УДК 678.17:665.347 doi: 10.20998/2220-4784.2019.15.14

S. I. BUKHKALO, A. O. AGEICHEVA, S. P. IGLIN, Yu. N. HLAVCHEVA, N. N. MIROSHNICHENKO, O. I. OLKHOVSKA, V. O. OLKHOVSKA,

INNOVATIVE COMPLEX PROJECTS'2018/2019 REALIZATION IN THE EXAMPLES AND TASKS

The materials presented of innovative development complex projects for the master class XVI International School-seminar "Modern pedagogical technologies in Education". The materials are devoted to the results of researches of properties of technical and tecnological innovations of modern systems'2018/2019 as object intellectual property and distance learning, and also to the methods, models and systems of their mathemetical description in the power studies and baseness. In this, phase of work in NTU KhPI" – studies the possibility of complex properties of intellectual property objects in the competency development system increasing the economic efficiency of new alternative energy sources. A review of the literature and the necessary articles written on the subject: as technologies and economies develop and become more complex, energy needs increase greatly; types and evidence-based methods of new energy and material resours, as well as the possibility of calculating the basic set of main economic indicators are classified; identified possible areas of work in obtaining the necessary information and results. Energy is a fundamental input for economic ecological safety systems. It is determined that technical means should provide a program of students' work on the content of the educational material (program of its learning process), a combination of training and education functions, strengthening the control and self-control of the process and its results of the process of learning knowledge, assistance in implementing the ideas of differential and problem learning.

Keywords: intellectual property; distance learning; integrated technologies; evidence-based methods; ecological safety.

С. І. БУХКАЛО, А. О. АГЕЙЧЕВА, С. П. ІГЛІН, Ю. М. ГЛАВЧЕВА, Н. М. МІРОШНІЧЕНКО, О. І. ОЛЬХОВСЬКА, М. М. ЗІПУННІКОВ, В. О. ОЛЬХОВСЬКА

ИННОВАЦІЙНІ КОМПЛЕКСНІ ПРОЕКТИ'2018/2019 У ПРИКЛАДАХ І ЗАДАЧАХ

У матеріалах статті розглянуті можливості для визначення цілей подальшої розробки складових комплексних проектов'2018/2019 у вигляді прикладів об'єктів інтелектуальної власності. Розробки проведені з метою вибору сучасних високоефективних науково-обгрунтованих технологій використання: 1) різновидів сировини; 2) полімерної тари та упаковки на різних стадіях експлуатації та утилізації. Представлені приклади і деякі особливості можливих рішень, які засновані на експериментальних даних розробки механізмів ідентифікації-класифікації процесів і їх наукового обгрунтування у вигляді об'єктів інтелектуальної власності. Проблема утилізації відходів розглядається у вигляді складних комплексних процесів, їх досліджень і аналізу енерго- і ресурсозберігаючих складових для відходів різного походження. Результати досліджень по утилізації полімерної тари та упаковки можуть бути використані для вибору методів повторної її переробки – модифікації або утилізації.

Ключові слова: інтелектуальна власність; дистанційна освіта; комплексні інноваційні проекти; науково обгрунтовані методи; екологічна безпека.

С. И. БУХКАЛО, А. О. АГЕЙЧЕВА, С. П. ИГЛИН, Ю. Н. ГЛАВЧЕВА, Н. Н. МИРОШНИЧЕНКО, О. И. ОЛЬХОВСКАЯ, Н. Н. ЗИПУННИКОВ, В. О. ОЛЬХОВСКАЯ

ИННОВАЦИОННЫЕ КОМПЛЕКСНЫЕ ПРОЕКТЫ'2018/2019 В ПРИМЕРАХ И ЗАДАЧАХ

В материалах статьи рассмотрены возможности для определения целей дальнейшей разработки составляющих комплексных проектов'2018/2019 в виде примеров объектов интеллектуальной собственности. Разработки проведены с целью выбора современных высокоэффективных научно-обоснованных технологий использования: 1) разновидностей сырья; 2) полимерной тары и упаковки на различных стадиях эксплуатации и утилизации. Представлены примеры и некоторые особенности возможных решений, которые основаны на экспериментальных данных разработки механизмов идентификации-классификации процессов и их научного обоснования в виде объектов интеллектуальной собственности. Проблема утилизации отходов рассматривается в виде сложных комплексных процессов, их исследований и анализа энерго- и ресурсосберегающих составляющих для отходов различного происхождения. Результаты исследований по утилизации полимерной тары и упаковки могут быть использованы для выбора методов повторной ее переработки – модификации или утилизации.

