

DEVELOPMENT OF HIGH EDUCATION FOR SURVEYING & MAPPING IN WUHAN UNIVERSITY, P.R.CHINA

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ABSTRACT

This paper presents a general introduction to the new Wuhan University. The advantages of the university for developing high education of surveying & mapping are analyzed .reformation of the education system for surveying and mapping is discussed.

1. A GENERAL INTRODUCTION TO THE NEW WUHAN UNIVERSITY

Under the background of the reformation of university in china, it is approved by the State Council that universities including Wuhan Technical Univ. of Surveying & Mapping are merged into one new comprehensive university “Wuhan University” on Aug2,2000.

The new Wuhan University has a vast range of prospects of development because it is a combination of 4 first-rate universities in China or in the province, whose respective advantages mixed will produce a better result ,enjoys favorable opportunities ,terrain and the union arising from the people’s accord, and its comprehensive strength leaps to the fore out of Chinese universities and colleges. Wuhan Water Conservancy and Power University was the country’s best university of water conservancy and power with most specialities and comprehensive strength, Wuhan Technical University of Surveying & Mapping was China’s key university having most disciplines of survey and cartography in the world, Hubei Medical University was the province’s only key medical university as well as the only center of medical science and treatment, which was established before 1949 and has kept developing until now.

Wuhan University’s campus enjoys exceptional physical advantages because it is a natural whole with the 4 university’s campuses neighbouring. The disciplines are even completer, including philosophy, economics, law, education, literature, history, sciences, engineering, agriculture, medicine and management, with 85 specialities for undergraduates. The Original Wuhan university is powerful in Philosophy, Economics. Science of Law, Literature, History and natural science. Wuhan University of Water Conservancy and Power Engineering has strong superiorities in hydraulic engineering and electric power project. Wuhan Technical Univ. of Surveying & Mapping predominates in Surveying & Mapping. Hubei Medical University has advantages in stomatology ,virology and clinical medicine. Nearly 8,000 among 40,000-odd students at the university are postgraduates. The university was one of the first groups of colleges and universities authorized by the State Council to set up graduate schools,99 disciplines and specialities have been authorized to grant doctoral degrees while 189

disciplines and specialities have been authorized to grant master degrees;11 ones have been offered postdoctoral studies programs. The university now has 5,000-odd teachers, including 3,000-odd professors and associated professors, 370-odd doctorate supervisors.

Recently, the Education Ministry and the leadership of Hubei Province decided to make efforts jointly in order to build Wuhan University into a “high-level university well known both at home and abroad”.

2. GENERAL ANALYSIS ON THE ADVANTAGES OF THE UNIVERSITY FOR DEVELOPING HIGH EDUCATION OF SURVEYING & MAPPING

The goal for combination of university is to combine all strong points and advantages of all joint university. So, we have to pay more attention to how to make full use of the advantages of the other 3 universities in educating students in Surveying and Mapping; and how to keep and develop the former advantages of Wuhan Technical University of Surveying and Mapping.

In general, we can take at least 3 advantages from the new amalgamation. First, the national investment to our university, of course, to our surveying and mapping disciplines increases. It is said 400 millions from the Education Ministry, and 400 millions from the Hubei Government within the first 3 years. Of course, we also can benefit from the former bosses, such as the National Bureau of Surveying & Mapping by applying a lot of scientific and technical projects. Secondly, the university has all 10 kinds of disciplines at highest level, including philosophy, economics, law, education, literature, history, sciences, engineering, agriculture, medicine and management (one of six ones in China). It provides wonderful environment including all elements such as staff, student library, courses etc. for intersecting and mutual development for all disciplines. It can give us more opportunities to learn not only how to do research, but also how to behave. It seems that it is the weak point for a special technical university to have such comprehensive cultural activities in human society. At last, the new university provides much more fields or places for technologies of surveying and mapping to apply in or integrate, such as environment science, environmental engineering, ecology and Geophysics ect..

In the new university, the scientific structure for high education of surveying and mapping still remains, more exactly, is enhanced and improved. Among 28 schools of the university, 4 schools are involved in surveying and mapping:

1. The school named “ surveying and mapping ” derives from Geodesy & Engineering Surveying. It will strengthen integrated techniques of surveying and mapping and meanwhile,it will also stress on Satellite Positioning and Navigating,and Geo-space Physics(app.120 staff and over 1200 students);
2. The school named “Remote Sensing Information engineering ” derives from photogrammetry and remote sensing. It will pay more attention to electronic information engineering ,graphs and images.It also can apply image analysis techniques to medicine image diagnostics(app. 80 staff and 1200 students);
3. The school named “Resources and Environment ” derives from Cartography & GIS. It will put emphases on their applications in resources and environment by

- assembling the specialities of Environmental Sciences and Environmental Engineering from other 2 universities(app. 140 staff and over 1400 students);
4. The school named “Urban Studies” lays stress on combining aero- photo interpretation and GIS with urban planning and management. This gathers 2 parts- architecture and urban planning from 2 universities (app.80 staff and over 800 students).

