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World Meteorological Organization

Report on External Review of the WMO RTC in Islamic Republic of Iran

Review Team:

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Members of the Review Team and staff of the WMO RTC in the lobby

10–12 December 2024

Table of content

Acknowledgements

The review team would like to thank teaching and administrative staff of the RTC and (Islamic Republic of Iran Meteorological Organization) IRIMO who enormously contributed to review process. It should be noted that RTC staff translated many documentations from Persian into English for making the review process more comfortable and to provide information for overall evaluation. Many thanks to the host for the great hospitality and warm welcome and for dedicated work of all staff despite the officially announced holidays in Tehran.

1. Executive summary

The external review of the WMO RTC in the Islamic Republic of Iran was undertaken from 10 to 12 December 2024 in accordance with the updated Guidelines for Designation or Reconfirmation of WMO Regional Training Centres (RTCs) and conducted against the EC Criteria for the Designation and Reconfirmation of WMO RTCs, approved by EC-66, and updated by EC-68.

The visit programme included:

- Visiting IRIMO headquarter, including the Forecasting and Telecommunication Centres and library,
- Meeting with IRIMO President, Permanent Representative of Islamic Republic of Iran with WMO, Dr Sahar Tajbakhsh,
- Presentation of reflections and comments on the previous Review Report (2016) made by newly appointed RTC Director, Ms. Maryam Toufani Shahraki,
- Discussions with RTC Administration and Training staff on information provided in the annual reports for 2020 – 2023 and the self-assessment report produced in 2024, with the consideration of the supporting internal documentation and evidence,
- Visiting RTC training and related facilities including classrooms and laboratory, centre for innovations, dormitories for students and teachers, libraries, video-production studio, sports centre,
- Blitz interview with the trainees, trainers and administration of the RTC,
- Visit to National Centre for Climate and Drought Crisis Management,
- Two 1.5 hours online sessions with Representative of WMO ETR Office, Mr Mustafa Adiguzel, which included two presentations (on the review process and on organizing and managing very short-term training activities and the latest updates on WMO publications related to RTCs (based on gap assessment) and time for answering numerous questions.

This report was prepared using the following documentation and evidence made available before the visit, during and after the visit of the review team upon separate email request:

- The self-assessment report 2024 and annual activities reports 2020–2023,
- Assessment forms for instructors and training courses by trainees,
- Evidence of works on analysis of training needs in the RA II carried out by the RTC,
- Curricula for short training courses (from 1 week up to 2 months),

- List of training and administration staff with description of the academic and professional background,
- Description of the IRIMO strategic plan in the field of education and training.

During the review visit it was found that, the huge progress was made since the last review process (2016) in compliance with the previous recommendations of the review team in terms of:

- Significant increasing of the number of international trainees and international events organized in the last 4 years,
- Renovation of existing and construction of new facilities (full renovation of the dormitories, construction of new cafeteria, opening of own centre for innovations,
- Expanding distance learning opportunities (organization of own video-production studio for teaching staff, launch of internal learning management system (IDEA platform) with plans to expand it for international level,
- Continued provision of financial support to foreign trainees from the least developed countries (waiving tuition fee, accommodation and meal, internal transportation and visa support),
- Improved communication mechanisms with neighbouring countries, RA II, other WMO RTCs and universities in the region for better identifying and meeting the educational and training needs.

Curricula and programmes are complying with the WMO requirements and standards, particularly WMO-1083. They are linked to WMO Competency Frameworks (WMO-No. 1209) and WMO long-term goals and strategic objectives (WMO Strategic Plan 2020–2023) as well.

The RTC has mechanisms and procedures for successful management, planning and improving its efficiency. The RTC timely provides detailed annual reports, demonstrates transparency of the processes and is open to students from all countries in the region.

There is a strong mechanism put in place to guarantee needed qualification of teaching staff.

The review team in 2016 made the recommendations which were considered to contribute to improved performance of the WMO RTC Iran. Each of the recommendations were carefully and appropriately commented by RTC Director in 2024 (Annex 1). Based on that evidence the review team made a conclusion that previous recommendations are fully met.

For the work of the review team all the necessary facilities and arrangements were kindly provided. All the requested documents were submitted for consideration of the review team, and in many cases, these were kindly translated into English from the Persian language.

Considering all the mentioned above aspects, reconfirmation of the WMO RTC status for the next period is strongly recommended by the review team for consideration of the EC Capacity Development Panel (CDP) with some recommendations made in conclusion section of this report.

2. Overview of the WMO RTC

The RTC in Tehran was recognized in 1993 by EC-45 and an official agreement was signed between WMO and the government of the Islamic Republic of Iran on 14 June 1994 for the recognition of the Advanced Meteorological Sciences and Training Centre located in Tehran as the component of the WMO RTC, Islamic Republic of Iran, in WMO RA II. The centre is collocated with the Atmospheric Sciences and Meteorological Research Centre. The recognition of the RTC was reconfirmed by EC-61 in 2009, by EC-69 in 2017, and the recognition was extended by EC-76 in 2023 until the approval of subsequent Executive Council resolutions following the future external review.

Obviously, great efforts were done by the RTC -Tehran since the last external review completed in 2016 to develop facilities and infrastructure and promote cooperation with neighbouring countries, RA II, other WMO RTCs and universities in the region. That brought very positive effect on the quality of their educational and training services.

Detailed description of facilities and infrastructure with photos is provided in paragraph 5.

3. Identifying learning needs

Learning needs assessment is conducted at two levels. At the national level when the assessment is made using information from the Meteorological Departments of the provinces. At the regional level, this is accomplished through communication with the President of Regional Association II, as well as the National Meteorological and Hydrological Services of the Region II (Asia) and other regional organizations, such as the Economic Cooperation Organization (ECO) and the Coordination Committee for Hydrometeorology of the Caspian Sea (CASPCOM). In addition, the evaluations of students participating in the previous courses are also considered.

So, the RTC has processes in place to gain information on the education and training needs of the Region and conducts 7–8 training courses every year.

Planning documents are issued by the responsible body based on the WMO priorities, IRIMO strategic plan, analysis of correspondence with neighbouring countries and RA II. A summary of communications with RA II and neighbouring countries on learning needs was provided. Current national priorities, some of which overlap with regional priorities, include:

- Applications of Artificial Intelligence in Meteorology,
- Methods for Forecasting Evaluation,
- Remote Sensing in Forecasting.

Sources of evidence among others include copies of official letters from the Permanent Representative of the Islamic Republic of Iran to RA II.

4. Designing the learning services

4.1. How methods of learning are selected

The RTC uses a variety of learning solutions appropriate to their institutional capabilities and regional needs. Decisions on learning solutions are made by a specially authorized body, the “Training Working Group”, which regularly meets and considers, among other issues, the course and instructor evaluation forms and available needs assessment information. The Training Working Group is made up of 10 representatives of all stakeholders, including the RTC and colleges of IRIMO.

Learning activities used by the RTC include face-to-face training, practical training, on-job-training (as example, at the forecasting office), group-work and projects. Staff of the Centre demonstrated the DL training system which is currently used for local training.

4.2. How training is made compliant with the WMO Guidance materials

The RTC ensures that all the courses are carried out in ways consistent with the WMO standards and guidance materials as reviews and upgrades of syllabi are periodically done based on consideration of the WMO publications.

According to the data presented the curricula is mapped well with the WMO Guidance materials, particularly WMO-1083. They are linked to WMO Competency Frameworks (WMO-No. 1209) and WMO long-term goals and strategic objectives (WMO Strategic Plan 2020–2023) as well.

