

International University Education; The University of Nottingham Ningbo China

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SUMMARY

In 2004, The University of Nottingham was the first Sino-Foreign university to open a campus in China. Today, the University of Nottingham Ningbo Campus (UNNC) holds over 5,000 students and 425 staff from 40 different countries. Science and Engineering subjects are relatively new on the campus, but are all based on the long standing pedigree at Nottingham. In 2012, a new MSc course in Geodesy and Surveying Engineering will start, which is the same as the course in Nottingham. All the courses at UNNC are the same in learning outcomes as those in Nottingham, all the teaching is carried out in the medium of English and undergo the same stringent Quality Assurance. The University of Nottingham also has a campus in Malaysia, which makes the university truly global. Students attending any of these campuses have the opportunities of exchange at any of the other two, as well as many other international universities.

UNNC aspires to grow to 8,000 students, consisting of 20% international students and 15 – 20% postgraduate students.

The following paper details the model used by the University of Nottingham in establishing and operating the international campuses, and gives a case study of parallel courses.

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1. INTRODUCTION

In 2009, The Times Good University Guide stated that the University of Nottingham “..is the nearest Britain has to a truly global university...”. The University of Nottingham has approximately 34,000 students in the UK, 27% of which are from outside of the UK [1]. In addition to this, the University not only has campuses in the UK, but also a campus just outside Kuala Lumpur in Malaysia and also a campus in Ningbo, China.

Nottingham’s first civil college was opened in the city centre in 1881, four years after the corner stone was laid by the then Prime Minister W. E. Gladstone. After the First World War, the college outgrew its original building, and moved to its current University Park Campus in 1928; the 35 acres of land was a generous gift from Jesse Boot (of Boots the Chemist). King George V officially opened the Trent Building on the campus. Even in its early days on this site, the College attracted high profile visiting lecturers including Professor Albert Einstein, Mahatma Gandhi and H G Wells. In 1948, the college became the University of Nottingham with the award of the Royal Charter. Continued growth has occurred, involving the introduction of a further 4 campuses in the UK, as well as two international campuses; one in Malaysia and one in China. [2]

The University of Nottingham is very comprehensive in its subject areas, including engineering, sciences, agriculture and veterinary sciences, arts, medicine, and covers most subject areas. The University of Nottingham Malaysia Campus (UNMC) has approximately 4,000 students, mainly in areas of engineering, computer science, bio-sciences, business. The University of Nottingham Ningbo China (UNNC) has departments covering English, International Communications, Education, International Studies, Economics, Business, computer science, environmental sciences as well as 8 engineering degree subjects. These subject areas offer both undergraduate and postgraduate degree options. In addition to this, UNNC has an English Language facility (Centre for English Language Education – CELE) with approximately 80 English language teachers. One of the new additions to the courses offered at UNNC includes the MSc in Engineering Surveying and Geodesy.

2. UNIVERSITY LIFE

The UNNC campus is 140 acres in size, and comprises of academic buildings, halls of residences, various shops and restaurants and sports amenities. All the students at UNNC are housed in dormitories, and currently there are a further 3 being constructed to accommodate the forthcoming expansion in students’ numbers. These dormitories vary in nature and size depending on the students’ requirements.

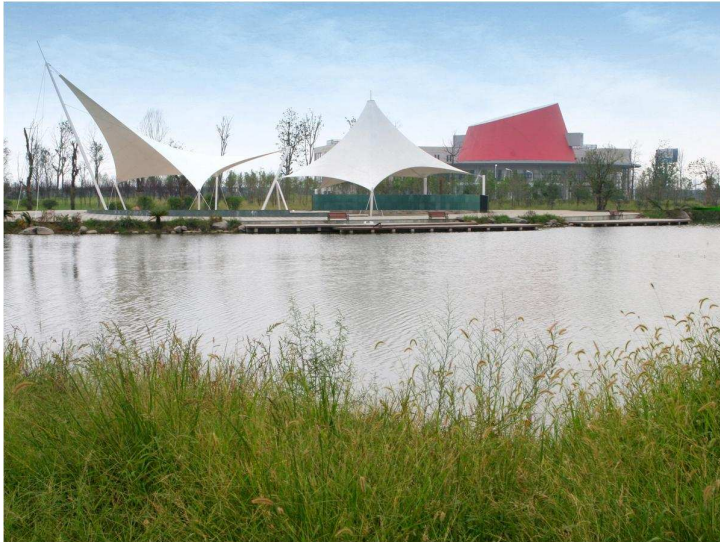


Figure 1, A view of a pavilion-amphitheatre area next to the lake.

