

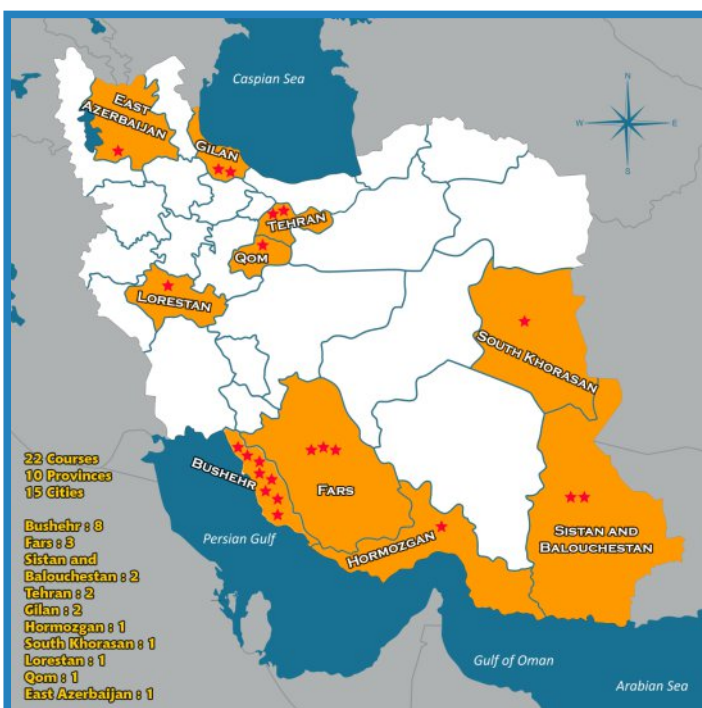
**EDITORIAL
ASTRONOMICAL NEWS
LAST NASE COURSES
TEACHING MATERIALS**

EDITORIAL

The number of NASE courses continues to grow, despite global travel difficulties. In addition to face-to-face courses, online courses and hybrid courses have been successfully organized. The new shorter two-day courses in Astronomy, Astrophysics, Astrobiology and Astroculture have also been completed.

We are revamping the NASE website, and soon you will be able to see its new look and content, in more than 24 languages: Arabic, Armenian, Bulgarian, Catalan, Chinese Mandarin, English, French, Greek, Hindi, Hungarian, Indonesia, Japanese, Kiswahili, Korean, Malayan, Mongolian, Persian, Portuguese, Romanian, Russian, Spanish, Thai, Turkish, and Vietnamese.

In addition, NASE recognizes each year the work of a local group that has done a remarkable job with its courses this year. This year 2021, it is the local group Iran that not only translated the book of the 14 steps into Persian, but also took 15 courses this year and in previous years 7 courses throughout the country. It is only logical that they should receive this recognition, in a difficult year for all.



NEWS

Final in Atarfe (Granada) of the NASE-IAU Project on the occasion of the 2021 International Day of Light: The Herschel experiment

NASE's Herschel experiment involved 22 countries (Austria, Finland, Lithuania, the Philippines, India, Indonesia, Greece, Iran, Tanzania, Bulgaria, Romania, Tunisia, Portugal, Germany, Andorra, Spain, Senegal, Paraguay, Argentina, Rep. Dominican Republic, Sweden, Vene-zuela, Mexico), with papers from primary and secondary schools.



This project had a face-to-face closing open to the public and a group of schools in Atarfe, (Granada, Spain), on October 1-3, 2021. One of the teachers from the Romanian delegation describes her impressions: *It was nice to see the curiosity of the students and the many questions they asked during the Herschel experiment. I was fascinated by some of the experiments presented by my colleagues from Spain under the dome of the Coliseum - such a unique place for a science festival! I met with wonderful teachers from Spain, Andorra, Portugal and old friends from Iran and Bulgaria.*

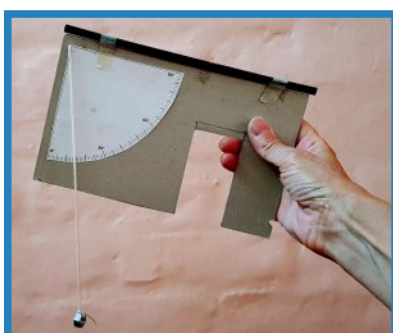
The closing ceremony was impressive. It was my first true science parade. Every participant country waved its flag. All of us were so excited, that we followed the marching band through the town, rather dancing than walking.

