC Group, UK
- MBDA, UK
- NATO Maintenance and Supply Agency (NAMSA), Luxembourg
- Perkins Engines, UK
- Portuguese Navy, Portugal
- QinetiQ, UK
- Quadri, Portugal
- Raytheon, UK
- RDM Submarines, Netherlands
- Rhienmetall Defence Electronics, Germany
- Rolls-Royce Defence Europe, UK
- Rolls-Royce Marine Power, UK
- Royal Air Force, UK
- Royal Navy, UK
- Royal Netherlands Navy, Netherlands
- SAAB Aerospace, Sweden
- SAAB Bofors Dynamics, Sweden
- Sapura Advanced Systems, Malaysia
- Sentient Systems, UK
- Spanish Navy, Spain
- Systems Research Partnership, UK
- Teldix, Germany
- Thales Air Defence, UK
- Thales Air Defence, France
- Thales Communications, France
- Thales Optronics, UK
- Thales Training and Simulation, UK
- US Marine Corps, USA
- US Navy, USA
- VT Aerospace, UK
- Warship Support Agency (WSA), Ministry of Defence, UK
- W S Atkins, UK

## Reserve your place



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