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### ПРОГРАМИ ПІДГОТОВКИ МАЙБУТНІХ ІТ-МЕНЕДЖЕРІВ В УНІВЕРСИТЕТАХ США: ЗМІСТОВИЙ АСПЕКТ

**Анотація.** Автором статті обґрунтовано актуальність порушеної проблеми. Розглянуто зміст поняття «освітня програма» та виокремлено основні структурні елементи, що мають бути наявними в освітніх програмах згідно з Законом України «Про вищу освіту». На прикладах 3 університетів США різних типів виявлено та проаналізовано структурні особливості й змістове наповнення освітніх програм за напрямом «ІТ-менеджмент». Зроблено висновок, що структура усіх трьох програм є подібною, а змістове наповнення суттєво різниться. При цьому дисципліни в програмах можна умовно розділити на групи, хоча цей розподіл і є нерівномірним. Водночас усі 3 університети підкреслюють перспективність напрямку «ІТ-менеджмент» і великий попит на фахівців цієї спеціальності на ринку праці. Всі 3 програми є практико орієнтованими й спрямованими на ефективний розвиток умінь та навичок студентів.

**Ключові слова:** освітня програма; професійна підготовка; менеджмент інформаційних технологій; ІТ-менеджер.

### TRAINING PROGRAMS FOR FUTURE IT MANAGERS IN UNIVERSITIES OF THE USA: CONTENTS ASPECT

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**Abstract.** In the article, the content of the notion «curriculum» is revealed and the basic structural elements to be present in curricula in

accordance with the Law of Ukraine «On Higher Education» are identified. By examples of three U.S. universities of different types (a public research university, a private for-profit university and a private nonprofit online university), the structure and the content specifics of IT management curricula are singled out and compared. In particular, basic structural elements of the curricula (including academic program names, learning goals, requirements for enrollees, instructional methods and resources, credit hours, program duration, expected learning outcome, and courses) are analyzed in detail. It is concluded that although the curricula have a similar structure, the content differs significantly. Generally, all the disciplines can be roughly divided into 3 groups (Information Technology, Business and Leadership/Innovation) although this distribution is uneven. While two courses (Project Management and Financial Management/Cost Control Techniques) appear to be present in all the three curricula, other courses are rather different. Only one of three universities included the integrated course «IT Management» in its curriculum and combined technical and business or management components in the lion's share of other courses. At that, all the three universities emphasize the prospects of IT management as a highly promising area and the high demand for IT managers in the labor market. The three curricula are also practice-oriented and aimed at effective development of students' skills.

**Key words:** curriculum; professional training; information technology management, IT manager.

**Introduction.** Ukraine's framework education laws, including the National Education Development Doctrine and the National Strategy of Education Development in Ukraine till 2021, stress the significance of teaching and learning reforms and education content renovation. Among others, these tasks include studying and implementation in Ukraine the constructive foreign experience of future specialists training. In particular, when developing and improving curricula for future information technology managers (IT managers), it seems to be highly important to study the practice of these specialists training in the U.S. – the country which, on the one hand, is the world's IT leader and, on the other hand, has a well-developed system of career guidance and youth training.

**Analysis of recent studies and publications.** Thorough coverage of the conceptual framework of professional training renovation was provided by M. Lazarev, P. Luzan, N. Nychkalo [4], O. Padkevych, G. Romanova, L. Sushentseva, M. Weintraub, I. Ziaziun, and others. O. Banit [1], O. Elbrekht, M. Kobal, L. Lukianova [6], L. Nikiforova, A. Suschenko, S. Zhukov, and others explored general issues of professional training of specialists in management. I. Drach, N. Dudnik, M. Fediayeva, I. Hryshenko, L. Serheyeva focused their

studies on professional training of future managers in particular areas. At that, the curriculum content development for future IT managers has not been studied in detail yet and needs in-depth coverage in view of dynamics of such a relatively new subarea of management as IT management and the urgent need of the labor market in these specialists.