Astronomy Education Journal

The IAU has just published the first issue of the [Astronomy Education Journal](#) (AEJ), produced by the IAU Astronomy Education and Development Commission C1. It has an interesting section with practical material for teachers.



Proyecto NASE-IAU en 2022: Determinando nuestra latitud



On the occasion of the International Day of Light of 2022 (UNESCO), NASE proposes to carry out a new project in schools around the world: determine the latitude where we are, either by day with the Sun, or at night with the celestial pole. It is proposed to imitate what our navigating ancestors, merchants and adventurers did, who traveled through distant routes with the help of a simple instrument: the quadrant. Soon you will be able to see the necessary material on the NASE website.

COURSES

231 Course in Delhi (India) – June 25-27, 2021

In cooperation with Spaceport India Foundation..

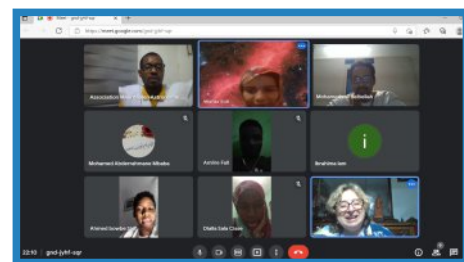
One comment: I am teacher and I believe that my students can learn many astronomical notions through these activities. I'll repeat them in my classes.



232 Course in Nouakchott (Mauritania) – June 26 – July 3, 2021

In cooperation with the Astronomy Association of Mauritania.

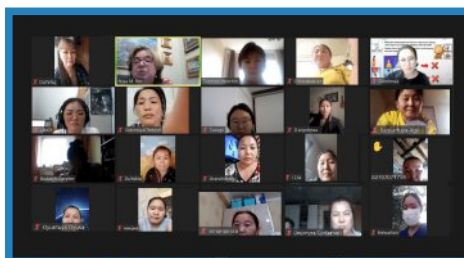
Some comments: I enjoy mainly the workshops with the practical activities. The course was very good, but I would like to repeat the course face to face. I value very much the workshops. Excellent course. It was a very nice training.



233 NASE Course in Ulaanbaatar (Mongolia) – June 28-30, 2021

In cooperation with National University of Mongolia.

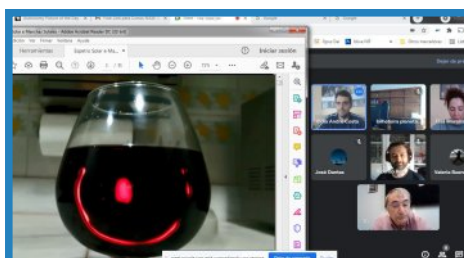
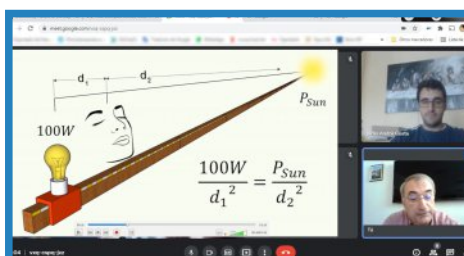
Some comments: I saw many beautiful ideas. To the teachers who organized the training for education in Mongolia. Using the materials available, I came up with many great ideas for teaching astronomy. It is a good idea to have a worksheet and exercise to use your knowledge and skills. Children love the creative lessons made with the available materials. If there are many, many experimental ideas, there is a great desire to learn.