Ключевые слова: интеллектуальная собственность; дистанционное образование; комплексные инновационные проекты; научно обоснованные методы; экологическая безопасность.

Introduction. General issues of innovative development complex projects for the master class XVI International School-seminar "Modern pedagogical technologies in Education" January 30 - February 1, 2019 p. were presented and investigated jointly with the seminar audience in the presentations form with the general theme "Definition and formation of intellectual property complex competency development objects» [1-4]. The presentation was consisted of the main parts:

1) Complex Properties of Intellectual Property Objects in the Competency Development System – prof. Bukhkalo Svitlana Ivanivna, National Technical University «KhPI», Kharkiv;

2) Intellectual property peculiarities in education competence system – docent Ageicheva Anna Oleksandrivna, Poltava National Technical Yuri Kondratyuk University, Poltava.

The presented materials are combined with a common theme technology in education, education technology and educational technology.

Master class general problem issues [1] include the notion of "educational technology", which is broader than "pedagogical technology" (for pedagogical processes).

Education includes, apart from pedagogical, a variety of social, socio-political, managerial, cultural, psychological and pedagogical, economic and other related aspects. On the other hand, the concept of "educational technology" refers to all sections of pedagogy, taking into account technology in education and technology of education.

At implementation of our complex projects development in the educational process we have obtained practical results promoting the development of intellectual and organizational skills of students who form the skills of independent, organizational and collective activities is competence, communication skills, creativity and personality of the head who generally contribute to the intensive development of scientific and technical creativity of graduates, as well as raising the general cultural level of students.

These are also developments in the field of:

1) detection and development of students' profile creative abilities, taking into account motivation to research and development activities;

2) creating the necessary conditions for supporting talented students; development the criteria for the quality of training, corresponding to the tasks and requirements of students scientific research;

3) the development of various forms of educational technology and the organization of activities aimed at the development of young athletic skills;

4) building relations with a "clean sheet";

5) research scientific novelty;

6) horizons expansion;

7) different sources usage;

8) applications preparation for international funds and programs related to the implementation of scientific developments and university patents;

9) assisting in project applications preparation, business plans and other documents in the scientific and technical field;

10) projects, programs, funds, grants monitoring and studying the possibility of participating at the university;

11) participation in the creation of partners network of international organizations on the implementation of scientific innovation projects;

12) scientists and creative teams attraction for realization scientific and technical and innovative developments;

13) interaction with representatives of the authorities in the field of program and project activity;

14) participation of the university in scientific and technical exhibitions organization, sharing information related to carried out projects, innovative developments, technical and scientific achievements in the mass media [1–3].

The presented work is based on the foundations choice and the concept methods of complex innovative projects (Table 1) with the aim of continuous implementation of the competences system in the educational process by types:

1) the discipline scope, which is taught at one department (on the basis of a course project or research work);

2) several special disciplines scope, which are taught at one department (based on course papers and bachelors projects – figure 1);

3) several special disciplines scopes, which are taught at different departments (based on course papers and projects of bachelors and masters – figure 2).

If you're an excellent communicator who wants to work with projects and are ready to enter a highly competitive industry, it could be your perfect job.

The main factors in the organization of student training, for example, in complex innovative projects, are the updating of their components intellectual property objects.

For example to submit the problem of wastes utilization and recycling is present as complex research and analysis of energy- and resource saving processes for treatment of polymer wastes of various origin [1–5].

Table 1. Fundamentals of complex innovative projects

№	Stages of the functional scheme of the project
1	Understanding and analysis – innovative technologies
2	Analysis of the status of the scientific problem
3	Search for possible options – investment strategy
4	Study of accumulated results
5	Analysis of general and basic regularities
6	Determination of settlement dependencies
7	Realization of necessary calculations
8	Analysis of the results
9	Entering results into project components
10	Assessment of technical support capabilities
11	Development of innovative technology