**The goal of this article** is to single out and analyze specifics of IT management curricula by examples of several U.S. higher educational institutions.

**The study results.** The Law of Ukraine «On Education» defines the curriculum as a single complex of educational components (disciplines, courses, individual tasks, tests, etc.) planned and organized in order to achieve established learning outcomes [3]. The Law of Ukraine «On Higher Education» specifies that the curriculum should detail requirements for applicants, the disciplines covered and their sequence, credit hours, and expected learning outcomes [2]. Definitions used in the U.S. education system are similar. For instance, the web portal of the Center for Research of Learning and Teaching at the University of Michigan reads that «the curriculum is an «academic plan» which should include: the purpose of the curriculum (i.e. goals for student learning), content, sequence (the order of the learning experience), instructional methods, instructional resources, evaluation approaches, and how adjustments to the plan will be made based on experience or assessment data» [7].

For the purpose of our study, we used the above parameters to analyze structural elements and the content of the curricula developed by three U.S. universities of different types where IT management is offered as a major graduate program: two traditional ones (a public university and a private university that have a similar number of colleges, the student population and the student-to-faculty ratios) and an online university (expectedly of an educational institution of this type, it has a much greater student population and a much higher student-to-faculty ratio than traditional on-campus universities).

Before comparing their curricula, let us give a short overview of the universities selected:

1. University of Texas at Dallas (UT) is a public research university in the University of Texas System. Founded in 1965, it offers more than 140 academic programs across its eight schools. A part of its programs is fully or partially available online. The student population is 28.8 thousand. The student-to-faculty ratio is 24:1.

2. Colorado Technical University (CTU) is a private for-profit university. Founded in 1965, it offers more than 100 academic programs across its six colleges. A great part of its programs is fully or partially available online. The student population is 25.5 thousand. The student-to-faculty ratio is 28:1.

3. Western Governors University (WGU) is a private nonprofit online

university based in Salt Lake City, Utah. Founded in 1997, it offers more than 60 academic programs across its four colleges. The student population is more than 110 thousand. The student-to-faculty ratio is 41:1.

The analysis of the IT management curricula offered by these universities showed that although the structure and presentation of them differ, they include all the above mentioned structural elements, including:

1. Academic program names. It is important to note that the names of the three programs under study are a bit different: the UT considers IT and management to be two independent areas combined in one program (Information Technology and Management) [8]; in the CTU, students study IT management together with a related and more traditional area – project management (IT and Project Management) [5]; and in the WGU, IT management is taught as an integrated and independent area (Information Technology Management). Both in the CTU and the UT, the programs under study are delivered by business schools while on the WGU web portal the program can be found both in the categories «Business» and «IT» [9].

2. Learning goals are similar in the three universities – to develop students' skills and knowledge in financial areas, project management, etc. for their IT management career growth.

3. Requirements for enrollees are included in the curricula of all the three universities, their level of detail being different. The most nuanced this section is in the UT curriculum.

4. Instructional methods and resources are offered in the WGU curriculum in the greatest detail. In particular, it reads that «WGU works with many different educational partners, including enterprises, publishers, training companies, and higher educational institutions, to provide high-quality and effective learning resources... These vary in type, and may be combined to create the best learning experience for your course. A learning resource can be an e-textbook, online module, study guide, simulation, virtual lab, tutorial, or a combination of these» [9].

5. Course sequence. All the three universities stress offering a choice of tracks to their students and the courses preparing their students to take exams for other certification exams they many need.

6. The credit hours the curricula cover vary from 30 in the WGU to 36 in the UT and 48 in the CTU.

7. Program duration is 1.5-2 years both in the UT and the WGU. In the CTU, it depends on payment and the number of courses taken a semester. There is a calculator on the university web portal enabling students to estimate their costs, potential savings and graduation date.

8. Expected learning outcome. All the three universities list the certificates they offer to their graduates and stress prospects of the in-demand

job of IT managers.

9. Courses. All the three curricula list the disciplines offered. Considering the weight of this section, let us analyze it in detail: compare the presentation (grouping of disciplines) and the areas of these disciplines.

