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GOVERNMENT OF INDIA

CIVIL AVIATION DEPARTMENT

DIRECTOR GENERAL OF CIVIL AVIATION

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Subject: Distance Learning (DSL) for CAR 147 (Basic) approved organisations

1. Introduction

- 1.1 With advancement in computer technology, software applications, accompanied with rapid expansion of internet access and media options, distance learning is considered a viable method to impart various trainings to individuals. Considering the prevailing COVID 19 pandemic situation for the continuity of the training curriculum, existing CAR 147(Basic) Training Organisations may be permitted to conduct training through distance learning training method.
- 1.2 This AAC lays down guidance for conduct of such trainings and system requirements through distance learning methods such as online or virtual classroom sessions by the existing CAR 147(Basic) Training Organisations.

2. Applicability

- 2.1 This AAC is applicable to existing Basic Maintenance Training Organisations (BMTOs) approved under CAR 147(Basic) for carrying out training through Distance Learning Training methods for a specific period to overcome COVID pandemic lockdown situation.
- 2.2 BMTOs may be permitted to conduct distance learning for only theoretical knowledge modules limited to Level 1 and Level 2, not having any practical elements, as per scope of approval.

3. Types of Distance Learning

3.1 Distance learning asynchronous:

Distance learning reflects training situations in which instructors and students are physically separated. The instructor and the students do not interact at the same time. This training method is "Student-centred" (i.e. the student is responsible for the learning progress).

3.2 Distance learning synchronous:

Distance learning reflects training situations in which instructors and students are physically separated. The teacher and the students interact at the same time (real time). This training method is "Instructor centred" (i.e. instructor is responsible for teaching the student).

Note: BMTOs approved under this AAC shall be permitted to conduct training using 'Distance learning synchronous' method only.

4. Training tools:

The following training tools can be used during synchronous DSL:

- Slideshow presentation
- Manuals
- Computer (desktop, PC, laptop, etc...)
- Mobile devices (such as, but not limited to, tablets, etc.)
- Videos
- Virtual reality
- Virtual classroom
- Virtual aircraft

A combination of several training methods/tools is recommended in order to increase the overall effectiveness of the training.

NOTE: Mobile phone cannot be used for video presentation of the virtual classroom as the screen size does not allow to attend virtual classroom with sufficient comfort (i.e. audio only is acceptable on mobile).

5. Synchronous distance learning training method

5.1 Virtual Classroom

Virtual classroom is the most common training tool implemented by training organisations during synchronous DSL. In a virtual classroom, students are connected with each other and the instructor through a video and audio connection instead of being physically together. It is the media allowing the instructor to simulate a classroom and present the students slideshows, manuals, videos, virtual aircraft etc. This requires the use of adequate hardware and software by both students and instructors.

Virtual classroom has to allow a 2 way communication channel for a full video interaction between students and instructors, as close as possible to a real classroom. Students should be able to highlight any difficulty during the training and ask possible questions to the instructor.

In a virtual classroom, interactivity between instructor and students is reduced compared to a real classroom environment. Therefore, additional effort is necessary from instructor to maintain the attention of the students during the training. Additional training for the instructor has to be considered by the training organisation with regards to DSL specific pedagogical skills.

5.1.1 Hardware requirements for students:

- A desktop computer or a laptop or tablet with sufficient performances to attend the virtual classroom without disruption, equipped with webcam, headset and microphone
- One screen having a sufficient size to comfortably display all required training material (AMM, slideshows, schematics). The use of a second screen is recommended.
- The use of mobile phone or tablet with screen size smaller than 10 inches size is not allowed to attend virtual classroom as the screen size is not sufficient to display complex document such as schematics with sufficient comfort. However, it can be combined with a computer for audio purposes.
- Internet connection with a sufficient bandwidth to attend the virtual classroom without disruption or discomfort
- Both, computer and screen have to meet the minimum specifications of the online meeting software in use.

5.1.2 Hardware requirement for instructors:

- A desktop computer or a laptop or tablet with sufficient performances to conduct the virtual classroom without disruption, equipped with webcam, headset and microphone
- 2 screens having a sufficient size to comfortably display all training material (AMM, slideshows, schematics). The use of a second screen is necessary to be able to display both virtual classroom (i.e. students' webcam) and training material
- Internet connection with a sufficient bandwidth to conduct the virtual classroom without disruption or discomfort
- Both, computer and screen have to meet the minimum specifications of the online meeting software in use.

5.1.3 Software requirement

Online meeting software (i.e. virtual classroom) allowing 2 way communications and sharing presentations and other documents.

Prior to first DSL training, both instructors and students have to receive sufficient training on the specificities of synchronous DSL and on the use of virtual classroom software:

- Students have to be able to interact with the instructor and use the available functions of the meeting software (i.e. raise hand, share documents, mute microphone etc.)
- Instructors have to show a good command of the meeting software in order to be able to provide necessary guidance to the students during the training sessions.

It is recommended that the training organization arrange a test training session to ensure all students are sufficiently familiarized with the meeting software.

5.1.4 Instructors qualification

The instructors have to be assessed and formally authorized by the Quality Manager of the training organization for the use of synchronous DSL training method and virtual classroom. DSL training method has to be formally added to the instructors' terms of reference. Training records and authorisation have to be kept in instructors files.

5.1.5 Student attendance

Students attendance has to be accurately recorded by the instructors on a regular basis (i.e. at the beginning of each class and after each break) and automatically if the software allows to record the actual student attendance. Lost training sessions due to interruption of connection or loss of communication shall be deducted from the attendance of affected participants and recovered at earliest opportunity.