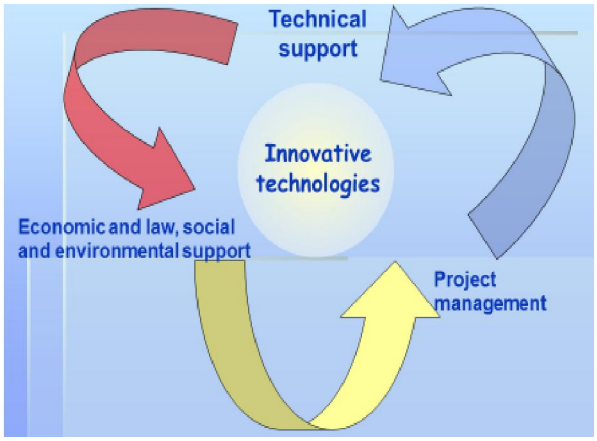

Figure 1. Design technology improvement areas

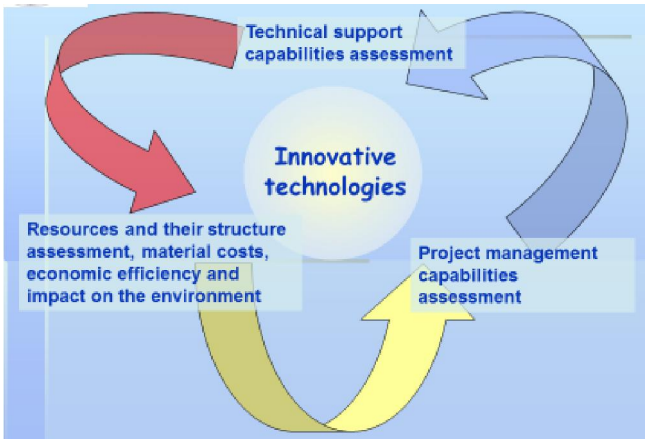

Figure 2. Techniques for improving design technology

It is necessary to determine the possibilities for further development of complex innovative projects:

1) updating of identification and analysis methods,

2) devices and equipment for research within the framework of complex innovative projects, which is the main factor determining,

3) the volume and type of intellectual property objects for the realization of the experimental results, taking into account the algorithms determined by us.

When implementing the latest development in the educational process, the practical results obtained – the promotion of the intellectual development and organizational students` capacity, forming the independent skills, organizational and collective activities – is the competence, communication skills, creativity and personality of the manager, which generally contribute to the intensive development of scientific- technical creativity of graduates. [6].

Table 2. General conclusions and recommendations of innovative complex projects

№	Stages of the functional scheme of the project
1	Access to the market of innovative offers and expansion of the sales market
2	Development of the concept of innovation and execution of research works
3	Search for optimal components of objects and justification of optimal process parameters
4	Assessment of technical support capabilities
5	Assessment of resources and their structure, material costs, economic efficiency and impact on the environment
6	Investigation of the features of the developed task processes
7	Investment strategy for innovative technologies
8	Project management
9	Economic-law, social and environmental support

Table 3. The effect of process parameters on secondary polymer properties in foaming

Characteristic	Function
Y_1	$Y_1 = 2987{,}50 + 237{,}50x_1 + 362{,}50x_2 + 337{,}50x_3 + 12{,}50x_1x_2 + 37{,}50x_1x_3 - 187{,}50x_2x_3 + 12{,}50x_1x_2x_3$
Y_2	$Y_2 = 44{,}91 + 6{,}58x_1 + 7{,}27x_2 + 9{,}45x_3 - 0{,}28x_1x_2 + 1{,}82x_1x_3 - 5{,}12x_2x_3 - 5{,}22x_1x_2x_3$
Y_3	$Y_3 = 0{,}17 + 0{,}0004x_1 + 0{,}0007x_2 + 0{,}0009x_3 + 0{,}0001x_1x_2 + 0{,}00013x_1x_3 - 0{,}0004x_2x_3 - 0{,}0009x_1x_2x_3$
Y_4	$Y_4 = 0{,}280 - 0{,}083x_1 - 0{,}120x_2 - 0{,}130x_3 - 0{,}002x_1x_2 - 0{,}007x_1x_3 + 0{,}050x_2x_3 + 0{,}073x_1x_2x_3$

The problem of wastes utilization and recycling is present as complex research and analysis of energy- and resource saving processes for treatment of polymer wastes of various origin [1–5].

Reserves of cooperation for the further identification and formation intellectual property objects of complex competency development are connected with the introduction into the educational process of partner

interuniversity relations which enable to obtain positive results: types growth, quality and quantity of intellectual innovative products in higher educational establishments;, quality and quantity of innovations developed and implemented in practice in the field of new design and technological solutions.

Examples of innovative complex projects are developed based on directions and methods of design technology improvement, taking into account the conducted complex experiment and calculations in the course of performing laboratory and practical disciplines. The implementation of innovative complex projects was carried out within the range of disciplines in accordance with the curricula for students of different faculties and universities [1, 2].

