



Research and Innovation Achievement | Physics

Background of Physics Department

The Department of Physics at Xiamen University Malaysia (XMUM) was founded in March 2020 alongside with the founding of the Bachelor of Science in Physics (BSc Physics) programme. The BSc Physics programme welcomed its inaugural intake in September 2020 with 18 students from Malaysia and China. The programme is created with strong intentions and aspirations to fulfill the vision and mission of XMUM: to become a university with a distinct global outlook, featuring first-class teaching and research, and embracing cultural diversity; and to nurture young talents with dignity and wisdom, turning them into fine citizens of the region who will contribute to the prosperity of the people and social progress of Malaysia, China and Southeast Asia.



To align with this vision and mission, the BSc Physics programme is underpinned by 4 main pillars:
Scientific Professionalism,
Interdisciplinary Professionalism,
Pursuit and Creation of Knowledge, and
Civic Engagement.



Hence, our aim is to nurture physics graduates who practice science and physics as a way of life, while are not afraid to venture out and engage with people from other disciplines, in order to co-create new knowledge and solutions to complex, multi-faceted problems for the betterment of humankind and modern society.



The Syllabus



The Physics programme of XMUM contains a well-designed syllabus that attempts to emulate the success of those from world renowned universities such as NUS and MIT. The syllabus can be described as “a future-looking programme that is grounded in the foundations of the past”.

In the first 2 years of the programme, students would equip themselves with the foundational knowledge of traditional physics and mathematics. In the next 2 years, they would be encouraged to explore specialized courses from within the branches of physics and transdisciplinary courses offered by other programmes.

The design of the syllabus aspires to accomplish 2 goals: first, to promote the versatility of our students to acquire knowledge from different domains; and second, to facilitate interaction with students of other disciplines in the hope that they can bring together different ideas to synergize and spark new insights into their understanding of their own fields of knowledge.

RESEARCH

The Physics programme is research intensive. The syllabus offers students the opportunity to engage in formal academic research for up to 4 semesters. Academically excellent students have the chance to start their research career as early as their 2nd year of studies and be mentored by one of the faculty members of the Department of Physics. In their 3rd year, students have the opportunity to engage in full time academic research for a whole semester that serves as their practicum programme. In their final year, they will use 2 more semesters to undertake the thesis project.



INNOVATION

To encourage students to explore the world of physics and think critically and scientifically, the Department of Physics, XMUM had held a secondary school physics competition, namely XMUM Cup, on November 18, 2020. Malaysia has a high demand for professionals in the field of STEM. Through this competition, the Department of Physics hopes to discover students' talent in physics and encourage them to become physicists.

XMUM Cup Physics Competition



The XMUM Cup Physics competition is an online competition. Participants were asked to complete 25 questions within two and a half hours. Beside the numerical calculation questions, the competition also contained interactive visual experiments. Students were required to collect data using the visual apparatus in order to get the answers.

The top five winners from the competition received medals, certificates, and cash. Thanks to World Scientific Publishing for sponsoring RM 2000 cash prize, and to XMUM for generously providing scholarship to the top 30 students if they choose to study Physics or Mathematics at XMUM. In addition to the awards for students, we also awarded the XMUM Cup to the best-performing school in Malaysia. Five trophies were awarded to schools with outstanding performance from the five regions (North, Center, South, Perak, and East Malaysia).

Despite of the tough situation caused by Covid-19 pandemics in the year of 2020, the competition received 526 participants from 30 schools. The first XMUM Cup was won by Chung Ling High school from Penang. They sent 29 students to participate in the competition and 7 of these students won XMUM scholarships. The first and second prize winners in the individual categories both came from Chung Ling High School.

GOOD NEWS

The positive feedback from many schools has encouraged the Physics Department to continue the competition in 2021. The date of the 2nd XMUM Cup is 8 September 2021. Brochures have been sent to secondary schools and updated news on the event can be found on the official website:
<http2://xmumphyscom.wordpress.com>.

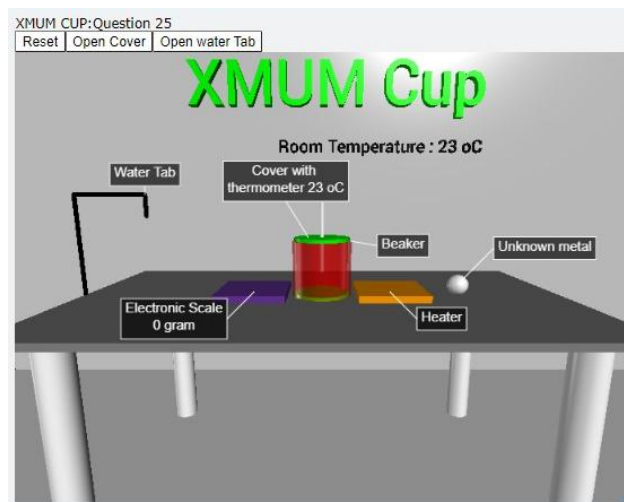


Figure: One of the virtual experiment questions in the 2020 competition.