These range from 4 students sharing a dormitory room, to a single study bedroom with en-suite facilities. The campus itself is very open in feel, having a number of rivers and lakes as well as open parkland. This is in-keeping with the look and feel of all the University of Nottingham campuses. In addition to this, the campus houses a variety of shop and amenities for both staff and students, including grocery shops, fresh fruit and vegetable shops, post office, bank, hair dressers, book shops, general amenities shops, printing shops, restaurants, bicycle shop to name a few. All in all, there are more shops on the campus than any of the other University of Nottingham campuses.

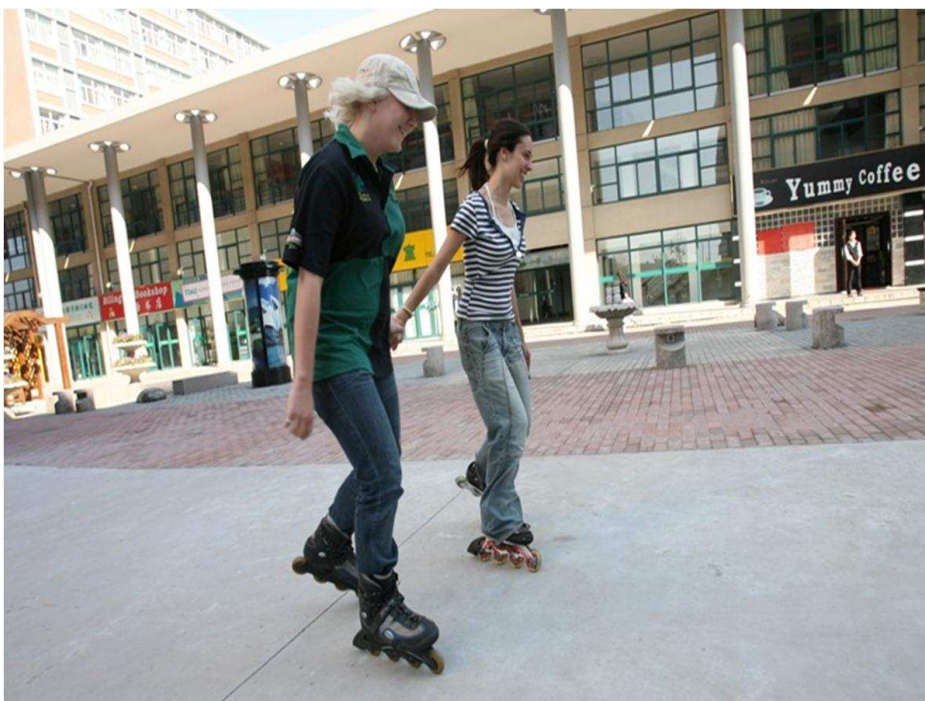


Figure 2, Students Skating Through the High Street at UNNC.

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The campus also houses a sports centre, comprising of various training rooms and sports halls for badminton, basketball, squash, training rooms, gymnasium, as well as outdoor football pitch and athletics track and facilities, and a number of outdoor basketball courts.

The academic infrastructure consists of a number of buildings housing seminar rooms, academic offices, lecture rooms of various sizes, as well as a 500 seat sized auditorium.

3. CURRENT SITUATION

Currently the students population of approximately 5,400 comprises of 94% from mainland China and the remainder from countries all around the World. Approximately 8% of the student population is postgraduate students. UNNC was awarded the right to host PhD students in 2009, and there are already over 70 registered on the campus, all having supervisors on both the UK campus and at UNNC.

All the courses and instruction are given in English, and the teaching manner is the same as the UK. The students become critical in analysis, reflective in their learning, experience a lot of team working and presentation skills, and generally are taught to interact and ask questions. UNNC offers a preliminary year, focused on the Chinese students in order to bring their English language up to the right level, as well as to teach them the English science and mathematical phrases for the Chinese they already know. This preliminary year is also a transition year from the way of teaching they are accustomed to, to the western style of student centered learning. This is why the bachelor courses are 4 years long, rather than the UK 3 years, although there is the opportunity for English speakers with the correct high school education to enroll onto our year 2 directly.