4.3. Courses and other activities offered by WMO RTC

Visit showed that the training schedule is followed carefully, with courses potentially offered in four languages including two official WMO languages (English and Arabic). Content of the courses are well matched to the WMO priority areas and vary from year to year depending on revealed national training needs and training needs expressed by the neighbouring counties. Titles of international courses held in collaboration with other RTC and international centres in 2023 in English are in the table below.

Sand and Dust Storms Monitoring and Forecasting Using Innovative Techniques	Blended
Workshop on Enhancing Climate Services Competencies	Fully face-to-face
International Conference on Indian Ocean Tropical Cyclones	Blended
Applied topics in the preparation of multi-year climate forecasts (examination of DCPP models)	Fully Online
Applied topics in downscaling Output of CMIP6 models	Blended
Numerical Simulation of Wind and Wave Induced by Tropical Cyclone	Blended

Looking at the other activities in which the RTC was involved, development of international cooperation should be noted. The seventh “International Conference on Climate Change”, aimed at discussing and presenting solutions for adaptation and CC impact reduction, was organized by IRIMO and the Ministry of Roads and Urban Development. The conference was held in 2024, with the attendance of numerous researchers and enthusiasts in the field of climate change. Additionally, the Intergovernmental Panel on Climate Change (IPCC), the Asia-Pacific Disaster Information Management Centre (APDIM), the Economic Cooperation Organization (ECO), and the National Commission for UNESCO also contributed to the conference’s organization. Alongside the conference, nine workshops were held both in-person and virtually, with the participation of 700 professors and experts.

Evidence provided include working plans, agenda, CV of teachers.

5. Delivering the learning services

5.1. Statistics on students served

The RTC demonstrated that, during the previous four years, it has contributed to meeting the education and training needs of the Region. The RTC submitted to the WMO ETR Office its annual reports on time.

The number of international participants in short-term training courses from 2018 to 2023 are presented in the table below.

Years	2018	2019	2020	2021	2022	2023
Number of foreign participants	1	52	51	22	111	28

In average for the last four years, 7.5 short training courses per year are organized. At that international 212 participants including from Algeria, Australia, Bangladesh, China, Comoros, France, India, Indonesia, Iraq, Kenya, Madagascar, Malaysia, Maldives, Mauritius, Mozambique, Myanmar, Nigeria, Oman, Philippines, Qatar, Russian Federation, Seychelles, Singapore, Somalia, South Africa, Sri Lanka, United Republic of Tanzania, Thailand, Türkiye, United Arab Emirates, Yemen successfully completed training courses in blended or online mode.

5.2. Qualification of teaching staff

There is a strong mechanism put in place to guarantee needed qualification of teaching staff.

Over the years, efforts have been made to ensure instructors obtain a Certificate of Competence and General Qualifications from the Public Administration Organization before teaching. If an instructor does not possess this certificate, they must present a teaching demo before the Training Committee, which consists of specialists in the relevant field. If the specialists grant a passing grade, the instructor are permitted to teach.

The RTC also hire international instructors, what demonstrates their efforts to develop human capacity and demonstrates their international openness. For short-term training the RTC invites international instructors from other WMO RTCs (e.g., China, India, Türkiye) or experts from other Training and Operational Institutions, sometimes with partial support from WMO.

8 persons are employed full-time by the national training centre, and all have academic and/or operational experience in meteorology and climatology. Additional instructors are selected from Atmospheric Sciences and Meteorology Research Centre (ASMERC), IRIMO and national universities.

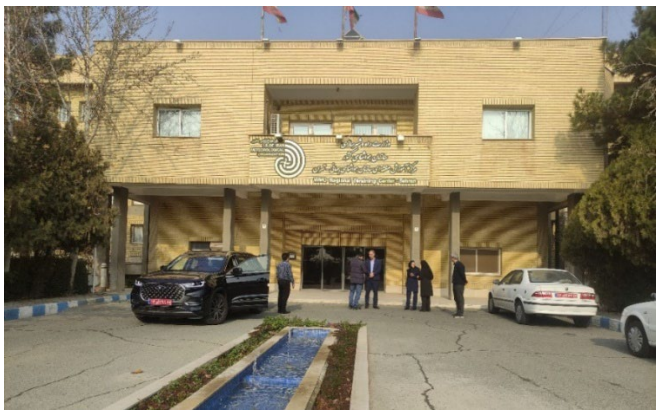
A list of the staff with descriptions of the level of professional and academic background is attached in the Annex 2.

5.3. Description of facilities and infrastructure

Training is delivered in an environment with adequate learning resources, buildings, ICT systems, infrastructure and facilities. The RTC has adequate classrooms, computer and instrument labs, a large and small conference room to deliver face-to-face, online and blended courses. Additionally new facilities such as centre for innovations, new canteen, video-production studio was constructed and launched into operation. Student and teacher dormitory are fully renovated since the last external review in 2016.

The RTC is placed at the first floor of ASMERC of IRIMO and offers six classrooms, with two of them equipped with 30 PCs. Students are able to use a multilanguage library, where WI-FI is free. Standard meteorological equipment is available.

The facilities of the IRIMO Forecasting Office are open for practical training sessions, where real-time data and different models for weather analysis exercises can be applied. For better understanding, some photos of the infrastructure and facilities are presented below.



Building of the WMO RTC in Tehran

Security check-point at the entrance to the territory of the RTC facilities

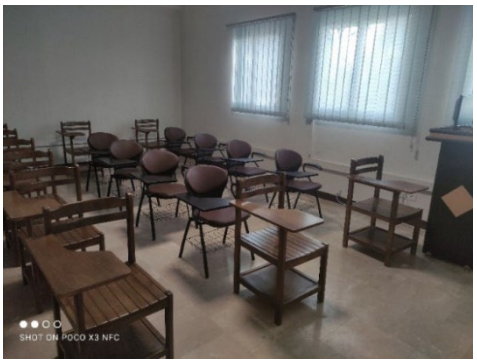
One of four training class equipped with 25 computers

Classroom for workshops/work in groups with the capacity of up to 26 seats

Instruments laboratory

Big conference room equipped with translation and video-conference facilities

Small conference room

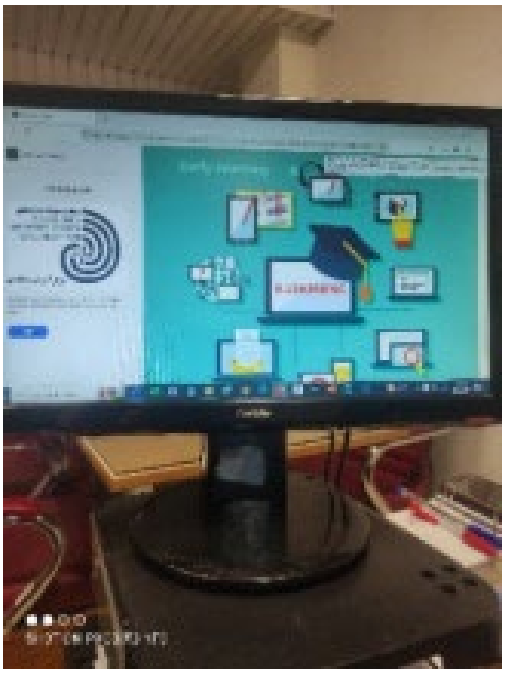


One of four classrooms occupied with national short-term training (about 30 seats)