5.1.6 Students training environment

147.A.100(c) requires that training environment is maintained such that students are able to concentrate on their studies or examination as appropriate, without undue distraction or discomfort. When using DSL, instructors are not able to ensure that this requirement is fulfilled for all students at any time of the training. Therefore, it is required that each student signs a statement to commit to attend course in the following conditions:

- in a suitable environment (i.e. noise, temperature, distraction, human factor)
- a period exclusively dedicated to training course (i.e. no other using suitable hardware and software)
- during activity in parallel or excessive additional working time)

Instructors should regularly check that students remain in an appropriate environment through the video and record student as absent during the training session when the conditions above are not met.

5.1.7 E-library

147.A.100(i) requires that a library is provided to students containing all technical material appropriate to the scope and level of training undertaken. When the students cannot physically access the library located at the training organisation, suitable documents have to be accessible online (i.e. e-library) in addition to the physical library available at the training organisation.

5.1.8 Sampling of DSL training sessions by DGCA

Access to the virtual classroom shall be granted to DGCA (RAO) to allow the performance of scheduled or unannounced audits. Therefore, the training organisation shall notify RAO ahead of scheduled DSL trainings. Adequate credentials shall be provided by the training organisation to the RAO either on request or on a permanent basis.

5.1.9 Monitoring of the students' progress

Students' progress shall be monitored to ensure the training sessions learning objectives are successfully achieved.

Different means are acceptable to validate students' progress such as:

- Follow-up examinations. Such examination are not considered as CAR-147 final examination. A question bank separate from the CAR-147 final examination shall be used.
- regular electronic quiz
- Direct questioning of students at the end of class or on a regular basis during class, etc..

6. Conduct of training

During DSL training, virtual classroom training tool is the main training platform.

6.1 Number of students

CAR 147.A.100(b)1 requires that number of students in class cannot exceed 30 students. However, when using DSL, the maximum number of students in a session shall not exceed fifteen (15).

The maximum number of students may need to be further restricted based on the available bandwidth of the internet connection of both the instructor and the students.

6.2 Daily training time

AMC 147.A.200(f) specifies that the maximum number of training hours per day for the theoretical element should not be more than six (6) hours. In order to follow pedagogical and human factors principles, daily training time shall not exceed five (5) hours (excluding breaks) as DSL increases the difficulty to maintain the students' attention and fatigue compared to a real classroom environment. A break of a duration not less than 15 minutes shall be provided after every one hour of training.

6.3 Training material

The training organisation shall define the training material used for each module during DSL as well as additional training tools, if any. When training material differs from the one used in real classroom training, it shall be submitted to RAO for review and acceptance (sampling is acceptable).

6.4 Additional tuition hours and/or training method

Depending on the level of detail of the topic to be taught, additional tuitions hours and/or additional training methods might be necessary when using DSL compared to a real classroom environment.

6.5 Training schedule

Based on points 6.2 to 6.4 above, TNAs, training schedules and course approval CA Form 12a shall be submitted to reflect virtual classroom training plan.

6.6 Examination

Examinations are not allowed using DSL method. All examinations shall take place at the approved examination site as per approved MTOE.

7. Approval for conduct of training by DSL method

7.1 In order to be approved to use DSL, the approved CAR 147 (Basic) Maintenance Training Organisation shall submit to the concerned RAO:

- a) Duly completed CA Form 12a along with parawise compliance of the AAC.
- b) Supplement to the already approved MTOE describing the DSL procedure to be followed covering at least the following applicable MTOE chapters in compliance with the conditions/ requirements detailed in this AAC:

- 2.1 Organisation of courses
- 2.2 Preparation of course material
- 2.3 Preparation of classroom and equipment
- 2.5 Conduct of theoretical training
- 2.6 Records of training carried out
- 2.7 Storage of training records
- 3.1 Audit of training
- 3.6 Qualifying the instructors
- 3.8 Record of qualified instructors and examiner

7.2 Organization may be audited (on-site/ remotely) by RAO to assess the compliance of requirements as given in this AAC. On satisfactory compliance, RAO shall recommend to DGCA headquarter for approval. The approval so granted may be limited to a specified period.

8. Induction of new batches in CAR 147 (Basic) Maintenance Training Organisation:

- a) BMTOs may induct fresh batch(es) for conducting training in physical mode, in accordance with their approval, in terms of number of batches and categories approved, provided that the latest guidelines on COVID restrictions by MoHFW and State Government allow the conduct of physical classes.

Additionally, while inducting fresh batch(es), the BMTOs shall ensure that:

- (i) the training of candidates already enrolled is not effected by the fresh batch(es) induction in terms of infrastructure and qualified manpower etc. as per the terms of approval;
 - (ii) the arrangement for practical training with the contracted MRO is adequate to cater to the existing as well as the fresh batch(es);
- b) BMTOs who have obtained approval to conduct DSL as per this AAC for their existing batch(es), are permitted to induct fresh batch(es) during the current year 2021 limited to 50% of the approved sanctioned strength and only to the categories approved for DSL.

In case physical classes are permitted, the BMTO may further induct the remaining 50% students of the approved sanctioned strength subject to compliance of a) above.

- c) The advertisement/ prospectus for induction of new batch(es) using DSL mode shall contain the mode of training that will be used by the BMTO for training the students of the fresh batch(es) till the situation normalizes and physical training is permitted by the authorities.

9. Transition from DSL to physical training:

While transitioning from DSL trainings to physical trainings, BMTO shall ensure that a TNA is conducted to ensure adherence to the approved syllabus and maintenance of records.

10. Withdrawal of DSL Approval:

Any deficiency/ shortfall observed for the continued approval of DSL shall lead to withdrawal of DSL approval for the existing as well as fresh batches taken under this AAC.



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