UNNC now offers bachelor's degrees, masters degrees and PhD research degrees. UNNC recruits students from 29 of the 31 Chinese provinces, and the entry requirements are a division 1 in the Gao Kao. One of UNNC's unique points is that it has 100% employment rate or students going on to carry on with masters' courses.

Most of the undergraduate courses operate in both a 2+2 manner (2 years at UNNC and 2 years at the UK campus) and 4+0 (all 4 years at UNNC). The 4+0 students also have the opportunity of applying for a semester of year exchange at the UK or Malaysia campuses, or even a number of other partner universities. These include the Universitas 21 universities, which comprises of a group of 23 universities [3] from all around the world. There is a strong thirst from the Chinese students for the exchange schemes, and an ever increasing need from outside of China to come in and gain a UK/western education but experiencing China, Chinese language and Chinese culture all at the same time.

There are many advantages in attending a semester, a year or the whole degree course at UNNC. All non-Mandarin speakers are offered complimentary Mandarin courses. The experience of Chinese culture is also an advantage. The cost of living is also less than the UK and many other countries, as well as the course fees.

All in all, however, the students gain a western education in a country that they are very likely to have some dealings with in the future.

There is also a lot of interest and support for UNNC from the Chinese governments, at local and national levels. UNNC is always supported by the Ningbo Bureau of Science and Technology as well as the Bureau of Education. In addition to this, many senior figures have been to UNNC, including Premier Wen JiaBao, The Minister for International Affairs, The Minister for Science and Technology to name a few.



Figure 3, Premiere Wen JiaBao visiting UNNC in April 2011.

4. THE FACULTY OF SCIENCE AND ENGINEERING

4.1 Science and Engineering Courses at UNNC

Currently, the faculty of science and engineering comprises of the following degree courses:

- BEng Civil Engineering (2+2 & 4+0)
- BEng Mechanical Engineering (2+2 & 4+0)
- BEng Chemical Engineering (2+2 & 4+0)
- BEng Environmental Engineering (2+2 & 4+0)
- BEng Electrical and Electronic Engineering (2+2 & 4+0)
- BEng Architecture (4+0)
- BEng Architectural Environment Engineering (2+2 & 4+0)
- BEng Product Design and Manufacture (2+2 & 4+0)
- BSc Environmental Sciences (2+2 & 4+0)
- BSc Computer Science (2+2 & 4+0)
- BSc Computer Science with Management (2+2 & 4+0)
- BSc Computer Science with Artificial Intelligence (2+2)
- BSc Software Systems(2+2)

MSc Engineering Surveying and Geodesy (starting in September 2012)
PhD Programmes

UNNC has plans to start new bachelors' courses in mathematics and engineering, mechatronics in September 2013, as well as MSc courses in Mechanical Engineering, Manufacturing Engineering, Sustainable Manufacturing Engineering, and Electronic Communications and Computer Engineering from September 2013. Following this, there are plans to introduce other new MSc courses. All of these courses are delivered in the same manner as their counterparts in the UK and Malaysia, comprise of the same modules, and especially the same learning outcomes. The UK and Malaysia courses are already recognized and accredited by the various professional institutions, and UNNC's courses will also seek accreditation once they are all fully up and running.

Currently, most of the Faculty undergraduate courses only comprise of the preliminary year and the year 2. Year 3 is introduced in September 2012 for many of the 4+0 courses, and the final year on September 2013. This means that there is currently a large staffing and student recruitment expansion. This also coincides to UNNC's favour with the increase in academic fees in the UK, as well as the increasing links and involvements many countries have with China.

4.2 Infrastructure

On the 1 September 2011, the Faculty moved into a new purpose built, 14,000m² building. This building comprises of academic offices, seminar and meeting rooms, lecture rooms, design studios as well as many laboratories. The laboratories comprise of wet and also dry laboratories, as well as two large high bay laboratories for the various engineering subjects. The building itself is designed to take into account the expansion of the faculty over the next few years.



Figure 4, The New Science and Engineering Building.