Rest-room for teachers

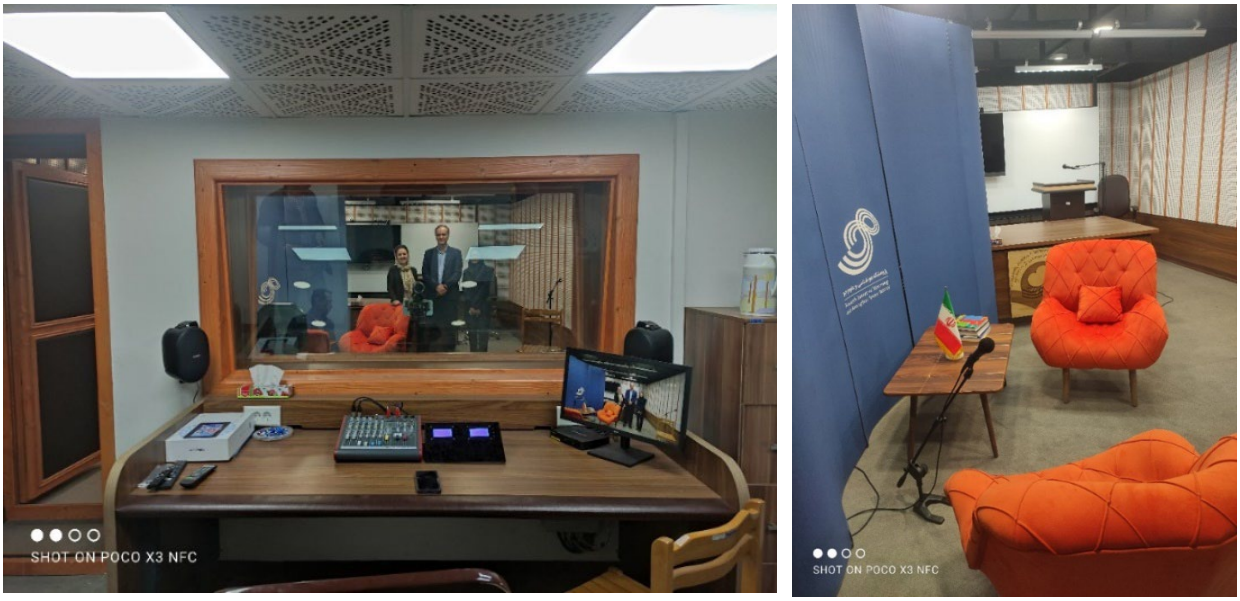
2 more classrooms with a capacity of 25–30 seats. All classes are recently equipped with new air conditioning and purification systems. There is wi-fi internet connection in each of the rooms.

Video-production studio (presented in the picture below) was established about 2 years ago. It is equipped with all the audio-video devices and soundproofing system needed for producing video-lessons and audio-visual training materials. There are two RTC staff involved (producer and designer). As for now, about 20 video-lessons produced and made available in IDEA LMS platform (Idea.irimo.ir).

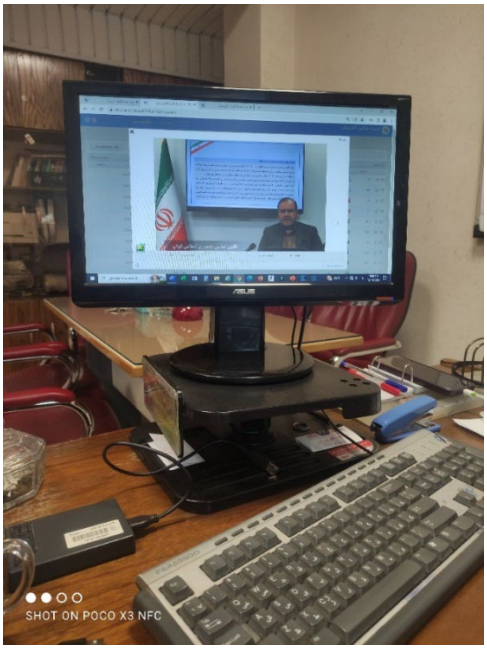


IDEA platform

IDEA platform is created and launched by IRIMO for access of instructors and trainees, and human resource department. It contains portfolio of all IRIMO staff for the last 10 years with their progress and scores for automated data analysis. It also allows to manage and evaluate training, contains list of available trainings with all specifications, descriptions and the separate link to available training on and off -line training resources and materials.

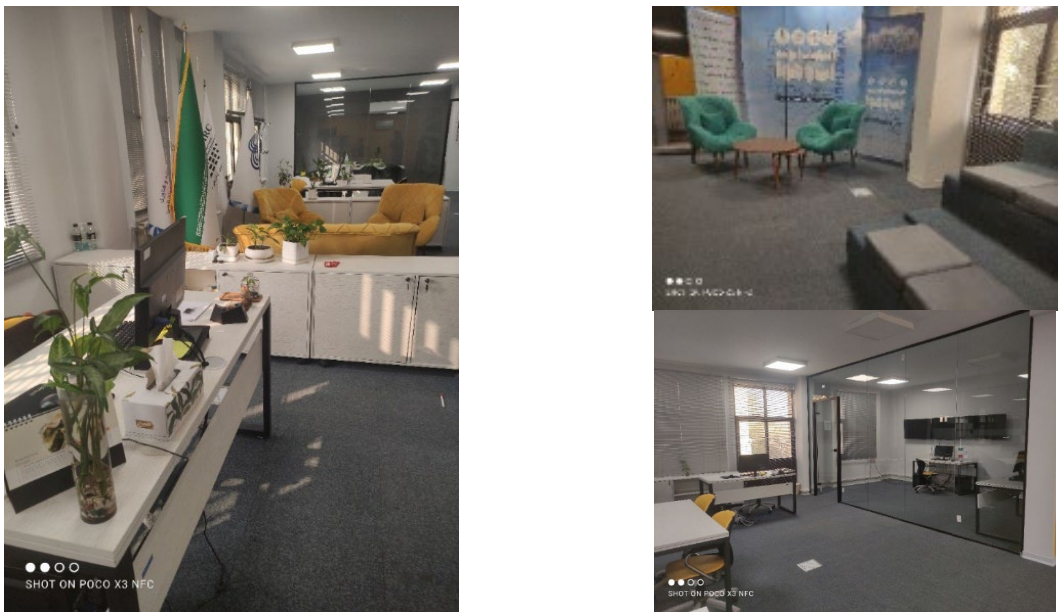


Video-production studio for recording training video-content



An example of video training materials produced in new RTC studio and placed in the DL-system

Evidence of improved facilities for online sessions

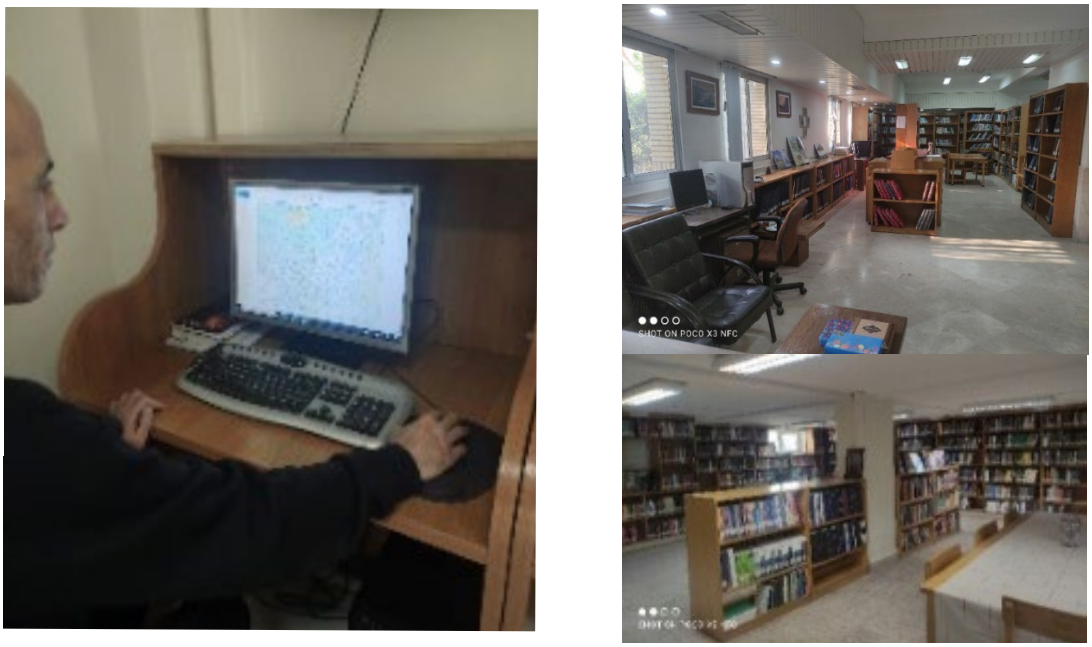


Centre for innovations in very modern style for ice-breaking, researchers and trainees networking and popularization of science and research activities (recently launched)