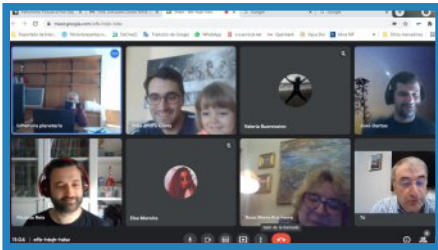


234 Course in Porto (Portugal), June 30, 2021

In cooperation with Planetario do Porto.

“NASE course Online: Astrophysics” was a double opportunity for teachers: a way to more quickly teach, through astronomy, the essential learning associated with other sciences (such as physics); a way to, even without presence in the reference curriculum documents, one can teach astronomy.

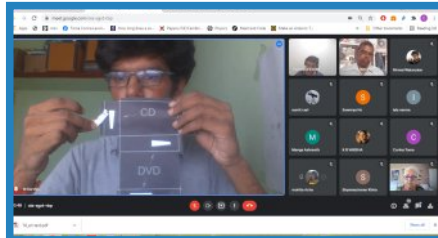




235 Course in Porto (Portugal) - July, 1, 2021

In cooperation with Planetario do Porto. It was a continuation of the previous.

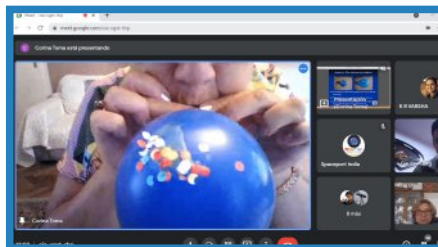
“NASE course Box Online: Astroculture” was an opportunity to call astronomy professors who, typically, are further away from it because they consider it unintelligible. So, more than a course on key astronomy content, it will be an opportunity to understand what astronomy is and how it is built.



236 Course in Delhi (India) - July 1-3, 2021

In cooperation with Spaceport India Foundation.

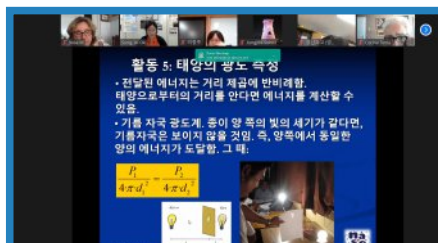
The course is easy to understand and the models are very intuitive. I would like the course very much, thank you. It was a pleasure to have an international course online about astrophysics. We appreciate the enthusiasm of the instructors and their very simple experiments and so good explanations.



237 NASE Course in Managua (Nicaragua) – July 12-15, 2021

In cooperation with the National Autonomous University and the Nicaraguan Evangelical University.

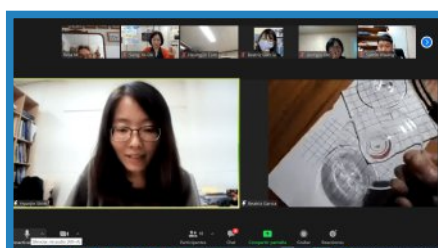
This NASE course was held on the premises of the María Mazzarello Normal School, intended for teachers of primary, secondary, early education, and students of the last year of the teaching career of this educational center. The participating professors teach the subjects of Natural Sciences, Physics, Mathematics, Chemistry, Biology, Programming and Teaching.



238 NASE Course in Busan (South Korea) – July 19-20, 2021

In cooperation with Korea Science Academy of KAIST and National Organizing Committee for IAUGA2022, Busan.

Twenty-two teachers attended, with some prior knowledge of astronomy. The level of satisfaction they showed is 90%.



239 Course in Bushehr (Iran) – July 19-20, 2021

In cooperation with Iranian Teacher Astronomy Union, ITAU.

The topics we learned in this course were very interesting and thank you for the good teaching. good luck. The tools we make, are very useful and interesting, so students learn astronomical topics better when they make tools. Please, teach us more tools. Thank you for your good teaching and let us know about future NASE courses.



240 Course in Lomé (Togo) – July 22-23, 2021

In cooperation with Geological Science for Sustainable Development and IAU National Outreach Coordinator (Togo).