4.3 Research Highlights at the Faculty of Science and Engineering

Some of the research highlights to date at the Faculty of Science and Engineering include:

- Various locally and nationally funded research projects
- The International Doctoral Innovation Centre, which is funded by the Ningbo Bureau of Science and Technology as well as the Bureau of Education, the Ministry of Science and Technology. This will fund 100 PhD students to carry out research in areas of Energy as well as areas of Digital Economy over the next 7 years. This is based on a scheme called a Doctoral Training Centre in the UK, where students have training in year 1, and then carry out 3 years of research. This is the first such entity in China, and it is thought that more will follow once this is seen to be a success. The students enrolled on the IDIC will spend their first year at the UK campus, and the remaining 3 years at UNNC. Internships with industry for the PhD students is also going to be possible.
- Innovation team, which will fund 25 PhD students in areas of manufacturing. This is supported by the Ningbo Bureau of Education and is expected to involve industry. This also builds on the municipal key laboratory status that UNNC has achieved in sustainable manufacturing.
- The International Centre for Professional Development is supported by the Ningbo Bureau of Education. This team will provide professional development for engineering graduates in order to work towards their professional recognition, notably to become a chartered engineer or surveyor.

- The Centre for Sustainable Energy Technologies is a municipally recognized key laboratory.
- The University of Nottingham was awarded a Nobel Prize for work in the field of Magnetic Resonance Imaging (MRI). This subject area is now being brought to UNNC, and will allow this field to be taught and researched into on the Chinese campus.

5. SURVEYING TEACHING AT UNNC

Engineering Surveying is already being taught to the Civil Engineering undergraduate students. This covers basic surveying in year 2, and a little more advanced in year 3 from September 2013 onwards.

5.1 MSc in Engineering Surveying and Geodesy

The MSc course in Engineering Surveying and Geodesy has existed at the University of Nottingham for approximately 20 years. The course comprises of 8 taught modules, and a dissertation research project. The modules are all taught in one week intensive block, allowing part time students to attend, as well as people attending the modules as stand alone short courses. There are usually 2 weeks of non teaching time between each module, where full time and part time students can use this time to carry out project work, as well as to read around the subjects. A full time student would typically carry out the whole MSc over a full year, of 3 semesters. The third semester is where the full time students would carry out their research project and dissertation, and this takes place during the 3 month summer vacation. Part time students would carry out these taught and research activities over a 3 year period.

The taught modules are as follows:

- Fundamentals of Satellite Positioning
- Analytical Methods
- Geodetic Reference Systems
- Photogrammetry and Remote Sensing
- Engineering Surveying
- Advanced Satellite Positioning
- Physical Geodesy
- Practical Field Course

At UNNC, the above model will be used, which will also allow some staff from the UK to travel to UNNC for a short period of time to assist with the teaching, and in particular specialized areas.

There is also the option of a Pre-Masters year to enable students from non-English speaking university backgrounds to improve their English language capabilities, as well as to learn

more about specific tools such as Matlab and surveying software. Further to this, it allows the students to become familiar with the UK style of education, which then makes the transition into the MSc easier.

5.2 Short Courses – International Centre for Professional Development

The ICPD has already facilitated short courses for the Chinese Academy of Surveying and Mapping. This is increasing the partnership and links with the organization, and recognizing the expertise at UNNC.

As the graduate population increases, this offering will become even more valuable.

6. 2020 VISION

The aim over the next few years is to increase the overall student number at UNNC to 8,000, of which 20% are to be non-Chinese and 15 to 20% are to be postgraduate. This will result in a diverse population that will enhance the learning experiences at the campus. The expansion will mainly focus on the Faculty of Science and Engineering, increasing the student numbers here from the current 700 or so to 2-3,000.

REFERENCES

- [1] <http://www.nottingham.ac.uk/about/facts/studentpopulation20112012.aspx>
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BIOGRAPHICAL NOTES

Prof Gethin Wyn Roberts is Dean of the Faculty of Science and Engineering, and Professor of Geospatial Engineering. He has been at the University of Nottingham since 1989, but on the UNNC campus since September 2010. He is the Chairman of Commission 6, Engineering Surveys, as well as the UK representative for commission 6 through the support of the Chartered Institution of Civil Engineering Surveyors. He is also a Fellow of the Chartered Institution of Civil Engineering Surveyors.

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