

ON SOME ASPECTS OF TRAINING DIGITAL CARTOGRAPHY AND GIS SPECIALISTS IN UKRAINE

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Abstract

Based on the system analysis the model of the specialist has been formed, the conception of the knowledge base has been determined as well as the contents of the education programmes.

The world experience has proved that modern society cannot develop efficiently without the highly developed informatization, i. e. such a social process in which man contacts with his environment through information relations, namely communication systems.

The development of information in Ukraine acquired a state significance. It is claimed that in the near future the informative processes will exert a considerable impact, on social, economic, legal, technological and even psychological state of our society. We should like to indicate some spheres of informational influence: - administration of territories, as well as economics location of productive and non-productive efforts of our society, employment of work force, migration processes, decision making in extreme and critical situations; - management of technological processes in production and non-production areas; - impact on social aspects and everyday life; - education and research.

To achieve a high level of social informatization it is necessary to meet a number of requirements and to create an efficient foundation for proper functioning of information systems and technologies. Among the most important ones are: legal foundation, technical means of informatization, technological support, telecommunication networks, personnel.

Ukrainian government are aware that GIS, a general tool for the efficient and objective management of territories, is one of the most important part of any informatization. To realize all the aspects proper functioning of GIS the Cabinet of Minister has created State Committee for informatization systems. This state consultative body determines the strategical development of GIS in Ukraine and coordinates the activity of respective ministries, research centres and educational institutions.

Ukraine possesses everything necessary for implementation of modern geoinformation technologies. We have a great experience in theoretical studies, highly skilled personnel, own cartographic industry. GIS belongs to a particular kind of information systems which involves mathematics and cybernetics, cartography and remote sensing, image processing and computer graphics, data bases and data banks, etc.

The analysis of perspective trends in the development of geoinformatics, critical review of the introduction of automatized technologies led us to the decision in 1989 to establish a streamlined training of specialists in geoinformation systems and technologies at university level.

In 1993 the Ukrainian Cabinet of Ministers officially established the new speciality as

"Geoinformation Systems and Technologies". State University "Lvivska Politechnika" was the first to introduce it in our syllabus, Slavonic University in Kiyiv was the second. Some courses of GIS are taught in the universities of Kiyiv, Kharkiv and Odesa.

It should be noted that the development of the new speciality here isn't a simple process. It didn't exist in the USSR, Ukraine being a part of the USSR didn't possess specialists, lists of disciplines, academic plans, methodological literature in this field.

State University "Lvivska Politechnika" provides instruction for functions: - designing, development and maintenance of geoinformation systems; - technological support of the functioning of geoinformation systems which involves collection and preliminary processing of geoinformation, creation of archives creation of data bases, management and manipulation of these data, their analysis; - adaptation of commercial programme products of GIS to specific tasks (cadastre, registration systems, ecology, remote sensing, territorial administration and so on); - realization of digital cartography problems (digital plans and maps, digital models, electronic maps and atlases, etc.).

Training of the specialists at our University falls into two stages: the first stage-bachelor, the second stage - engineer.

The Bachelor gets instruction in the basic speciality "Geodesy, Cartography and system of land tenure" during four years of study. The syllabus consist of four blocks of subjects.

The first block provides humanitarian training and includes the following subjects: History of Ukraine, Ukrainian-business language, Ukrainian and foreign culture, philosophy, fundamentals of economic theories, fundamentals of law, sociology, psychology, foreign languages, physical training - 1350 academic hours.

The fundamental subjects of the second block are: linear algebra, analytical geometry, mathematical analysis, mathematical statistics, physics, general chemistry, mathematical cartography, foundation of computers and programming, metrology and standartization, fundamentals of ecology - 1674 academic hours.

The third block provides general technical training in theoretical mechanics, radioelectronics, geodesy, geodetic devices, mathematical processing of geodetic measurements, fundamentals of higher geodesy, fundamentals of system of land tenure and cadastre, geodetic astronomy, fundamentals of spase geodesy, fundamentals of geodesy engineering, topography, topographic drauwing, photogrammetry aerospace surveying and remote sensing - 2592 academic hours.

The fourth block, which provides the bachelor degree, includes: computer complexes and systems, cartography, theoretical foundation of GIS, fundamentals of designing and maintenance of GIS, data bases and data banks, computer graphics and image processing, interpretation of aerospace survey, fundamentals of economic and organization of cartographic production.

One third of the general number of hours is devoted to independent work.

The students are offered a number of selective subjects such as mounting, editing and producing maps, modelling of photogrammetric processes on computers, applications of remote sensing in ecological research, automatization of geodetic measurements, etc.

Each year of study is followed by academic practical work lasting 7 weeks.

To acquire the qualification of an engineer it is necessary to study for another year and a half or 3132 academic hours. The first year of study is followed by 17 weeks of field work. At the end of the studies the students work at their degree papers (16 weeks) and presents it to State examination Board.

Our Engineers take the following courses: economics and organization of cartography production, cartographic modelling, digital cartography of planets and their satellites, photogrammetry and remote sensing, geoinformation technologies (designing, development and maintenance of GIS), management and marketing, patents and licencing, a foreign business language.

In addition to that, the programme of master degree is carried out for most capable students who already have the degree of the engineer. It lasts a year and a half and is based on individual plans.

In developing the educational and methodological material in "Lvivska Politechnika", the working group headed by Professor Dorozhinskiy, took into account of the experience of Ukrainian higher school in teaching geodesy, cartography computer technologies, systems of automatized designing.

At present the weakest place in the educational process is the absence of necessary number of powerful graphic stations and commercial programme products of GIS. The economic crisis in Ukraine doesn't promote the technological progress, this process being the result of postemperial stage in the development of our country. However the market of geoinformation technologies tends to increase, which ought to become the basis for cooperation with western enterprises and companies.

The authors believe that the 17 th Cartographic Conference will promote the solution of a number of scientific and research problems of geoinformations. We hope to get support in joint projects, exchange of educational programs as well as exchange of specialists students, postgraduate students both at a state and individual level.

References

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