I like that the activities are practical and obvious. I have a plan to apply them to elementary science classes. The lecture, data, and video were very good. I really appreciate the workshop. I wish it was face-to-face

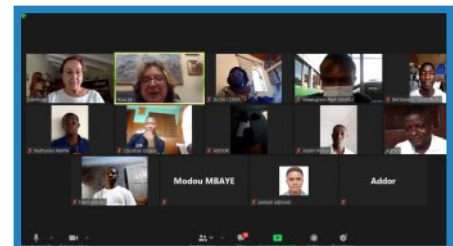


241 NASE Course in Santiago de Chile (Chile) – August, 6 – September, 10, 2021

In cooperation with University of the Andes.

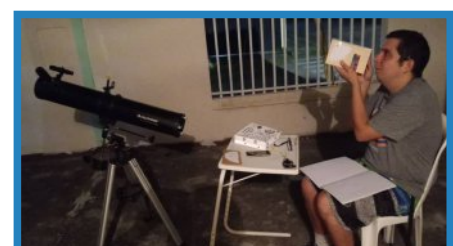
The course was developed in 4 weeks with good response from the attendees, who connected even from buses! They appreciated the methodology applied to the course and suggested longer question sessions.

They recognize the course as very complete, dedicated to fundamental topics in the field of didactics that are usually not covered in the professional training of physics teachers.



242 Course in Tachira (Venezuela), August, 7th-29th, 2021

It has been organized by the Caronte Astronomical Center in San Cristobal, Táchira State. Based on the premise “do to learn”, it began with a few words from the Minister of Science and Technology and the Rector of the National Experimental University of Táchira, UNET. The course was broadcast nationwide in real time, thanks to the technological support offered by the Venezuelan group “Other Voices in Education”, OVE.

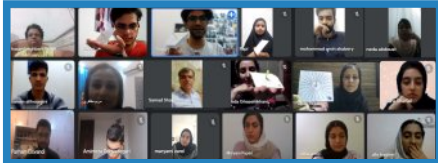




243 NASE Course in Tehran (Iran) – August 9th-10th, 2021

In cooperation with Iranian Teacher Astronomy Union, ITAU.

I'm really enthusiastic about astronomy but I have never seen the course like NASE that teach astronomy to teachers specially. Thank you for this great course, I'm waiting for the future NASE courses. I like astro-culture course because I like architecture, history and etc. this course gave me a new view of astronomy. Thank you for this course.



244 NASE Course in Yogyakarta (Indonesia) - August 12th-15th, 2021

In cooperation with P3MI KK Astronomi FMIPA ITB 2020, Institut Teknologi Bandung and Institut Teknologi Sumatra.

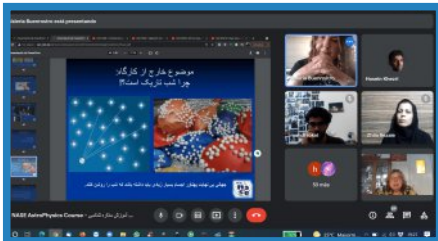
In my opinion, guided practice activities and equipment preparation from the beginning are very necessary. thank you. I want this course in direct learning face to face not via zoom, thanks. Increased knowledge.



245 Course in Fars (Iran) – 23-24 August, 2021

In cooperation with Iranian Teacher Astronomy Union, ITAU.

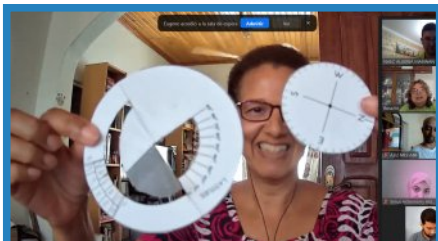
It was a very interesting course and very enjoyable to all of participants. Most of participants was very happy because it was an opportunity to them to meet international professors and speak with them. The activities were very helpful and interesting and instructors make the complicated lessons very easy.



246 NASE Course in Constantine (Algeria) - August 25th-27th, 2021

In cooperation with NAEC – Algeria and AfAS Outreach Committee.

It was an amazing workshop. Thank you all. I really enjoyed it and learned a lot especially the practical part; we all know that making science (astronomy) fun and easy isn't easy at all but you did it so thanks a lot, and now we should share this knowledge with others.



