

SPECTRUM

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SPECTRUM as the newsletter editorial name is taken from spectrum widely known in physics world as an image or distribution of components of any electromagnetic radiation arranged in a progressive series according to wavelength that can be found in rainbow as the separation of colors.

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CAREER ON PHYSICS

We need to work in some certain way to make living. It is no exception for physics enthusiasts. To support our curiosity in this subject, we have to make a financial preparation to keep our creativity flowing. For your information, physics is used in every aspect of life, so the possibility is almost unlimited. Yet, to ease your mind, here we give you a quick glimpse about top four jobs you need to check if you devote yourself into physics.



Source: <https://3c1703fe8d.site.internapcdn.net>

SCIENTIST

Becoming a scientist is a full time job. It is a profession that some physicists really like because they can choose the subject that they love the most. Yet, the scientist usually works their personal project as well. Instead of working, this feels like have fun with the hobby that you really love.



Source: <https://11.wp.com/www.brainhub.com>

SCIENCE JOURNALIST

This profession requires another skill, which is structural and technical writing. If you happen to love both writing and physics, this is the perfect job for you.



Source: <http://images.wisegeek.com>

LECTURER

Some of you may think lecturer is a boring job. It is not, because you need to know how to teach, which is not easy. You also need confidence, because you will teach in front of students. Yet, it is worth it. Lecturer is the person who is meritorious for the future of physics, since they teach the students of tomorrow.



Source: <https://i.ytimg.com>

TIME TRAVELER

We know, it is science fiction for the time being, because we haven't found the exact formula to send human into future or past. What if 25 to 50 years from now on? Maybe, we can see full time or freelance time traveler in the future.



A STEP CLOSER TO BE THE MEDALIST

The sun shone really bright today when the students from all over the world entered the exam room at the Sportorium of University of Muhammadiyah Yogyakarta (UMY). They were ready to seize the challenge that had been prepared by the juries and leaders. It was about time to start the Theoretical Exams of International Physics Olympiad 2017.

The preparation – both physically and mentally – had been done by the 86 participating countries of IPhO 2017. Although they were exhausted from doing the Experimental Exams on the previous day, optimistic faces could be seen anywhere. “Yesterday, some of us might not be able to complete the exam. But, today I feel optimistic that we can make it through. I live for this moment only,” said Sebastian from the Romanian Team. It was natural to feel so, since the Experimental Exams was made to challenge their creativity, while the Theoretical Exams was to test their comprehension of physics.

The exam would take maximum thirty out of fifty points. Therefore, this exam was the crucial part to be completed by each student. In order to beat that, the students needed to complete three theoretical problems within a five-hour session. Of course, this was not an easy job. A day before the Theoretical Exams took place, the leaders and juries prepared this exam material for more than 17 hours. Obviously, it would be harder without saying.

As the students entered their own white cubicle in the big hall, the pressure started to hit. Some students tried to ease their mind by moving their hands, while the others took a deep breath before the exam was commenced. Yet, the supervisors helped them without question, so they felt more comfortable to complete the exam without any hesitation. The exam material was started to be distributed.

Hours had passed, but the students did the exam with topmost

concentration on the exam sheets. Instead of giving up, some students persisted on taking part in the test until the end. Their dedication and devotion proved that the three problems given in the Theoretical Exams could not shake them from continuing to take a step closer to be the medalist. Well done, students!





INSIDE THE PRINTING ROOM OF THE THEORETICAL EXAMS

The meeting room was empty. Busyness moved into the printing room. In the room, there were about thirty people who printed examination materials, copied, and sealed the exam papers into the envelopes. There was one of the academic assistants, Fatimah, who was busy putting the questions into envelopes to be distributed to the students. “We had been working since yesterday’s evening. The target is until 6 AM before the test because the exam papers have to be distributed,” said Fatimah.

Among the sound of photocopy and printing equipments, Bobby, the Head of Jury of IPhO 2017, asked the team to speed up their work to make sure all the exam papers are ready on time. Rifki, one of the volunteers, was copying questions for the jury and the leaders. He had been working since 10 PM until 5 in the morning.

Januar, another academic assistant, told Spectrum that each country would get the same code. Each item has unique code in order to avoid

mistake when distributing exam papers. The codes are T1 for the first item, T2 for the second item, and T3 for the third item.

Until the morning, the room was still noisy with the sound of the printing machines. Although almost all the teams who work there were tired, they had a great commitment to succeed IPhO 2017, obviously.



ILHAM AKBAR HABIBIE: INNOVATING AND USING KNOWLEDGE FOR OTHERS

All of the leaders coming to the general lecture session in Sanata Dharma University seemed very excited. They will gain new knowledge about Indonesia, innovation, and aeronautics, from one of the nation’s best men, Ilham Akbar Habibie.