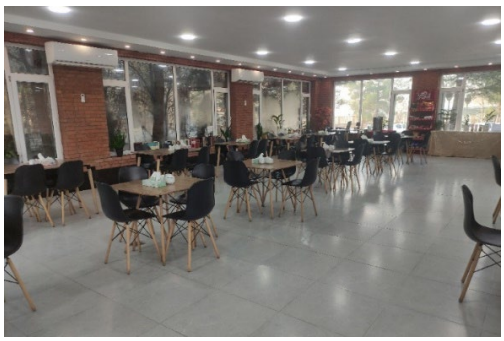
Two multilanguage libraries with internet-access and reading halls available for trainees:

1) IRIMO library, located in the central building (IRIMO headquarter) containing 75 English title publications and about 4000 books in English language. Databank of digital resources (manuals, books, maps, scientific papers, PhD thesis, etc) is constantly growing. The journal “Nivar” is also indexed on the SCOPUS website.

2) RTC library, containing 55 English title publications and about 2500 book titles in English language. Most of the WMO publications are available.



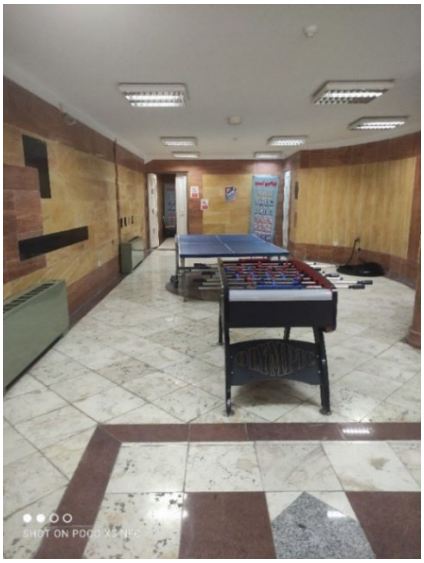
Demonstration of e-library (on the left) and two libraries (on the right)

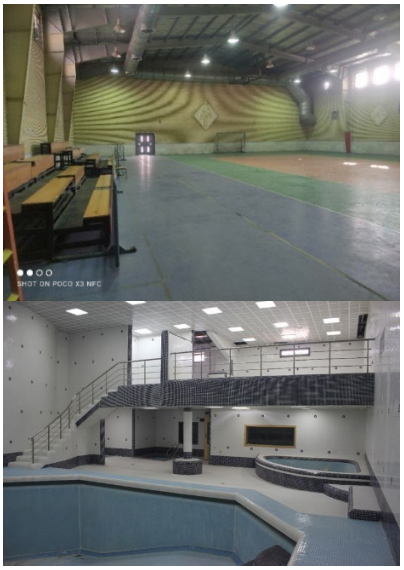


New café constructed recently at RTC with the capacity of approx. 60 seats with possibility to be expanded up to 130 people (delicious food served, relaxing music and books are available)

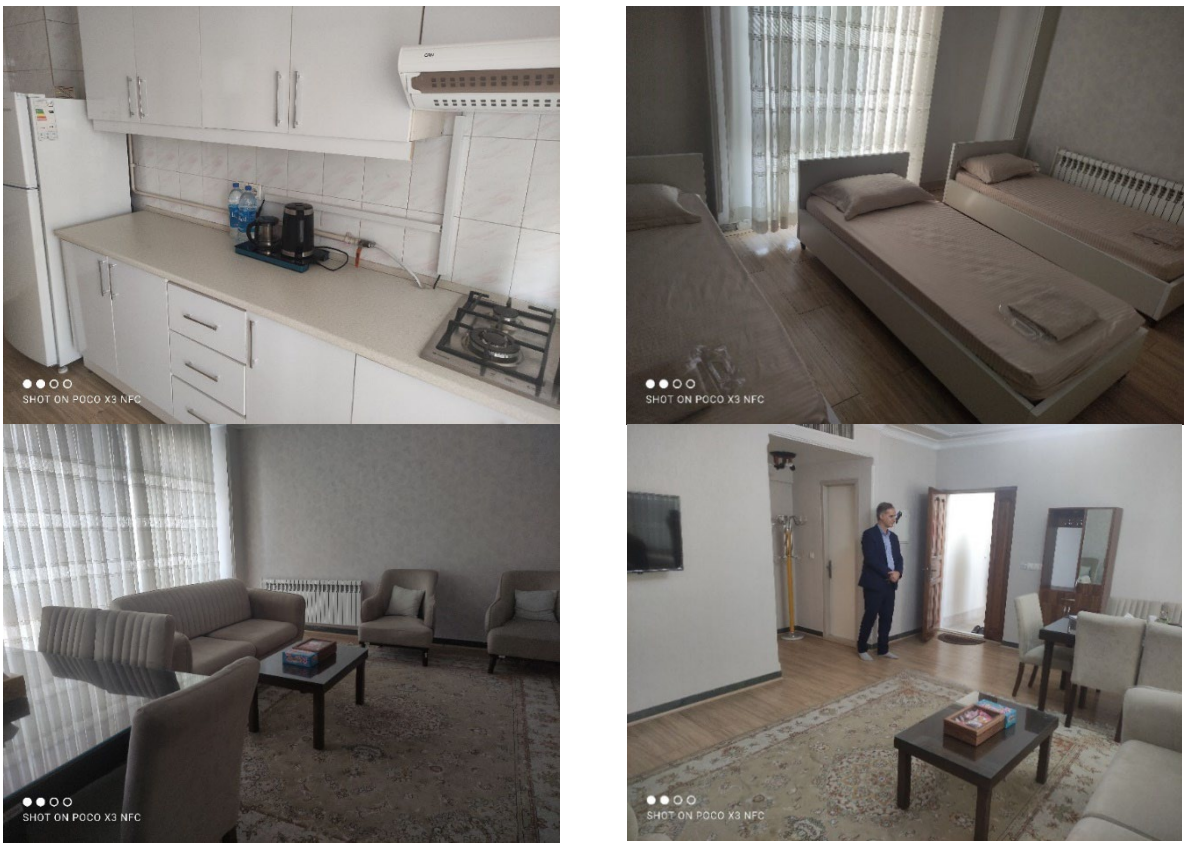
Prayer room

Student's and teacher's dormitory (in about 10 minutes by walk from the RTC). It is now fully renovated and provides 100 places for comfortable accommodation at the same time.