247 NASE Course in Asunción (Paraguay) - September, 9th-30th, 2021

In cooperation with Observatorio Astronómico Alexis Troche.

Teachers were invited to visit the FP-UNA astronomical observatory and to use the NASE proposals in their respective courses and communities, as well as to get more alternatives from the NASE-IAU web pages, as well as from the NASE Youtube channel.



248 NASE Course Mendoza (Argentina) – September 20th – October 1st, 2021

In cooperation with Universidad de Cuyo.

Part of the activity was related to the recognition of examples of Astronomy in the city of Mendoza, a working group that aroused much interest and enthusiasm in the attendees, who will prepare special works on the subject.



249 NASE Course in Constantine (Algeria) – September 25-26, 2021

In cooperation with NAEC – Algeria and Mediation Center.

We want a longer and detailed training with a teaching support strong enough to learn to apply these teaching methods with the pupils and the children.



250 NASE Course in La Cabuya (Ecuador) – October, 11-15, 2021

For this NASE-IAU course of Ecuador, in cooperation with the National Polytechnic School, the community of Cabuya, a fishing village with a warm culture, was chosen.

The Gabriela Mistral school, with only three teachers, was the setting for this training, where teachers, university students, mothers and fathers of families took part. These days they are the ones who help their families in their education. The problems of power shortages in the school, with the help of community leaders, were resolved.

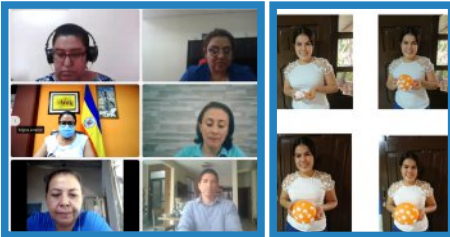




251 NASE Course in Sao Tome (Sao Tome and Principe) – October, 13 – November, 10, 2021

In cooperation with Planetario do Porto.

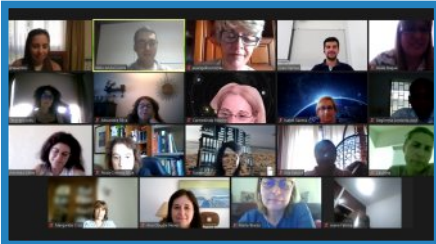
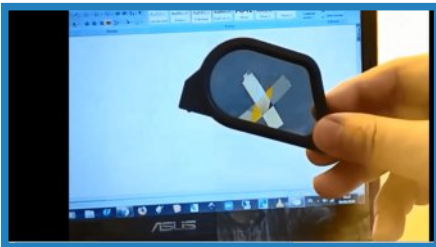
The materials presented and shared with the trainees, of excellent quality, were essential for the training of teachers for an interactive teaching of astronomy.



252 NASE Course in Tegucigalpa (Honduras) – October, 25 – November, 5, 2021

In cooperation with the Honduran Ministry of Education and the Astronomical Observatory of the National Autonomous University of Honduras.

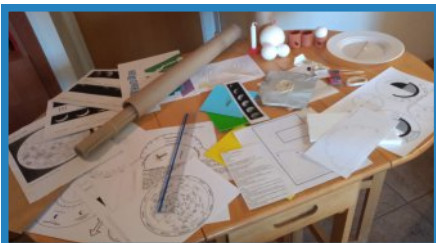
On this occasion, 243 participants were enrolled, who are finishing their teaching career in the areas of mathematics, natural sciences, social sciences and basic education.



253 NASE COURSE in Campo Mourão (Brazil) - October, 28-29, 2021

In cooperation with Federal Technological University of Paraná.

The materials presented and shared with the trainees, of excellent quality, were essential for the training of teachers for an interactive teaching of astronomy. Using simple and easily accessible materials it was possible to teach sometimes complex concepts, making them more understandable.



254 NASE Course in Rosario (Argentina) – November, 5-12, 2021

In cooperation with the National University of Rosario.

