



# SURPASS

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## SURPASS: PROJECT PROGRESS

The SURPASS project started in November 2009 and concluded successfully in December 2011. This newsletter reports on the progress made after the first newsletter which was published in March 2010. The project was a very demanding programme of work and the partners worked hard to ensure that its main aims are fully achieved. The project addressed aspects of human error related to automation failures at sea by preparing a course responding to inadequacies of seafarers' dealing with automation systems. The course covers both Navigation and the Engine failure.

A detailed investigation and analysis of the latest research in automation failures was carried out. This involved reviewing

and analysing accident reports in the area of human performance and human factors at sea. Several questionnaires were prepared, one was developed to identify the gaps in seafarer's education and training by responding to automation failures. The results of the research of the accidents database and questionnaires enabled structuring the course content supported by a set of scenarios based on real accidents. The course is available on the SURPASS online platform. There are several PC-based scenarios for those with no or little access to the Internet. Further information on the project can be found on the main website ([www.surpass.pro](http://www.surpass.pro)).

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Education and Culture DG  
Lifelong Learning Programme

**CONTRACTOR:** TUDEV Institute of Maritime Studies

**PARTNERS:** Centre for Factories of The Future; Maritime University of Szczecin; Plymouth University; Satakunta University of Applied Sciences; Spinaker d.o.o





2011

SURPASS: PARTNER MEETINGS

# Partner Meetings

As reported in the first newsletter, the 1<sup>st</sup> Partner meeting took place in Plymouth University in December 2009. The 2<sup>nd</sup> Partner meeting was held by TUDEV in Istanbul in May 2010 at the same time as TUDEV was supporting the Mermaid international conference.



Fig. 1 – Prof. Ziarati, SURPASS Project Director at Turkish Chamber of Shipping

The 3<sup>rd</sup> Partner meeting was held in Satakunta University on June 2010. The university facilities were visited by the partners, mainly the simulator facilities.



Fig. 2 – Satakunta University Full-Mission Simulator Room

The 4<sup>th</sup> partner meeting was held alongside the BRIDGE 2011 Conference in Finland. The project was presented to an international audience many from the project target group and target sectors. The course content and the online platform were well received and the project team were commended on their achievements..



Fig. 3 – 4<sup>th</sup> Partner Meeting alongside with the BRIDGE 2011 Conference

The Surpass final Group meeting and the Conference were held in Istanbul, Turkey at the Chambers of Shipping and Commerce in December 2011. The conference was a success.



Fig. 4 – A photo from 5<sup>th</sup> partner meeting

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# Training Needs

Through research was carried out to identify the “best fit” scenarios for the SURPASS course using the database of several accident investigation agencies such as MAIB (Maritime Accident Investigation Branch) in the UK, focusing on the human factors related to automation failures at sea. In parallel, several questionnaires were developed and one was distributed by partners to the maritime education and training providers to seek their view on the current automation problems. A careful consideration was given not to duplicate the SURPASS course with existing courses such as MRM (Maritime Resources Management), BTM (Bridge Team Management) and BRM (Bridge Resource management) courses. The main aim of the latter questionnaire was to identify the gaps and deficiencies in seafarer’s education and training, and to respond appropriately to automation failures.

A copy of the questionnaire analysis can be provided by Project Contractor, Prof. Dr. Reza Ziarati: [lena\\_kendall@yahoo.co.uk](mailto:lena_kendall@yahoo.co.uk) or Project Coordinator, Dr. Martin Ziarati: [martin.ziarati@c4ff.co.uk](mailto:martin.ziarati@c4ff.co.uk).

As a result of the research, supported and validated by outcomes of the questionnaires, the course content was developed and accident scenarios were chosen. A decision was also made on the format of the intended scenarios. The SURPASS course content is supplemented by several other scenarios. In addition several PC-based scenarios were developed for those institutions or individuals with no or little access to Bridge and/or Engine-room simulators. The course content is up-loaded onto the SURPASS online platform available at : [www.surpass.pro/moodle](http://www.surpass.pro/moodle).

A comprehensive and novel data-structure has been developed containing the entire SURPASS course, its scenarios, animations, graphics and so forth as a complete teaching and learning package on ship automation for maritime education training providers.

The accident analyse database is also available and will be sent to those who request a copy of it. This accident database includes over 200 accident cases caused by automation failures. More information about this database can be provided by Project Director’s office, Prof. Dr. Reza Ziarati: [lena\\_kendall@yahoo.co.uk](mailto:lena_kendall@yahoo.co.uk) or from the Project Coordinator, Dr. Martin Ziarati: [martin.ziarati@c4ff.co.uk](mailto:martin.ziarati@c4ff.co.uk).

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## SURPASS Course on Ship Automation

A SURPASS course is now available in both the online and PC environments, the latter for when there is no or little access to ship simulators or when Internet access is not available. The course is divided into two parts:

- Instrumentation and Control System in Commercial Ships for Navigation Officers
- Instrumentation and Control System in Commercial Ships for Engineering Officers

Course content is further sub-divided into five outcomes/chapters as follows:

- Investigation of the fundamentals of instrumentation systems used in automated process controls
- Examine the information and energy control system
- Be able to operate instruments and automated systems
- Be able to manage automated systems
- Be sure to manage the unmanned and full automated commercial ships

The course includes a number of chapters that are available for use in both classroom and online learning. The course includes a number of scenarios developed from real accidents reports/cases. Each scenario has a number of self-assessments exercises to support the learning process.

The accident scenarios are varied in nature. The accidents are in different situations to teach the learners in how to deal with the different automations problems. For example, one accident scenario shows a particular ship experiencing engine failure and subsequent contact at a Dock. Whereas, another scenario demonstrates a different type of contact situation. A third accident shows when a ship loses control and subsequently has heavy contact with a jetty. The fourth scenario shows a collision situation after experiencing automation difficulties.

All of the above scenarios are available for both Navigation and Engineering Officers.

### 1.0.0 Investigate the Fundamentals of Instrumentation and Automatic control

Output instrumentation includes devices such as solenoids, valves, regulators, circuit breakers, and relays. These devices control a desired output variable, and provide either remote or automated control capabilities.

Control instrumentation plays a significant role in both gathering information from the field and changing the field parameters, and as such are a key part of control loops.

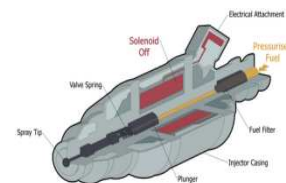


Figure 2 – A slide from the SURPASS online platform

The SURPASS course has been included in the main Marine Engineer programmes and has been submitted to EDEXCEL/BTEC for approval.

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