Sports facilities includes stadium, basin, gym, table tennis, jakuzzi, sauna and hamam



Fully renovated and equipped rooms in student's and teacher's dormitory, located close to the training centre. In total there are 100 places in four buildings available for trainees (each able to host three students)

6. Assessing learning and evaluating the learning services

6.1. Student assessment policy

At the end of each course, the instructor evaluates the participants. This is done by written or oral exam or by project results. Certificates are issued to the participants according to their results: attended and passed successfully or attended only. The RTC also provides questionnaire, which helps to evaluate training and instructors. Keeping in touch with participants and asking for feedback after 6 months also increases the impact of the training.

Certificates are signed by IRIMO Director and WMO RTC Director. Examples of the certificate and diploma issued to students are in the Annex 3. Example of the student examination form is attached for reference in Annex 4.

6.2. Training evaluation methods to determine effectiveness

For national courses, students are provided with an electronic course evaluation survey prior to the conclusion of each course. This survey assesses various factors such as the relevance of the material to the student's job, the instructor's knowledge and teaching ability, as well as the quality of the educational services provided. Examples of the forms are attached. The feedback gathered from students is analysed in graphical format for a comprehensive evaluation (please see an example in the Annex 5).

At the regional level, this survey is conducted in writing from, and the results are used in upgrading and updating the titles and contents of the courses for the subsequent years.

6.3. Examples of how training is reviewed, revised and updated

The revision of meteorological training courses at the national and regional levels is carried out by members of the training working group, each of whom represents a specialized department of the Iranian Meteorological Organization. After reviewing and editing the course specifications, the new course is reviewed by the training working group and, after approval by the members, is finally approved.

7. Administering and managing the learning services

7.1. Description of administration, management, planning, staffing and professional development of staff members

The Permanent Representative of Islamic Republic of Iran with WMO is the President of the IRIMO, which is under Ministry of Road and Urban Development. The president of the I.R. Iran meteorological organization has three Deputies, one of which is responsible for weather forecasting, research and training. Under the authority of this Deputy there is Tehran WMO Regional Training Centre which is responsible for two components for training activities: both national and international. New WMO RTC Director was just appointed who is responsible for overall RTC performance.

The Head of the Tehran Regional Training Centre is responsible for planning and implementing the required meteorological training at the national and regional level. Approval of new courses based on national and regional needs and selection of instructors in the Training Working Group and approval of the annual training programme and approval of its budget are carried out by the Human Resources Committee. Training Working Group meetings are usually held biweekly and Human Resources Committee meetings are held monthly. The Director of the RTC is the Head of the Training Working Group and the Deputy Head of Human Resources is responsible for the Committee.

General policies such as budget allocation for training courses per year, performance monitoring, determination of staff qualifications, determination of priorities, etc. are monitored by the Human Resources Committee.

Introduction of instructors, updating of content based on training needs analysis and WMO requirements and introduction of new syllabi are carried out by the Training Working Group.

Any urgent considerations are addressed by the Deputy Head of Forecasting and Research of IRIMO, who is also a member of these groups. Brief interviews were conducted with the members of these groups and were evaluated positively.

The RTC and training centre strategic plan is embedded within the broader IRIMO strategic plan.

Organigramme of the IRIMO

There are also 31 training coordinators across the country, in each of regional offices/provinces who provides support in terms of needs assessment and conducting national training.

7.2. Formal agreement in place

The official agreement was signed between WMO and the Government of the Islamic Republic of Iran on 14 June 1994 for the recognition of the facilities of the **Advanced Meteorological Sciences and Training Centre** located in Tehran as WMO RTC in RA II. Now called the **Atmospheric Sciences and Meteorological Research Centre (ASMERC)**, the centre hosts training facilities in the same building.

The Regional Training Centre has collaborated with the University of Applied Science and Technology regarding undergraduate programmes. In its future plans, the centre aims to pursue the necessary follow-ups and negotiations for launching master's and doctoral programmes.

7.3. Quality management and or accreditation processes

Tehran-RTC is recognized as an official government authority in the field of meteorological education. All the activities are conducted in coordination and approval of the Public Administration and Recruitment Organization. WMO RTC is a part of IRIMO, which holds ISO 9001 certification. The latest certificate obtained is valid until 2025.

7.4. Summary of annual reports

Reports are provided on a timely basis, statistics provided are correct, although some points need to be clarified for better understanding.

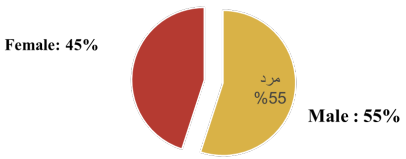
Activities such as curricula and resource development, partnerships and collaboration are included in the annual reports as well following recommendations from the previous external reviewers.

7.5. Support provided to students

Waived tuition fee, visa support, accommodation, meal and local transportation are provided to all students. International students are encouraged to apply for WMO support to cover only international travel and medical insurance.

8. Additional information

Gender balance and women's rights are well observed according to the review team findings as reflected in the picture below in terms of IRIMO staff. Participation of females and males in training events are balanced and observed.



IRIMO publishes two scientific and research magazines, "Bulletin of Climatology» and "Nivar», which are available for publishing papers and articles by students and researchers. In 2019 «Nivar» magazine was included in the SCOPUS cited list. Introduction to Nivar Scientific Journal, affiliated with the National Meteorological Organization is in the Annex 6.

Based on the competency framework (WMO -No.1209), WMO strategic plan (2024–2027), regional and national assessment, Tehran-RTC is going to plan training courses on following titles:

- Strengthen national multi-hazard early warning/alert systems and extend reach to better enable an effective response to the associated risks
- Broaden the provision of policy- and decision-supporting climate information and services
- Develop hydrological services for sustainable water management and adaptation
- Enhance Earth system observations and predictions: Strengthening the technical foundation for the future
- Enhance the science-for-service value cycle ensuring scientific and technological advances improve predictive capabilities and analysis
- Develop and sustain core competencies and expertise

Moreover, it is declared that the RTC intends to implement significant changes in the foundational aspects of education, such as the needs assessment phase. They have concluded that their target audience can be broadened. They plan to engage university experts, professors, PhD students and other relevant persons both in the Islamic Republic of Iran and across the region, and possibly worldwide, to provide insights and assist the centre in delivering future programmes.

The RTC is also in the process of launching a separate own website. The RTC plans to expand its offerings to include new languages: English, Arabic, and Turkish. Providing training in German is currently on the agenda.

The RTC in Tehran maintains connections with the following centres:

- International Dust Studies Centre,
- Atmospheric and Oceanic Sciences Innovation and Incubation Centre,
- Centre for Climate and Weather Hazards Studies,
- Desert Meteorology and Environmental Studies Centre,
- Centre for Climate and Agriculture Hazards Studies,
- Strategic Agricultural Meteorology Studies Centre.

The RTC in Tehran collaborates with various research institutes, like:

- Research Institute of Meteorology and Atmospheric Sciences,
- Climate and Climate Change Research Institute,
- Meteorology, Water, and Agriculture Research Institute,
- Aviation and Aerospace Industry Research Institute,
- Marine Meteorology Research Institute,
- Mountain Meteorology Research Institute,
- Desert and Environmental Meteorology Research Institute.

Number of scientific and practically oriented conferences and other events has raised with the participation of leading scientists and experts from the I.R. of Iran and other countries. Recent themes of these events included:

- The seventh International Climate Change Conference,
- The first International Tropical Storms Conference (Indian Ocean),

- The fifth International Oceanography Conference (Persian Gulf),
- The first Specialized Event for World Day for the Prevention of Sand and Dust Storms,
- The sixth International Climate Change Conference.

9. Progress since the past review in 2016

The review team in 2016 made the recommendations which were considered to contribute to improved performance of the WMO RTC Iran. Each of the recommendations were carefully and appropriately commented by RTC Director in 2024 (Annex 1). Based on that evidence the review team made a conclusion that previous recommendations are fully met.