The participants of the NASE 254 course were working teachers at different levels of education: primary, secondary, tertiary and university, from various jurisdictions. Fourteen of them are students of the Master of Science Didactics, whose basic training ranges from teachers to engineers.



255 NASE course in Sf. Gheorghe (Romania), Budapest (Hungary) – November 9-10, 2021

In cooperation with County Center for Gifted Students and Székely Mikó Theoretical High School. The course aims to provide a clear, simple introduction to the world of astronomy, astrophysics and cosmology through theoretical summary and experimental materials that is easy to apply and use in geography, mathematics, chemistry, physics or even biology lessons.



256 NASE Course in Barcelona (Spain) – November, 17, 2021 – February, 16, 2022

In cooperation with CESIRE, Departament d'Educació, Generalitat de Catalunya. The attendees valued the models and scale models with simple materials, all the knowledge acquired and resources, and the acquisition of new materials such as web videos, clip files, etc.



258 NASE Course in Orihuela (Spain) – November, 19 – December, 2, 2021

In cooperation with CEFIRE – MUDIC of Orihuela. This course aroused a lot of expectation, and very motivated teachers from different locations in the province of Alicante and Murcia participated.



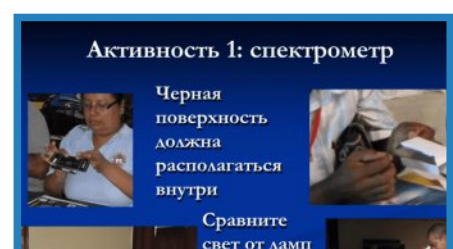
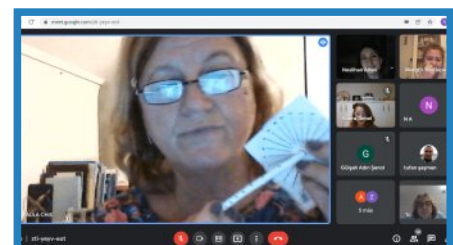
259 NASE Course in Istanbul (Turkey) – November 23-25, 2021

In cooperation with ERENTAY EĞİTİM DANIŞ-MANLIK. Throughout the entire course about astrobiology, the lecture included detailed explanations of how theory could be turned into practice. The activities were very good. I can't wait to implement most of them in the class-room. Many thanks to all our teachers who contributed.



260 NASE Course in Vitebsk (Belarus) and Moscú (Russia)- noviembre 23th-25th, 2021

In cooperation with Moscow Pedagogical State University. I really liked the course, as all the materials for preparing for the master class are available and children are actively involved in the work. I liked the presentations, there was good material and a pleasant background.



TEACHING MATERIAL

MODEL FOR MAKING A CLOUD IN CLASS

We'll need a 2-litre plastic bottle of water or soda. Put 3 or 4 cm of water, close the cap and shake vigorously. That's how we get the air inside saturated.

We put particles around which small water droplets form, we light a match (or a piece of paper), turn it off and immediately put as much smoke as possible into the bottle. To do this, we can put the match a little in the bottle so that it continues to smoke.

We close the bottle cap and let a few seconds pass so that the small particles of smoke ash spread through the saturated air inside the bottle. We squeeze with both hands the sides of the bottle, wait about 5 seconds, and let go. We will see that inside a mist formed formed by small droplets of liquid water. If we squeeze the bottle again, it disappears, and when we let go, the "cloud" inside is formed again.



It is necessary to introduce particles so that condensation occurs around them. They are the ash particles from which the smoke is made.

We might ask ourselves: is this haze an optical illusion, is it a condensation on the walls or is it a real cloud?

If we open the bottle when we have the cloud inside and squeeze the bottle a little bit, we'll see a real cloud coming out of it.



As the adiabatic expansion occurs, the cloud forms inside

The model can be made using a bike pump, and by adapting a valve to the bottle cap. The pressure and adiabatic expansion is much higher and therefore the cloud is more intense. But the experiment loses in simplicity and ease of doing at home.

Other activities like this you can find on the NASE website.