Ilham explained how important it is to make innovations that are useful for many people. Without seeking innovation, progress and success cannot be achieved. According to

Ilham, we must innovate through 3T, specifically Technology, Talent, and Tolerance.

“If you do not have talent, of course, innovation cannot be created. Meanwhile, tolerance is a big and common thing. Imagine if we were in a great team, we are looking for the best and really wanting to create innovative technology-we do have to be tolerant of others,” Ilham told to Spectrum.

Ilham is the man behind the idea of making a commercial airplane project, Regio Prop (R80), that began in 2004. Thanks to the interest in learning and aviation science that he mastered, Ilham managed to make the aircraft Regio Prop suitable for Indonesia’s geographical conditions.

According to his talk, the aircraft is very economically feasible and supports the mobility of Indonesian living in a vast archipelago country. Armed with the knowledge that he has, Ilham tried to answer the challenge of transportation in Indonesia.

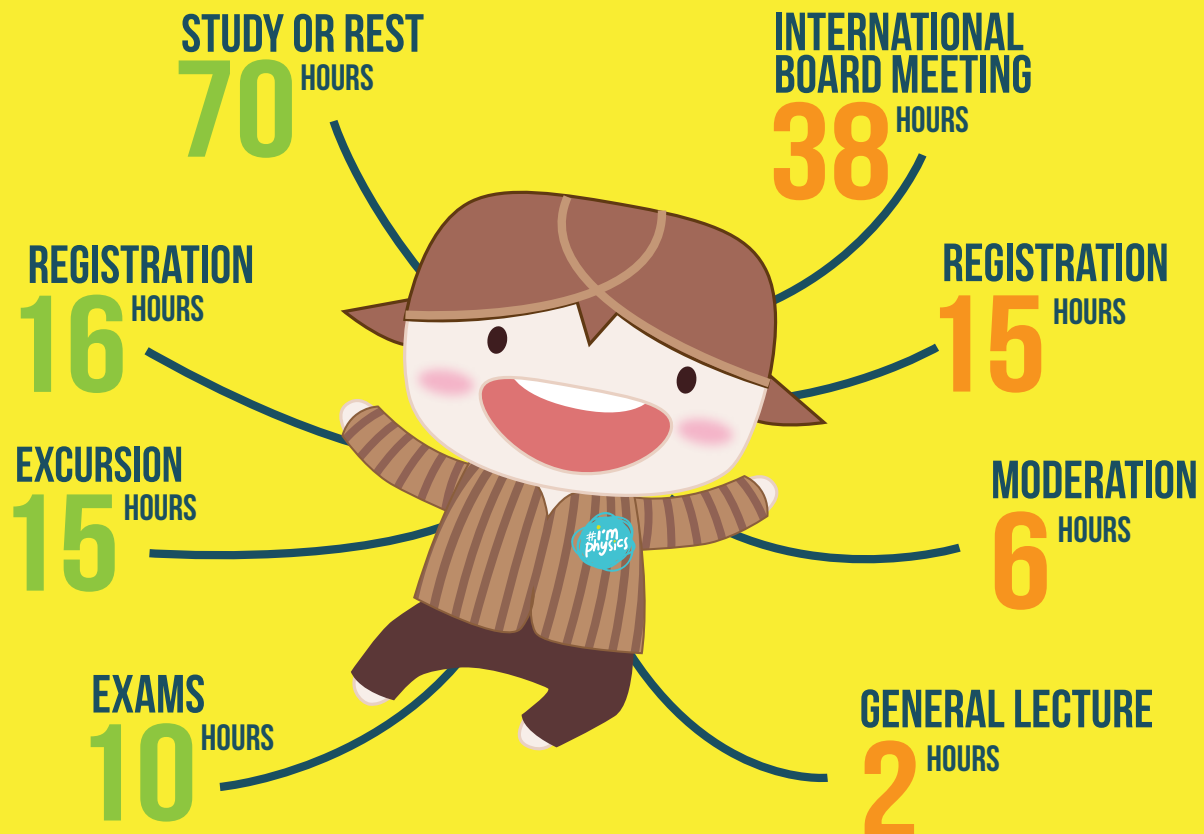
Therefore, Ilham suggests to young people, especially to whom are selected as IPhO participants, to love physics or the other exact sciences because it is the capital for the future. It would be nice if they are not only good at using technology consumptively, but also can create new innovations. “There is no other way to find the future in addition to understand the technology and science,” said Ilham.

IPOH ACTIVITIES IN NUMBERS

DID YOU KNOW THAT BASED ON THE SCHEDULE, THE WHOLE IPOH ACTIVITIES TAKES 180 HOURS AND 15 MINUTES. DON'T YOU BELIEVE IT? SEE THE PERCENTAGES BELOW...