10. Conclusion and Recommendations

Having considered the evidence presented and based on review results, the external review team concludes that:

- The RTC is open to students from all RA II countries and provides training in four languages (Arabic, English, Persian, Turkish). Geography of trainees covers many countries of RA II and other,
- The RTC has adequate facilities and qualified instructors,
- The RTC has established good communication mechanisms with university and other RA II WMO RTCs to held joint training events,
- The quality, content and diversity of educational and training offerings are designed to meet expressed training needs of the RA II. Communication on training needs is well developed with the neighbouring countries,
- The RTC has adequate arrangements for governance, planning and self-improvement,
- The RTC has mechanisms in place to provide support to foreign students and especially from the least developed countries,
- The RTC has significant progressed in implementing DL and blended training.

The review team 2024 considers that the following recommendations will contribute to improved performance of the WMO RTC Iran:

- The RTC should continue to be proactive in ensuring the NHMSs of the RA II are aware of the training programmes, facilities and support that are offered, and in seeking opportunities to cooperation in grant projects and WMO Programmes for in running priority courses for the region,
- The RTC should continue to advertise training opportunities via WMO ETR e-mailing list, WMO Global Campus Learning Event Calendar as a contributor (https://learningevents.wmo.int), communication with RA II. At that the RTC should more carefully describe their training offerings based on recommendations from WMO ETR and well in advance plan them,
- The RTC to consider for use the published “Survey on the Status of Human Resources in National Meteorological and Hydrological Services: Staff, Competencies and Qualifications” (WMO-No. 1305) conducted by WMO,

- The international exchange of educational expertise, products and services could be further encouraged via participation in the WMO Global Campus initiative for making the RTC activities and capacities more visible and utilized,
- The RTC staff are encouraged to actively participate in the RTC Directors Meeting and WMO Education and Training Symposium periodically organized by WMO,
- The updated WMO publications related to the RTCs activities are also strongly recommended to guide routine managerial and administration works. RTC, having demonstrated potential for translation some of them into Persian language (WMO-1150 as an example), should seek for such an opportunity to translate them for further use by staff in the region,
- Continue to produce video training materials using recently established studio and make them available for wide DL use,
- Continue addressing matters related to gender equality as a topic in training plans and curricula.

In conclusion, the External Review Team strongly recommends to the EC Capacity Development Panel (CDP) to consider recommending the Atmospheric Sciences and Meteorological Research Centre (ASMERC) of IRIMO in Tehran, Islamic Republic of Iran, which was previously named as the Advanced Meteorological Sciences and Training Centre, to be reconfirmed as the WMO Regional Training Centre (RTC) in RA II.

Annex 1

Reaction of the WMO RTC – Tehran on the previously made recommendations in 2016

Recommendation 1 – The RTC should seek to improve communication with neighbouring countries of the region and establishing an effective mechanism for cooperation with RAII and other WMO RTCs in the region, especially for training needs assessment.

There are a few examples have been briefly mentioned solely as an example, but the number of courses and activities is significantly greater than this:

- *During the Working Group on Women's Economic Empowerment, organized by IORA in collaboration with the Vice Presidency for Women and Family Affairs of the Islamic Republic of Iran, an educational programme was held exclusively for women from Indian Ocean Rim countries. The Iranian Meteorological Organization contributed to the training sessions by teaching topics such as climatology and meteorology. These sessions were conducted upon IORA's request across three courses, with approximately 30 participants from various countries attending. We implemented this course based on the regional needs assessment from other countries and regional agencies through communication from the diplomatic channels (Ministry of Foreign Affair).*
- *A Numerical Weather Prediction (NWP) training course was held, featuring a professor from South Korea as the instructor.*
- *Another training programme was organized with the participation of an instructor from Germany.*
- *Additionally, many of our trainees participate in courses organized by other RTCs. The evidence, details of the courses, and the participants are currently being prepared and will be sent to you soon.*

Based on the regional needs assessment conducted in 2024, the following topics were selected for the upcoming training courses:

1. Applications of Artificial Intelligence in Meteorology

2. Methods for Forecasting Evaluation

3. Remote Sensing in Forecasting

Recommendation 2 – The RTC and WMO should be more active in ensuring the NHMSs of the RA II are aware of the training programmes, facilities and support that are offered, and in seeking opportunities to cooperate in grant projects and WMO Programmes for in running priority courses for the region. This can be partially accomplished by representation at regional association meetings.

- *Based on the recommendations of the forty-ninth session of the PTC in the North Indian Ocean and the correspondence between the President of the I.R. of the Islamic Republic of Iran Meteorological Organization and member countries of this panel, Iran and the Regional Training Centre (Tehran-RTC) initiated and followed up on the implementation of the conference. Considering the monsoon conditions and summer flash floods in the region, the International Conference on Indian Ocean Tropical Cyclones was held in Tehran in 2023.*
- *Due to the prevalence of dust storms in the region, the Sand and Dust Storm Monitoring and Forecasting Using Innovation Techniques (SDS) course was organized in Tehran with the participation of Türkiye.*
- *A Climate Change Conference was held to address the emerging challenges in the region.*

Recommendation 3 – The RTC should continue to advertise with WMO the availability of long-term Fellowship opportunities and short course offerings.

During this period, we had one long-term fellowship, and many individuals were sent to Japan, China, Germany, and Türkiye for short-term training courses. All evidence related to the dispatch of these individuals will be included in the

final report after being received from the International Affairs Unit of the organization and will be shared with you as supporting documentation.

The course announcement is communicated via email correspondence with the ETR representative at the World Meteorological Organization (WMO) and member countries of region II, at least one month prior to the course.

Recommendation 4 – The RTC should more carefully relate their course offerings and descriptions to WMO competency frameworks where these exist.

The Iranian Meteorological Organization holds official authorization to operate in various sectors from ICAO. As you are aware, one of the key aspects this organization monitors is the WMO guidelines, and ICAO has granted its approval to the Iranian Meteorological Organization across all areas, including training.. In addition, one of the most important aspects considered in needs assessments is adhering to the WMO framework.

Competency-based courses for jobs in forecasting, technical and equipment services, IT, observation and research are conducted at the RTC. For example the course on Enhancing Climate Services Competencies held in 20235- The RTC should continue to actively seek input from WMO technical programmes for up-to-date content that could contribute to courses they plan to offer.

Recommendation 5 – The RTC should continue to actively seek input from WMO technical programmes for up-to-date content that could contribute to courses they plan to offer.

All our courses are continuously updated at the centre. For instance, after obtaining ICAO's training authorization, the course on METAR and SPECI observational codes and special aviation meteorology reports was updated as a refresher course with a duration of 18 hours. Our colleagues participated in this course to update their knowledge. In addition, a review of modular and qualification-based courses was conducted, resulting in the update of over 212 courses. Detailed forms for each updated course are available, and a few samples will be shared with you for reference.

Recommendation 6 – The RTC should seek further training the trainers and young instructors in some scientific and technical areas (according to internally revealed gaps) and in pedagogical areas (as for example, DL technologies).One way is via participation in WMO Online Courses for Trainers of RAII and V, to be organized by WMO ETR in 2017. For science and technology, the RTC should look for opportunities to participate in professional development courses offered by other training institutions.

Significant efforts have been made over the years regarding the training of instructors. For example, the NWP course was conducted by an instructor from South Korea for both staff and faculty members.

