The current study pathway of the reskilling single pilot assumes that he/ she has ample flying experience. Given the current job, the professional commercial pilot is assumed to have completed all theoretical knowledge subjects as well as flight training in both basic and complex aircraft. It is expected that, in the event of pilot incapacitation, the system will have enough redundancy to enable the ground pilot to use the onboard automation (e.g., autopilot, FMS) to land the aircraft safely i.e., it is not expected that the ground pilot will control/fly the aircraft manually, but rather use automation to control the aircraft if the need arises. It is also assumed that an experienced commercial pilot who undergoes reskilling to become a ground pilot may take up supervisory and leadership roles. In fact, the behavioural skills mentioned below take this into consideration. It is also assumed that, besides the technical and behavioural competencies mentioned below, the other competencies listed under the new entrant ground pilot are also required.

PROFESSIONAL COMMERCIAL PILOT: Reskilling to ground pilot		
FORMAL TRAINING		
	Main Topic	**Description of content**
Theoretical Training: Learning Courses and Instruction required to being ex. Pilot	Automation systems: Flight Control and Management	- Autopilot - FMS - Autothrust - Autoland - Control laws and flight envelope protection
	Human Performance and Limitations	- Human information processing - Situation awareness - Threat and error management - Workload management - Crew Resource Management (CRM) - Automation issues
	Operational Procedures for ground pilots	- Tasks and responsibilities of the ground pilot - Flight preparation - Abnormal and emergency procedures related to onboard pilot incapacitation, loss of link etc - Ground pilot training requirements - Ground pilot duty time limitations and rest requirements - Minimum required equipment for ground control systems - Communication procedures - Handover procedures
	Ground Control Station System	- Communication, control and telemetry links - Communication system - Controls and displays

		- Multi-modal user interaction (touch, voice, etc.) - Decision support systems (including AI-enabled support systems) - Alerting - Voice and data recording (both flight data and GCS data) - GCS redundancy requirements
	Monitoring & intervention	- Principles of effective monitoring and intervention - Aircraft performance and systems monitoring - Environmental monitoring (weather etc.) - Monitoring of the single on-board pilot
	Cybersecurity	- Cybersecurity threats in aviation systems - Common attack methods (hacking, spoofing, jamming, etc.) - Countermeasures (GNSS augmentation, anti-jam antennas, encryption, anomaly detection, etc.) - Threat detection and alerting - Emergency procedures
	Main Topic	**Description of content**
Practical Training: All the hands-on training, which can include simulation, on-site training, supervision flying…	Advanced and Type Specific ground pilot training	This practical training will provide practical hands-on training on ground control systems and thus introduce the experienced commercial pilot to the tasks of the ground pilot This training can be a combination of simulated scenarios and real-life scenarios involving real aircraft and it should include both normal and abnormal scenarios with a special focus on all abnormalities related to the ground control station This training should include the following: - Operation of the GCS hardware and software - Standard operating procedures of the ground pilot - Control and telemetry linking and integrity checking - Aircraft flight path monitoring - Various emergency scenarios such as – Aircraft powerplant and other technical malfunctions – Technical and/or medical diversions – Loss of communication with aircraft – On-board pilot incapacitation and subsequent takeover and safe landing by ground pilot - Ground pilot handover procedures

COMPETENCES (select 3 to 5 to each group)					
Technical Skills: Considering the competences identified on the Persona, please fill in the theoretical and practical knowledge that the correct acquirement of the skill should induce					
Competence	**Competence Description**	**Knowledge**	**Skill**	**Level**	**Preliminary Training Topics**
Name	***Short competence description***	***The individual should have knowledge of…***	***With this skill someone should be capable of….***	***Beginner Intermediate Advanced***	***How to acquire the skill?***
Aircraft flight path monitoring	Adequately monitor the aircraft's flight path	Provide effective monitoring to the onboard pilot by following standard operating procedures and known if and when intervention is required	Monitor both the aircraft systems as well as the onboard pilot adequately to ensure that the trajectory of the aircraft is as intended, and the aircraft is flying within its performance limitations	Intermediate to advanced	Scenario based training of both routine and non-routine situations
Aircraft flight path management - automation	Control the aircraft flight path through automation	Understand the various automation modes and different levels of automation Be able to choose the appropriate level of automation required for the situation Recognise when the automation is not behaving as expected	Control the aircraft through the GCS using automation Recognize any deviations from the desired aircraft trajectory and make any necessary corrections, including switching to a different automation mode or level Use appropriate automation modes and levels commensurate with the phase of flight and workload levels	Intermediate to advanced	Scenario based training of both routine and non-routine situations Training in automation use in abnormal scenarios, including a number of failed automation systems
Computer skills	Understand and use computer systems	Understand and use the various technical systems	Be able to accomplish the tasks required using a multitude of computer systems and adapting to their use as required	Intermediate	Experience and scenario-based training

KEY BEHAVIOURAL SKILLS AND COMPETENCES					
Competence	**Competence Description**	**Knowledge**	**Skill**	**Level**	**Preliminary Training Topics**
Name	***Short competence description***	***The individual should have knowledge of…***	***With this skill someone should be capable of….***	***Beginner Intermediate Advanced***	***How to acquire the skill?***
Leadership and Teamwork	Demonstrate effective leadership and ability to work in a team	Understand the team dynamics and select effective leadership techniques	-Use initiative and directing and delegate tasks when required -Understand all roles and responsibilities within the team -Encourage open communication and participation -Take responsibility for all actions and admit mistakes when required -Understand team members' needs as well as differing levels of proficiency amongst team members -Provide timely constructive feedback to team members whilst receiving and acknowledging the same from others -Assertively intervene when required -Resolve conflicts and/or disagreements constructively -Project self-control even in distressing situations	Intermediate to advanced	Experience, and a training programme similar to the commander training course
Problem solving and decision making	Identify risks and problems and resolving them accordingly Use appropriate decision-making processes	Select effective Decision-making processes and problem-solving strategies	-Seek accurate information from appropriate sources -Identify and verify why something has gone wrong -Be aware of the risk of succumbing to confirmation bias -Be resilient to difficult situations in order to find solutions and improvise if required in unforeseeable circumstances -Prioritise tasks accordingly -Identify and consider all options in an effective manner -Monitor, review and adapt decisions if required	Intermediate to advanced	Experience and scenario-based training of unforeseeable events
Sensemaking	Be able to structure the unknown by processing various inputs and thus enable the individual to comprehend, understand and predict situations	Have knowledge of situational awareness requirements, as well as a sound technical knowledge of all aspects	-Process all incoming data from the GCS, the onboard pilot, and any other information available to make sense of the situation -Build up a clear picture of the onboard situation despite not being physically present on board	Intermediate	Scenario based training abnormal scenarios, in which the ground pilot must understand to accurately build a picture of the situation on board