

Oxford Materials Department JCCU Industrial Tour 2026

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From 23rd March 2026 to 31st March 2026, 20 students took part in the JCCU Industrial Tour to Seoul, South Korea with Prof. Jason Smith as the accompanying tutor. During the tour, we made visited the following businesses and academic institutions:

- Sungkyunkwan University (SKKU)
- Korea Advanced Institute of Science & Technology (KAIST)
- Samsung Semiconductors
- Korea Advanced Nano Fab Centre (KANC)
- Korea Institute of Science and Technology (KIST)
- Korea Institute of Fusion Energy (KFE)
- Hyundai Steel

This trip was invaluable in providing insight into various industrial applications in diverse fields in Materials Science, while showing state-of-the-art research into new Materials.

23rd March to 24th March

Building on past wisdom with group travel, most of the group took a group flight from London Heathrow to Seoul Incheon International Airport via Beijing Daxing. Other than some issues with visas, the journey was uneventful. We arrived at Incheon Airport on 24th March at around 2300, and took a chartered bus to Novotel Ambassador Suwon. We arrived near midnight, and quickly checked into twin bedrooms and prepared for the next day. A couple of students, who could not travel with the group, was also able to check in to the hotel themselves without issue.

25th March

To recover from the journey and jet lag, we made a late start, with everyone gathering at 0945 for the bus to SKKU. There, we were warmly welcomed by SKKU students and staff, and we had a seminar conducted both by one of SKKU's lecturers and also by our very own Prof Jason Smith. We then proceeded with icebreakers and lunch, where we got to talk to the students and know more about university life in Korea. The afternoon saw Oxford



students honing their poster presentation skills in a research forum within the university. We then ended the evening with a delicious group dinner back at the hotel with SKKU students and staff.

26th March

After a group breakfast at the hotel, we left for Samsung Semiconductors at 0850. There we were shown cutting edge technology in manufacturing next-generation memory chips. After a brief introduction to the history of the company, we were brought to see a fully-automated remote controlled production line, which showed the incredible complex and time consuming process it is to mass produce and commercialise memory chips.



We had individual lunches before heading to Korea Advanced Nano Fab Centre (KANC) tour in the afternoon. KANC is a nanofabrication centre focussed on nanotechnology research and development. The researchers there gave us an overview on the current trending topics in nanomaterials for chip fabrication, and we were even given a tour of the labs and clean rooms where the fabrication takes place.



27th March

27th March saw us back in SKKU for a talk by a leading quantum computing startup SDT Inc, which developed the 20-qubit “Kreo” quantum computer and QuREKA hybrid quantum cloud platform. During this talk, we were invited to try QuREKA, using basic coding and its advanced computational power to run simulations and modelling.

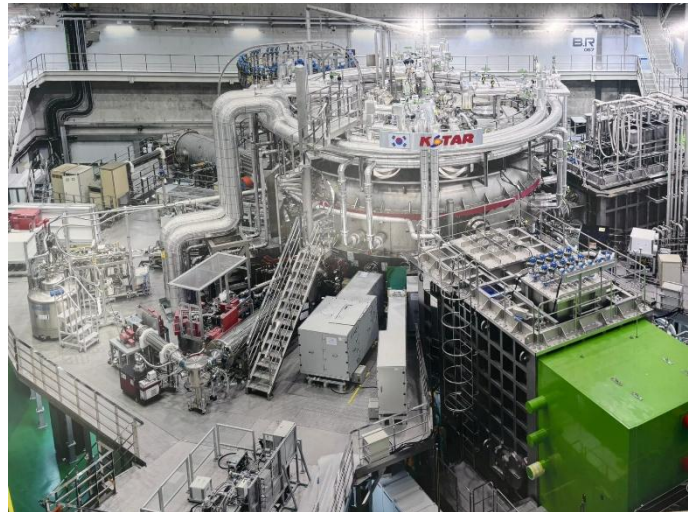
In the afternoon, we travelled to KIST, which is the leading government research institute in Korea. There we explored various advanced labs in photonics, quantum computing and nanotechnology, which allowed us to see all the possibilities enabled by materials engineering.

28th March and 29th March

The weekends were free and easy time for us. Most of us chose to explore Seoul on our own the first day, touring the imperial palaces there while soaking in the city culture. On the 29th, some of the group decided to embark on a hike to Yeonjuam Hermitage.

30th March

We visited KFE on the morning of 30th March. There, a researcher introduced us to both KSTAR and ITER, which are state-of-the-art fusion energy projects aiming to commercialise fusion energy. We were even given a tour of KSTAR fusion reactor, where they ran a 10-second test on sustaining fusion, which turned out to be a great success.



We then toured KAIST, a top university in Science and Technology in Korea. There, we were astounded by the sheer scale of the university. I was particularly wowed by the aerospace laboratories and the Materials Science teaching laboratories. We were also able to network with the students there, and got to know them better over barbecue and bowling in the evening.

31st March

We visited the Hyundai integrated steel mill in Dangjin. Dangjin steel plant is a sprawling integrated steel plant that has a blast furnace, basic oxygen furnace, direct reduced iron and electric arc furnace technology, allowing them to refine iron ore and process it into steel all within the plant. We started with an introduction of the steel making process used in Dangjin, which uniquely features sheltered ore storage and transport infrastructure to maximise yield. We were then taken on a bus tour, where we saw each step of the steelmaking process, from ore storage to hot rolling and forging.



HYUNDAI STEEL
WELCOME!

1st April

The return journey for the group was largely the same as the journey here. We woke up early to catch a flight to Daxing, transferring to a flight to London Heathrow, which landed the same afternoon.

Acknowledgements

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