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| Overview | This standard covers the competence to operate and maintain vessel high voltage equipment, including switchboards, transformers, protection relays, tripping and auxiliary supplies, earthing equipment and key safes and isolock systems.  **Target group**  This standard applies to individuals working on board commercial vessels with responsibility for engineer officers at the management level and electro-technical officers at the operational level. |

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| **Performance criteria**  You must be able to: | 1. operate high voltage equipment in accordance with established safety rules, regulations and operating instructions to prevent damage 2. carry out the required checks, start up and shut down the high voltage equipment 3. monitor and accurately assess the condition of the high voltage equipment in accordance with schedules, operating requirements and instructions and maintain operating conditions within given limits 4. carry our planned and unplanned maintenance in accordance with manufacturers’ requirements and specifications 5. identify, report malfunctions and take appropriate action to rectify defects 6. carry out emergency shut down and isolating procedures to ensure vessel and machinery safety 7. operate the high voltage equipment in contingency situations, including the failure of remote control systems 8. inform relevant personnel of the operations to enable them to continue their responsibilities safely |

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| Knowledge and understanding  You need to know and understand: | 1. the safety precautions for working on high voltage equipment 2. the working principles and constructional details of high voltage equipment 3. planning of operations, planning methods, sources of information – statutory, company and manufacturers 4. the main duties and responsibilities of shipboard personnel, delegation of responsibilities in the equipment space and the level of supervision required by individuals 5. the operational checks and procedures to operate high voltage equipment and how to bring each individual system to state of readiness 6. the location, cause and effects of common faults in high voltage equipment and action necessary to prevent damage 7. how to capture diagnostic information and procedures for passing it on 8. the permitted range, effects of adjustments and consequence of deviation beyond specified range to high voltage equipment 9. the operation of high voltage equipment in the event of failure of remote control systems 10. the shutting down of systems and equipment on completion of operations 11. the use of communication systems, communicating with engine room and bridge personnel and effective forms of communication 12. the importance and use of records for commercial and legislative purposes 13. the application of Statutory Regulations and guidelines, organisational instructions and guidance and vessel contingency |
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