STUDENTS

LEADERS & OBSERVERS



TOTAL ACTIVITIES BASED ON HOURS:
180 HOURS 15 MINUTES
THE LONGEST ACTIVITY IS STUDY OR REST
THE SHORTEST ACTIVITY IS CEREMONY

TOTAL ACTIVITIES BASED ON HOURS:
180 HOURS 15 MINUTES
THE LONGEST ACTIVITY IS REST OR FREE TIME
THE SHORTEST ACTIVITY IS GENERAL LECTURE

PERCENTAGE OF IPOH 2017 ACTIVITIES BASED ON HOURS



TAKE A BREAK AFTER THE TENSION

In contrast to the arrival, the leaders seemed to be familiar with each other. The intimacy was apparent when the Garden Party was held.

In the party, the leaders gathered together in each table. With music,

the leaders of various countries mingled with and ate together. The event was also became a relief for them after a long International Board Meeting for about 17 hours. At that moment, they had plenty amount of time to chat in a more relaxed atmosphere.



FRIENDSHIP OF COLORS

Friendship is meant to last forever. It is an inseparable bond that keeps us connected to the world, to be able to explore unlimited possibilities. Without friendship, we will vanish, losing the meaning as mankind. That is why, creating a larger network as the physics enthusiasts are mandatory.

IPhO 2017 tried to encourage this kind of bond, by making a special cultural night for the participants. Before that, the students were brought to the Gala Dinner. It was

the time for each participant to reunite again with the leader, the person who took them until this far. Joyful could be seen anywhere, as everyone was laughing, shaking hands, and also mingling together. There was no boundaries could be seen on sight. It was lovely yet breathtaking to see such a scene.

The cultural night took place at the Ballroom of Sahid Rich Hotel. It was started with the opening of dynamic hosts, Amelia and Juno, followed after with the performance

by some participating country representatives such as Portugal, Saudi Arabia, Brazil, Colombia, and many more! Each of them brought the popular culture and art from their own country, such as song, dance, and also poem. Most of them were responded with applause and cheering. This kind of thing might look so simple, but it would make a deeper emotional connection towards participants.



In IPhO 2017, we use QR code in a form of bracelet that will be used to verify your identity in every program schedule. It is a new technology used to ease your journey for the next following days that was specially prepared by technology team. The utilization of QR code during IPhO is based on the server that can record the attendance of the students through the scanner that has been used on the Experimental and Theoretical Exams.

QR CODE OFFICERS DURING IPhO 2017

“We use QR code in the Olympiad to validate the students’ presence upon the program of IPhO. Each bracelet has its own unique number, so we can track whether someone is in their place or not”, said Bobby Seto, the IT team of Berkarya Institute. Although it is a great technology, QR code for IPhO 2017 is not perfect yet. It may not be a big deal, but it requires everyone’s concern that QR code on the bracelet will be different in each program. So, the participants need to take care of this bracelet until the end of the event.

In terms of preparation, the technology officers for QR code also needed to stay sharp, so everyone is covered. “Yeah, we got to have

to clear sight during the check. So, nobody is missing. Also, the data server needs to be supervised by us. If there is a crash, there goes our data”, added Mila, the scanner officer of IT team. This kind of sincerity helps us in succeeding IPhO 2017 – within and without.





Image source: <https://ichef.bbci.co.uk>

INSPIRATIONAL

THE MAN WHO LEAPT THROUGH TIME

Some of you may have watched “The Theory of Everything” at the theatre. It told you about the historical moment of Stephen Hawking as a fellow physicist on his journey to greatness. He was well-known for his book “A Brief History of Time”, which was the best seller physics books. Until now, this book remains a guide for people who want to study time as their subject in the school. Yet, how can he make it in physics world?

Stephen Hawking was a British by blood, born in Oxford. Although he was born to the well-educated

parents, the time that he was born was quite difficult, as his parents didn’t have much money back then and also the WWII was making the way of living harder. When he was a student of Oxford University, a serious disease named Amyotrophic lateral sclerosis (ALS) hit him. By that time, he needed to sit on the wheelchair for whole time. He was told by a doctor that he wouldn’t make it after 2 years.

Truth to be told, he never gave up his dream. He kept struggling to complete his PhD to become a scholar, so that he could continue

his passion in physics. Of course, he wouldn’t make it by his own. He got supports from his family and friends, whom convinced him that physics world wouldn’t be the same without Hawking. Until now, Stephen Hawking still lives, doing what he loves the most.

“My expectations were reduced to zero when I was 21. Everything since then has been a bonus”,

said Hawking as quoted from yourdost.com

Source: Yourdost.com, youractivist.com

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PHYSICS WORD SEARCH

Find 15 words about Physics and IPhO 2017 horizontally, vertically, diagonally, forwards, or backwards