In the UT curriculum, all the courses are traditionally divided into core, elective and optional ones. There are 50 core and elective courses on the list, and students are to select 12. Besides, a wide range of optional courses (40) is offered. The CTU curriculum lists only core courses – they are 12. The WGU offers 9 courses, and the list of them can be viewed as grouped by semesters or areas. To sum up, let us note that although the presentation logic is different for the three universities, the amounts of the courses offered are comparable.

Moving on to analysis of disciplines in the curricula, we should note that to make the comparison meaningful, only core courses will be considered in the UT, and the rest its courses will be analyzed separately.

For our purpose, disciplines in the three curricula may be roughly divided into three groups: IT, Business, and Leadership/Innovation (table 1).

*Table 1*

**Distribution of disciplines by area in IT management curricula**

<b>UT</b>	<b>CTU</b>	<b>WGU</b>
<b><i>IT</i></b>		
Systems Analysis and Project Management	Project Management Processes in Organizations	Project Management
Data Management	Database Analysis, Design and Implementation	IT Sourcing and Development in a Global Economy
Statistics and Data Analysis	Relational Database Management Systems	IT Management
Programming (Java or Python)	Network Administration	–
–	Networking and Telecommunications	–
–	Information Technology Systems Development	–
–	IT Systems Implementation	–
<b><i>Business</i></b>		
Financial Management	Schedule and Cost Control Techniques	Financial Management for IT Professionals
Business Economics	Contracting and Procurement in Project Management	–
Marketing Management	Project Planning, Execution and Closure	–

Operations Management	–	–
Accounting for Managers	–	–
<b>Leadership/Innovation</b>		
Innovation and Entrepreneurship	Strategic Management in Dynamic Environments	Current and Emerging Technology
Organizational Behavior	–	Technological Globalization
–	–	Managing Technology Operations and Innovation
–	–	Technical Communication
–	–	Power, Influence and Leadership

Source: developed by the author on the base of [5; 8; 9]

As Table 1 shows, the UT has the most even distribution of courses by area. The CTU pays maximum attention to development of its students as IT specialists and the minimal one to their development as future leaders and managers as well as to their basic business education. By contrast, the WGU offers no courses directly related to IT and focuses on preparing its students to the dynamic global economic environment. While two courses (Project Management and Financial Management/Cost Control Techniques) are present in all the three curricula, other courses are rather different. Let us note that the WGU curriculum is the only one among the analyzed which includes the integrated course «IT Management» and where the lion's share of other courses combine technical and business or management components thus stressing the pioneer spirit of this online university.

Reverting to the electives and optional courses offered to students in the UT, let us note that 2/3 of the electives are related to IT and the rest are related to management. The optional courses are mostly related to IT and are split into five groups (specific tracks): Enterprise Systems, Business Intelligence and Analytics, Cyber Security Management, IT Consulting, and Services Management Healthcare Systems.

*Conclusions and prospects for further research.* The conducted analysis has showed that the three curricula under study include all the required structural elements, their presentation logic being a bit different. By contrast, the curricula differ significantly in content. Training future IT managers, the UT and CTU focus on the IT area while the WGU places special emphasis on developing its students' global mindset and leadership skills. At that, the UT offers a wider range of economic courses while the CTU concentrates on training its students to deal with projects, which corresponds to the names of their academic programs. All the three universities emphasize the prospects of

IT management as a highly promising area and the high demand for IT managers in the labor market. The three curricula are practice-oriented and aimed at effective development of students' skills. Further studies could aim at a more extensive review of the content specifics of IT management curricula in the U.S. with a view to implementation of their constructive experience in Ukraine.

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### **ДІЯЛЬНІСТЬ УНІВЕРСИТЕТІВ ТРЕТЬОГО ВІКУ В РЕСПУБЛІЦІ ПОЛЬЩА**

**Анотація.** У статті обґрунтовано актуальність порушеної проблеми. Діяльність університетів третього віку в Республіці Польща