

DP Simulator - Skill Table

DP Simulator Course Skill Table				
	SKILL	<i>Knowledge, understanding and proficiency</i>	<i>Methods for demonstrating competence</i>	<i>Criteria for evaluating competence</i>
	PLANNING DP OPERATIONS			
1	Plan in detail every stage of a DP operation.	Uses and interprets the work site diagrams	Develop a step by step plan for the simulator exercise using the given worksite diagrams	Plan must be in accordance with industry accepted procedures IMCA M103 and IMCA M182
2		Use the vessel data, including capability plots and footprint plots (paper or electronic)	Describe the maximum wind and current for the planned final heading by using the capability plot	Final heading must be within acceptable vessel capabilities and acceptable for the operation according to IMCA M103 and IMCA M182
3		Plan for a variety of emergency procedures	Describe the different emergencies (operational and technical) and possible contingency plans	The trainee must describe different emergency scenarios and the proposed contingency plans during the briefing session
4		Assess the capability of the vessel to successfully complete any proposed operation given a loss of position after worst case failure	Describe in the planning session how the vessel data, including capability plots and footprint plots, may be used to determine the likelihood of loss of position after a worst case failure	A worst case failure should be addressed in the planning session
5		Carry out risk assessments on proposed operations	Describe the risk(s) for the operation and the way(s) to prevent / mitigate the risk(s).	The risk(s) should be described and the plan(s) to prevent/mitigate the risk(s) explained
5a			Decide, based on the risk assessment(s), what equipment class is required	The equipment class must be appropriate to the type(s) of operation based on the risk assessment(s)
6		Determine the level of redundancy appropriate	Describe the redundancy level of the vessel based on the type of the operation	The redundancy level must be appropriate to the type of operation based on the risk assessment(s)
7		Understand what each colour of light in an alert light table means and the action(s) required.	Explain what will trigger a green, yellow, red or white status light and what action(s) would be required in each case.	All four positions must be described with the appropriate action(s) for each according to IMCA M103 and IMCA M182
8		Make appropriate contingency plans to cover any foreseeable system failure or operational requirement. Contingency planning to include appropriate 'escape routes' for the vessel	Describe the contingency plan(s) and draw the escape route(s)	Each escape route must bring the vessel to a safe position in the most safe way with a minimum risk for other failures
9		Select the proper reference systems to be used for each operation.	Describe the different reference systems that can be used and their specific advantages/disadvantages and precautions to be taken	Systems used must be available and working within their specific limitations and precautions must be described in the planning

	DP Operational Skills			
10	Operate the vessel safely, with due regard for the safety of life at sea and protection of the marine environment	Demonstrate the ability to control the vessel safely in manual mode when approaching the area where a DP operation will be executed	Control the vessel effectively and in a safe manner while en route to and approaching the 500m exclusion zone	Trainee has achieved an OoW or higher CoC and during the course is observed to manoeuvre and control the vessel in an efficient and safe
11	Operate vessels safely in DP, with due regard for the safety of life at sea and protection of the marine environment	Demonstrate compliance with appropriate procedures to be followed when approaching any work site and transferring from conventional vessel control to DP control	During the exercise the control is transferred from manual levers to DP control and approach carried out according to procedures IMCA M109 and IMCA M182 or other recognised procedure	Vessel control should be transferred from manual levers to DP control and approach carried out according IMCA M109, IMCA M182 or other recognised procedure
12		Demonstrate the ability to set up and operate the DP system under the various control modes (manual, mixed manual / automatic, automatic, follow track, follow target and minimum power heading manoeuvres) as appropriate to the exercises	Uses the appropriate mode(s) during the appropriate part of the simulation exercise in accordance with the operational plan	Depending on the exercise the proper mode(s) must be chosen and used. The mode chosen for each operation must be in accordance with the safe working procedure in IMCA M103, IMCA M182 or other recognised procedure
13		Conduct vessel positioning manoeuvres and station keeping functions following the operational plan and procedures	Carry out the planned operation according to the plan	The operation is executed according to the plan. If there is a deviation from the original plan it must be explained to the appropriate person(s)
14		Knowledge of vessel systems and their limitations	Refers to and uses the information contained in the vessel description or FMEA manual	A vessel specific fault (for instance HPR connected gyro is failing) must be recognized
15		Demonstrate effective completion of Pre DP, Set up, Change of watch and other checklists	During the simulator exercises the appropriate checklists are used and completed	Checklists are completed during the simulator exercises in accordance with IMCA M103 IMCA M182 or other recognized procedures and may be used during exercise debriefings
16		Demonstrate the maintenance of appropriate logbooks and records pertaining to DP operations	Maintains the appropriate logbooks and records pertaining to DP operations during the simulated exercises	Logbooks and records are completed during the simulator exercises in accordance with recognized procedures and may be used during exercise debriefings
17		Chooses appropriate DP settings in accordance with the planned operation(s) and the environmental conditions	Selects an appropriate unit	A specific unit of measure (m/s, ft, NM, etc) is chosen in accordance with the DP operation to be carried out
17a			Selects an appropriate coordinate system	A specific coordinate system (UTM, Lat/Long, local) is chosen in accordance with the DP operation to be carried out