These 4 schools are the key units for fostering professionals of surveying and mapping with BSc,MSc and PhD. Besides these schools ,there are one state’s key Laboratory named “The State’s key Laboratory of Cartographical, Remote Sensing and Information Engineering” and one state’s Engineering Technology Research Centre of Satellite Position-Fixing System which only run Msc and PhD programs.

3. REFORMATION OF THE EDUCATION SYSTEM FOR SURVEYING & MAPPING

In the schools, there are several departments/ offices and laboratories. The staff of the offices is grouped to be in charge of teaching theoretic courses and each staff should be qualified to teach more than 2 courses. And staff of the laboratories is responsible for practical parts. In order to enhance practical parts, we set up several practical bases outside school , which are assisted by some employing units such as Bureau of Land Management ,and Bureau of surveying and Mapping, especially for comprehensive training in application of integrated techniques.

Now, we focus on the 4-year BSc program. The program in our university obviously presents the following characteristics:

- 1) Laying stress on developing knowledge strengthening foundation training ability and improving quality especially focusing on creative ability of the undergraduates. Theory courses and practices curricular activities and extracurricular activities are well designed in the matter of contents and forms .We pay more attention to motivating the thirst for knowledge. More questions, more discussions and learning by doing are very helpful to cultivate the creative ability.
- 2) Paying more attention to developing individuality/personality building up features and superiority based on the generality of the qualified professionals. 15 out of total teaching hours in 4 years - 2500h selective courses are designed for students to develop their own knowledge and ability. They are all required to take part in extracurricular activities. They can chose some according to their own interests and attributes in order to build up their superiority.
- 3) Putting emphasis on combining theory with practice especially with some real engineering projects of technique application. It is very important to give some real chances to students for educate their sense of responsibility and the ability of analyzing and solving problems. Let them experience success by making great efforts.
- 4) Attaching importance to multi-means and multi-processes to educate the undergraduates particularly with regard to the curricular and extracurricular activities.

The curricular activities are main processes and required to give academic records to students. The contents and the names of courses are very important for students to

demonstrate their knowledge and ability. The qualities of the text books and teachers are guaranteed. Extracurricular activities are organized into groups which are directed by some qualified staff.

All students are encouraged to take part in some research work especially related to their specialty.

- 5) giving prominence to the interaction between teaching staff and students at different levels and in various aspects.

Instructional and supervisory effects of all teaching staff different position age specialty and superiority etc on educating students in all kinds of activities should be brought into full play.

- 6) taking the advantage of our favorable factors to create a wonderful environment for education.

In 4 years, we have about 2500 teaching hours for courses and about 32 weeks for practices and graduation paper (design).

For courses, we distinguish them as compulsory courses and selective courses. The structure of courses is as following:

- (1) Common and basic courses, such as Math's, Physics, Philosophy, Basic laws, Computer science and technology, and English etc. (compulsory course, 45% out of total teaching hours).
- (2) Kernel specialty courses, including 12 basic courses covering the whole process of data acquiring, data analyzing, data processing, data representing and data application (compulsory course 22%). They are An Introduction To Surveying & Mapping, Surveying, Geography, Error Theory, Cartography, principle of Globe Positioning System and its Application, Computer Graphs, Cadastral Surveying & Land Management, Geography Information System, and Management of Surveying & Mapping.
- (3) Courses for the specific directions of the original specialty such as Geodesy, Engineering Surveying and Cartography etc. (auxiliary selective or selective courses, 16%). For the Cartography direction, we select several courses such as Art Design of Maps, Thematic Mapping Engineering, Map Projection and Map Analysis etc.
- (4) Courses for widening the application scope of the techniques of surveying and mapping, and some relevant supporting techniques and methodology (selective course, 10%).
- (5) Courses for improving some quality, such as resources & environment and their sustainable development, social intercourse and literature works appreciation etc. (auxiliary selective or selective courses, 7%).

For practices, we have 24 weeks for common bases, such as Digital Terrestrial Surveying (4W), Computer Operation (1W), Data Processing (1W), Photogrammetry & RS(2W), GPS (2W), Mapping (2W), and 8 weeks for the special directions, such as for Photogrammetry & RS, intending Special Photogrammetry (2W), 4D Production (4W), Data Base Design (1W), and Digital image Processing (1W). 10 weeks are specially for the graduation paper (design).

We are encouraged to have some real engineering projects of integrated techniques for practice.

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