The organization is currently focused on utilizing young, motivated, and creative instructors. In the Training Working Group, which is held weekly, specialized instructors who apply for teaching positions are evaluated in various areas by experienced faculty members. A sample of the evaluation scoring form will be provided to you. Additionally, with the establishment of a system for virtual training, all colleagues have undergone distance learning (DL) and e-learning programmes. Moreover, our colleagues participate in certain courses offered by other organizations, such as the Management and Planning Organization, IRIB (Islamic Republic of Iran Broadcasting), and others.

Recommendation 7 – The RTC should continue its improvements of its scientific facilities to ensure that students have access to the latest tools and equipment for their training

Given that the I.R. of Iran Meteorological Organization adheres to high standards in various meteorological fields, including education (ISO 9001), it utilizes modern training facilities and innovative tools across different educational sections to enhance the training quality for staff and students.

For example, virtual learning platforms, a studio for recording educational clips, and IDEA training process software, and more.

The Regional Training Centre in Tehran also plans to offer Master's and Ph.D. programmes in Meteorology and applied Meteorology (such as hydrology, agriculture, marine meteorology, etc.) to enhance the expertise of meteorological personnel.

Recommendation 8 – The review team encourages the implementation of e-learning and DL activities (Virtual class and LMS projects) as important to be able to address the needs of the RA II by providing improved access and offerings of training materials and information. This would include staff training on use of the new platforms and skills in teaching via e-learning.

T*he virtual training system, studio, and other facilities and equipment are now available to enhance the quality of education for students. Based on this, and in order to provide optimal services to trainees, all staff members at the centre are proficient in electronic and distance learning (DL) training and have completed the relevant courses. All staff members of the Regional Training Centre in Tehran have completed the relevant courses and obtained the necessary certificates. Samples of the training certificates of their participation in these courses will be sent to you subsequently.*

Recommendation 9 – The international exchange of educational expertise, products and services could be further encouraged via participation in the WMO Global Campus initiatives for making the RTC activities and capacities more visible and utilized. Participation in the upcoming RTC Directors Meeting and WMO Education and Training Symposium in 2017 will be a part of this.

In this regard, we will continue our efforts to improve further. Moreover, our centre has excellent instructors in the fields of climatology, dust storms, floods, and droughts. With your support and guidance, we are ready to introduce them to the RTCs in the region, so they can benefit from their expertise and knowledge.

In addition, we have translated the WMO training guidelines into Persian and made them available to our educational coordinators across the country. Looking ahead, given the proficiency of the Training Centre's, Ms Director Maryam ToufaniShahraki, in the German language, we are ready to offer our assistance in translating the guidelines into German, if needed by the WMO.

The Regional Training Centre in Tehran (Tehran-RTC) is ready to participate in joint meetings organized by WMO with other regional training centres to share experiences in education and explore the use of new methods and technologies.

Recommendation 10 – The upcoming WMO RTC Guide on Management and Operations of the WMO RTCs and other Training Institutions is also strongly recommended to guide routine managerial, and administration works.

All the tasks and activities of the RTC are carried out within predefined frameworks. For example, as explained on the first day regarding the process of developing and approving courses, each step is meticulously followed by the staff. In all cases, this structured approach and adherence to regulations are consistently maintained.

Recommendation 11 – Activities such as curricula and resource development, partnerships and collaboration are not included in the annual reports. These should be included in future reports.

All the mentioned points are now included in the centre's annual reports. As you observed today during the presentation of the annual reports, these items have been incorporated into the forms.

Prepared by: Director WMO RTC – Tehran, Ms Maryam ToufaniShahraki

Annex 2

List of WMO RTC full-time and part-time teaching and administration staff

No.	Full Name	Age	Education	Position
1	Maryam ToufaniShahraki	32	MSc in Mechanical Engineering	Director of the Regional Training Centre
2	Sara Soleymani	54	MSc in Meteorology	Head of Education, Content Creation, and Educational Resources
3	Ali Maftahi	42	BSc in Agricultural Engineering	Educational Planning Specialist
4	Hamideh Dalaei	40	Ph.D. in Climatology	International Skills Specialist
5	Fatemeh Mohebian	46	MSc in Meteorology	Regional Training Centre Specialist
6	Roya Mahmoudi	37	MSc in Public Administration Specialist	Virtual Education Specialist
7	Mohammad Ahmadzadeh	46	MSc in Business Management	Long-Term Courses Specialist
8	Hamideh HabibiMahani	49	MSc in Mathematics	Coordination and Follow-up Specialist
9	Hajar ShiriYaychi	35	Ph.D. in Educational Management	Modern Education, Content Creation, and Educational Resources

Examples of the certificate and diploma issued by WMO RTC in Tehran

IN THE NAME OF GOD

WMO REGIONAL TRAINING CENTER

TEHRAN, IRAN

Certificate

THIS IS TO CERTIFY THAT

Ali Nazaridust

HAS ATTENDED AND SUCCESSFULLY PASSED

International Workshop On:

"Dust Source Identification over the Middle East"

Nov 20, 2019

(8 Hours)

Saviz Sehat
Director of WMO RTC in Tehran

S. Tajbakhsh
President of I. R. of Iran Meteorological Organization (IRIMO)

Date of Issue: 04 Feb. 2020 Code: 2020/04-141

Example of examination scores of the trainees

	خلاصه گزارش دوره آموزشی	کد: FO-23-09/02

۱- عنوان دوره آموزشی:
Thermal and Microwave Remote Sensing: Applications for Water Vapour, Clouds and, Precipitation

۲- محل برگزاری: مرکز آموزش منطقه ای	۳- مدت دوره (ساعت): ۱۲
۴- تاریخ برگزاری دوره: ۹۹/۶/۲۵ تا ۹۹/۶/۲۶	۵- مدرس دوره: گروه اساتید

۶- تعداد شرکت کننده در دوره: ۷۱ نفر تعداد غایبین: نفر

حضور و غیاب و نتیجه آزمون شرکت کنندگان در دوره:

ردیف	نام و نام خانوادگی	کد ملی	محل خدمت	نمره
۱	محمد امیدفر	Mohammad Omidfar	آذربایجان شرقی	15
۲	مهدی کریمی صدیق	Mehdi Karimi	آذربایجان غربی	- حذف
۳	علی اکبرنیا چقونگشن	Ali Akbarnia	اردبیل	- حذف
۴	پریسا ابونصر شیراز	Parisa Aboonasr Shiraz	اصفهان	16
۵	علیرضا بالالانفر	Alireza Balalanfar	البرز	- حذف
۶	مجتبی میهن پرست	Mojtaba Mihanparast	ایلام	15
۷	زهرا راستگو	Zahra Rastgoo	بوشهر	15
۸	جعفر برزگر	Jafar Barzegar	تهران	16
۹	مهرداد هادی دهکردی	Mehrdad Hadi	چهارمحال و بختیاری	- حذف
۱۰	مصطفی هادی زاده	Mostafa Hadizade	خراسان شمالی	15
۱۱	محمد سبزه زاری	Mohammad Sabzezari	خوزستان	15
۱۲	صونا صرفی	Sona Sarfi	زنجان	-- حذف
۱۳	نادیا میرشجاع	Nadia Mirshoja	سمنان	- حذف
۱۴	اله بخش ریگی	Elahe Bakhsh Rigi	سیستان و بلوچستان	- حذف
۱۵	مهدی آخوندی	Mehdi Akhundi	قزوین	- حذف

- میانگین امتیاز ارزشیابی کیفیت، محیط و فضای آموزشی دوره:
☐ ۲۵-۰ ☐ ۵۰-۲۶ ☐ ۷۵-۵۱ ■ ۱۰۰-۷۶