17b			Sets up the UTM coordinate system	Makes the correct set up when using UTM and demonstrates an understanding of this system (false easting, false northing, zones)
17c			Selects the appropriate gain setting	The gain should be selected according to the vessel station keeping capability and the weather during the exercise
17d			Sets up warnings and alarms	The warnings and alarms set up should be in accordance with the plan and the environmental conditions (alarm limits for heading and position deviation)
18		Knowledge of the power and thruster system configuration and possible settings.	Check the power system configuration	The vessel power system configuration should be observed on a proper view/screen.
18a			Check if the bus bar is opened or closed	The bus bar configuration should be carried out in accordance with operation class (IMO 645)
18b			Compare the maximum power capability and the power available	The power available for the operation should be enough to maintain the vessel position keeping capability according to operation class. Capability plots, printed or electronic, should be analysed.
18c			Understands the 'power overload control' DP functionality on all DP modes.	The trainee can explain the black out prevention function available and takes proper action to avoid the black out situation arising or responds appropriately if the situation happens
18d			Chooses proper thruster allocation settings for particular operations (ROV, diving, etc)	During the exercises the proper thruster configuration is implemented
19		Knowledge and use of reference systems and other peripheral equipment	During the exercises set up the DP reference systems, sensors and peripheral equipment required for the intended simulated operation(s)	Required reference systems should be set up in accordance with IMCA M103, M182 or other recognized procedure
19a			Demonstrate the operation of position reference systems, sensors and peripheral equipment associated with the DP system	For a minimum of two reference systems the typical system faults must be recognised (for example drifting DGPS systems or unstable artemis caused by radar interference)

19b			Demonstrate the importance of having sensors, such as wind, gyrocompass, VRS and others enabled according to the operation class and react appropriately to the failure of any of these sensors	The trainee recognises a minimum of two sensor failures (for example, telegram time out, sensor divergence, sensor rejected)
20		Knowledge and understanding of system redundancy, alarms and warnings	Selects the correct DP class for consequence analysis	Trainee verifies or selects the correct consequence analyse class function on the system.
20a			Take proper action on consequence analyse alarms and other warnings and alarm messages	Warnings like consequence analysis alarms etc. must be written down in the DP log and appropriate action must be taken in accordance with IMCA M103.
21		Practices effective communication	Communicates effectively during DP operations	The trainee identifies all parties involved in the operation and keeps them updated/informed throughout all stages of the operation
22		Knowledge of DP alarm sequences and communication systems with reference to operational condition	Can discuss the possible DP alarm sequences with reference to operational conditions	Degraded DP system must be recognized
22a			Responds to DP alarms by choosing the appropriate communication system and contacting the appropriate person(s)	Degraded DP system must be communicated to the appropriate person(s) and noted in DP logbook. Proper communication and communication system(s), including DP alert status lights, must be used in accordance with IMCA M 103, IMCA 182 or other recognized procedure.
23		Analyze the trends	Check the various DP trend pages during the operation	The trainee monitors the trend pages throughout the DP operation and reacts appropriately when a possible problem is recognised
24		Operate the desk under normal conditions	Stay alert under normal conditions and check the various screens on a regular basis	The DP trainee operator must be aware of the DP information on the various screens and stay behind the DP desk
25		Practice effective teamwork	Shares any relevant information within the team, delegates tasks and discusses the shared mental model	A toolbox talk is carried out, the duties are allocated and acknowledged within the team, effective leadership and management demonstrated throughout the exercise
26		Organize DP watch keeping procedures observing recognized safe working practices	Organize and demonstrate a safe watch keeping practice according to recognized procedure	Organized watch keeping must be in accordance with IMCA M103, IMCA M182 or other recognized procedures
27		Apply the lessons learned until now	Recognises the lessons learned from the debriefing after each exercise and applies them to the next simulation exercise	The observer can see a positive progression in the trainee's ability to apply acquired knowledge in the simulator exercises over the course of the week

	Faults, Failures and Emergency Handling			
28	<i>practical</i>	Recognise the warnings and alarms associated with catastrophic failure	During the exercises the different alarms associated with a catastrophic failure are recognised	A minimum of one failure associated with a catastrophic failure should be recognised during the course
29		Carry out procedures to stabilize the vessel position and heading subsequent to a variety of system failures and take appropriate decisions and actions relating to the continuance or abandonment of the operation	Different failures will be generated during the simulated operations giving the trainee the opportunity to demonstrate appropriate decision making as regards continuing or abandoning the operation	The participant can show his/her capacity to make the appropriate decisions during the different stages of the exercise; the decisions will be discussed during the debriefing
30		Demonstrate a growing understanding of and skill in carrying out DP operations in a variety of simulated scenarios. This will include the handling of normal operations as well as a variety of emergency failure modes	As the course progresses the trainee demonstrates increased understanding of and skill in carrying out DP operations by successfully completing exercises	The scenarios should include at least 3 industry reported incidents (IMCA incident reports are available). The trainer observes a positive progression in the trainee's level of understanding and ability to apply knowledge practically throughout the course
31		Demonstrate the capability to handle thruster failures	Simulate thruster fail to maximum pitch and or set point/feedback difference	Simulation of thruster failures to maximum pitch, set point/feedback
32		Demonstrate the capability to handle loss of all position reference systems	Simulate loss of all position reference systems when in DR mode	Participant should stay calm and take proper action knowing the vessel stays in dead reckoning (DR) mode for a short time
33		Demonstrate the capability to handle worst case failures	Simulate worst case failures during the exercises	The worst case failure should be recognized and proper action taken according IMCA M 182
34		Knowledge of the vessel's operation manuals	The standard required operation manuals on board a DP vessel are referred to throughout all stages of the DP operation; planning, execution, monitoring and fault/failure/emergency response	The trainee should be asked questions to demonstrate knowledge of the different operation manuals during the simulation exercises and theoretical assessment
35		Knowledge of the vessel's FMEA and its implications	FMEA manuals of the simulated vessels are referred to throughout all stages of the DP operation; planning, execution, monitoring and fault/failure/emergency response	The trainee should be asked questions to demonstrate knowledge of the FMEA manual during the simulation exercises and theoretical examination
36	<i>theoretical</i>	Be aware of case histories in respect to vessel incidents and accidents, based on the incident data and newsletters	Read and/or discuss case studies of incidents and accidents during the course	Case studies of incidents according to IMCA incident reports can be studied independently and/or discussed during the course
37		Be familiar with new developments in DP systems including position sensors and control systems	New developments on DP related subjects and equipment are read about and/or discussed during the course	Developments in DP systems can be studied independently and/or discussed during the course
38		Understand different system failures	Reads about and/or discusses system failures during the course	System failures can be studied independently and/or discussed during the course