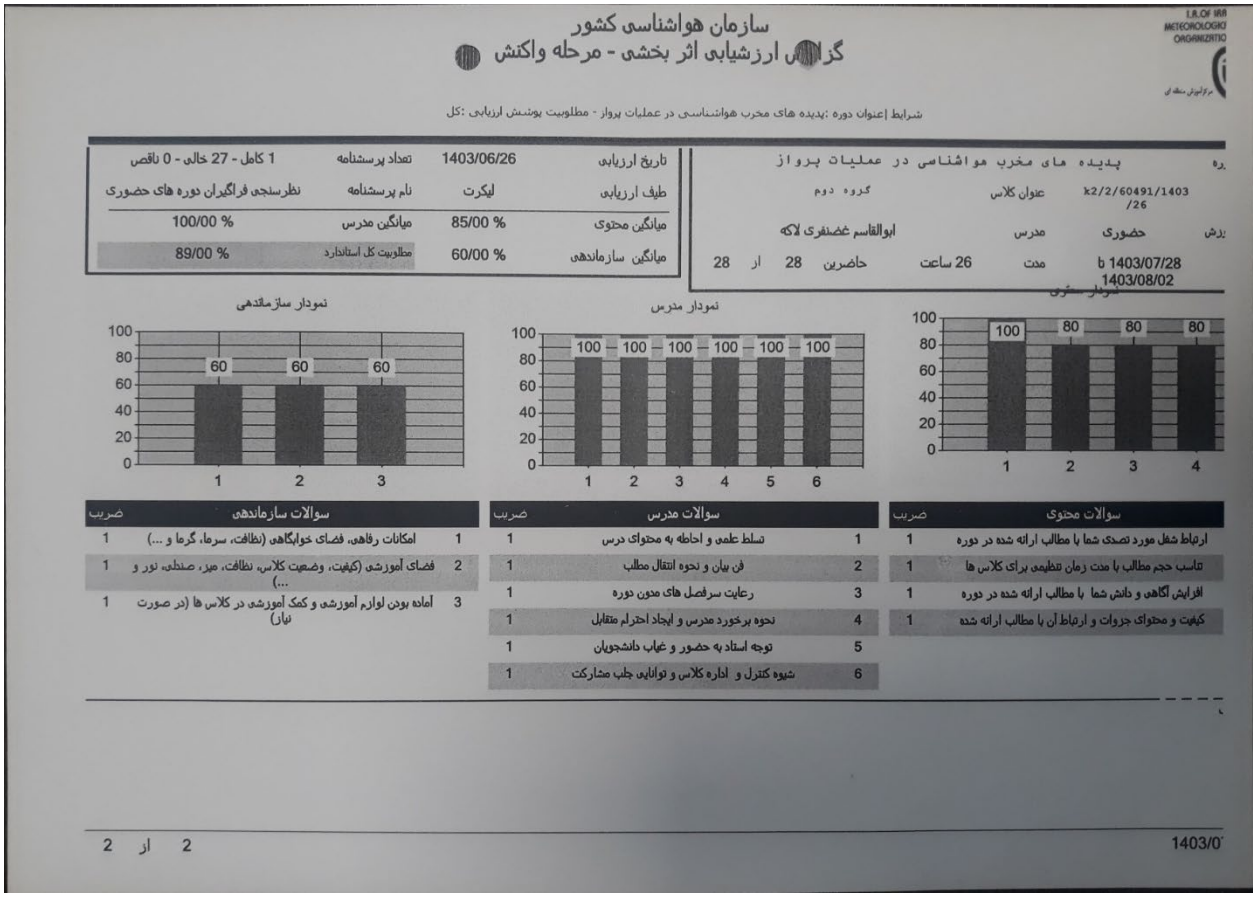
- میانگین امتیاز ارزشیابی مدرس دوره:
☐ ۲۵-۰ ☐ ۵۰-۲۶ ☐ ۷۵-۵۱ ■ ۱۰۰-۷۶

سرفصل دوره:

نام و امضاء مدرس دوره:	نام و امضاء کارشناس مرکز آموزش منطقه ای:	نام و امضاء سرپرست مرکز آموزش منطقه ای:

Annex 5

Examples of Evaluation Diagrams of the Course Quality



سازمان هواشناسی کشور

گزارش ارزشیابی اثر بخشی - مرحله واکنش

شرایط إعنوان دوره :پدیده های مخرب هواشناسی در عملیات پرواز - مطلوبیت پوشش ارزیابی :کل

تاریخ ارزیابی	1403/06/26	تعداد پرسشنامه	1 کامل - 27 خالی - 0 ناقص
طیف ارزیابی	لیکرت	نام پرسشنامه	نظرسنجی فراگیران دوره های حضوری
میانگین محتوی	85/00 %	میانگین مدرس	100/00 %
میانگین سازماندهی	60/00 %	مطلوبیت کل استاندارد	89/00 %

پدیده های مخرب هواشناسی در عملیات پرواز

k2/2/60491/1403/26	عنوان کلاس	گروه دوم	
حضوری	مدرس	ابوالقاسم غضنفری لاکه	
b 1403/07/28 1403/08/02	مدت	26 ساعت	حاضرین 28 از 28

نمودار سازماندهی

نمودار مدرس

نمودار محتوی

سوالات سازماندهی		ضریب
1	امکانات رفاهی، فضای خوابگاهی (نظافت، سرما، گرما و ...)	1
2	فضای آموزشی (کیفیت، وضعیت کلاس، نظافت، میز، صندلی، نور و ...)	1
3	آماده بودن لوازم آموزشی و کمک آموزشی در کلاس ها (در صورت نیاز)	1

سوالات مدرس		ضریب
1	تسلط علمی و احاطه به محتوای درس	1
2	فن بیان و نحوه انتقال مطلب	1
3	رعایت سرفصل های مدون دوره	1
4	نحوه برخورد مدرس و ایجاد احترام متقابل	1
5	توجه استاد به حضور و غیاب دانشجویان	1
6	شیوه کنترل و اداره کلاس و توانایی جلب مشارکت	1

سوالات محتوی	ضریب
ارتباط شغل مورد تصدی شما با مطالب ارائه شده در دوره	1
تناسب حجم مطالب با مدت زمان تنظیمی برای کلاس ها	1
افزایش آگاهی و دانش شما با مطالب ارائه شده در دوره	1
کیفیت و محتوای جزوات و ارتباط آن با مطالب ارائه شده	1

2 از 2

1403/0

Annex 6

Introduction to Nivar Journal, affiliated with the National Meteorological Organization

Nivar means “atmosphere”. Nivar aims to pave the way for publication of scientific researches to improve the understanding of meteorology. This journal tries to help people understand meteorology and apply this science to protect human life and property from natural disasters, protect the environment, and improve social and economic conditions at all levels of society in fields such as food security and water resources. The published papers include a wide variety of subjects:

- Agricultural meteorology
- Hydrological metrology
- Synoptic meteorology
- Atmospheric chemistry and air pollution
- Physical meteorology and Atmospheric balance
- Climatology
- Marine meteorology
- Aeronautical meteorology

This 60-year journal was first published in 1960 and was awarded the scientific license number 3/2910/615 from the I.R. Iran Ministry of Science and Technology in 1990. Besides basics of meteorology, the published papers include a wide variety of meteorological applications such as agricultural meteorology, hydrology, synoptic and dynamic meteorology, atmospheric chemistry and air pollution, physical meteorology and atmospheric balance, climatology, marine meteorology, and aeronautical meteorology. This journal aims to promote and develop meteorology and facilitate access to meteorological information. This publication is under the Creative Commons Attribution-Share Alike 3.0. CC BY 4.0.

In this publication, there is no cost to the author for evaluation of articles.