As an example of synergetic approach to polymer utilization the chemical foaming method of the polyethylene waste is developed. The experiments to determine the influence of process parameters on the characteristics of polyethylene obtained after recycling process were performed. As the controlling parameters (factors) are taken: X_1 is the relative amount of foaming chemicals, %; X_2 is the temperature of foaming, ºC; X_3 is the time of treatment at foaming temperature, min. The characteristics of the obtained polymer are: Y_1 is the number of created cells per 1 sm^2 of the obtained polymer cross section; Y_2 is the relative volume of gas phase in a process of secondary polymer production, %; Y_3 is average diameter of cells; Y_4 is the density of secondary polymer.

The experiments with two level factorial design are performed at following range of factors: $X_{10} = 3$ %, $\Delta X_1 = 1$ %; $X_{20} = 170$ ºC, $\Delta X_2 = 10$ ºC; $X_{30} = 10$ min, $\Delta X_3 = 5$ min.

The resulting functions are presented in Table 3 and Figure 3, 4 for

$$Y_4 = 0,280 - 0,083x_1 - 0,120x_2 - 0,130x_3 - 0,002x_1x_2 - \\ -0,007x_1x_3 + 0,050x_2x_3 + 0,073x_1x_2x_3 .$$

The investigation are focused in researching such problems as organization of waste collection, transportation and identification of wastes according to adapted polymers classification (Figure 5 and 6); selection of scientific based methods of wastes to be utilized or recycled; the development of appropriated process flow sheets and choice of modifications additives and equipment for polymers waste recycling as renewable energy sources.

The choice of appropriate plants with selected energy resources is very important for projects realization [6–11].

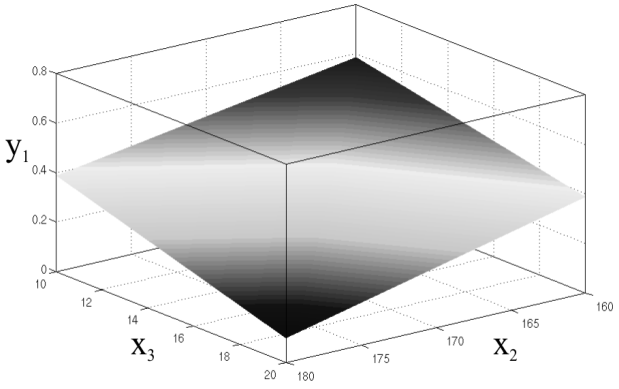

Figure 3: $X_1 = 4$

$$Y_4 = 0,280 - 0,083x_1 - 0,120x_2 - 0,130x_3 - 0,002x_1x_2 - \\ -0,007x_1x_3 + 0,050x_2x_3 + 0,073x_1x_2x_3$$

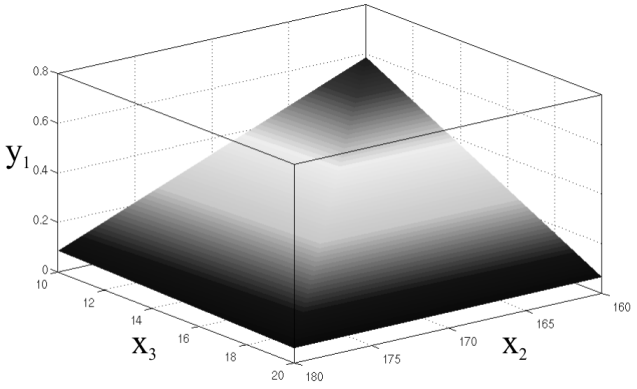

Figure 4: $X_1 = 2$

$$Y_4 = 0,280 - 0,083x_1 - 0,120x_2 - 0,130x_3 - 0,002x_1x_2 - \\ -0,007x_1x_3 + 0,050x_2x_3 + 0,073x_1x_2x_3$$

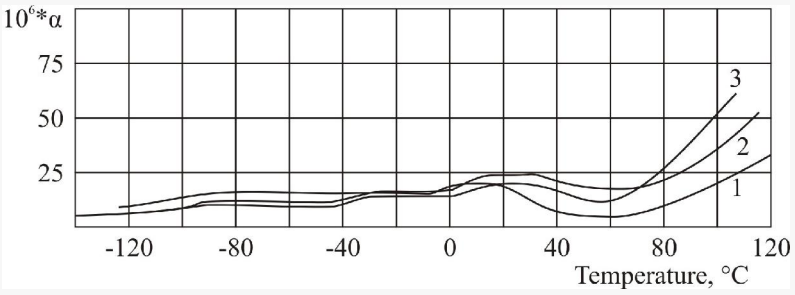

Figure 5. Functions $\alpha_T = f(T)$ dependence and recycled polyethylene with different amounts of gel fraction, %: 1 – 17; 2 – 34; 3 – 42

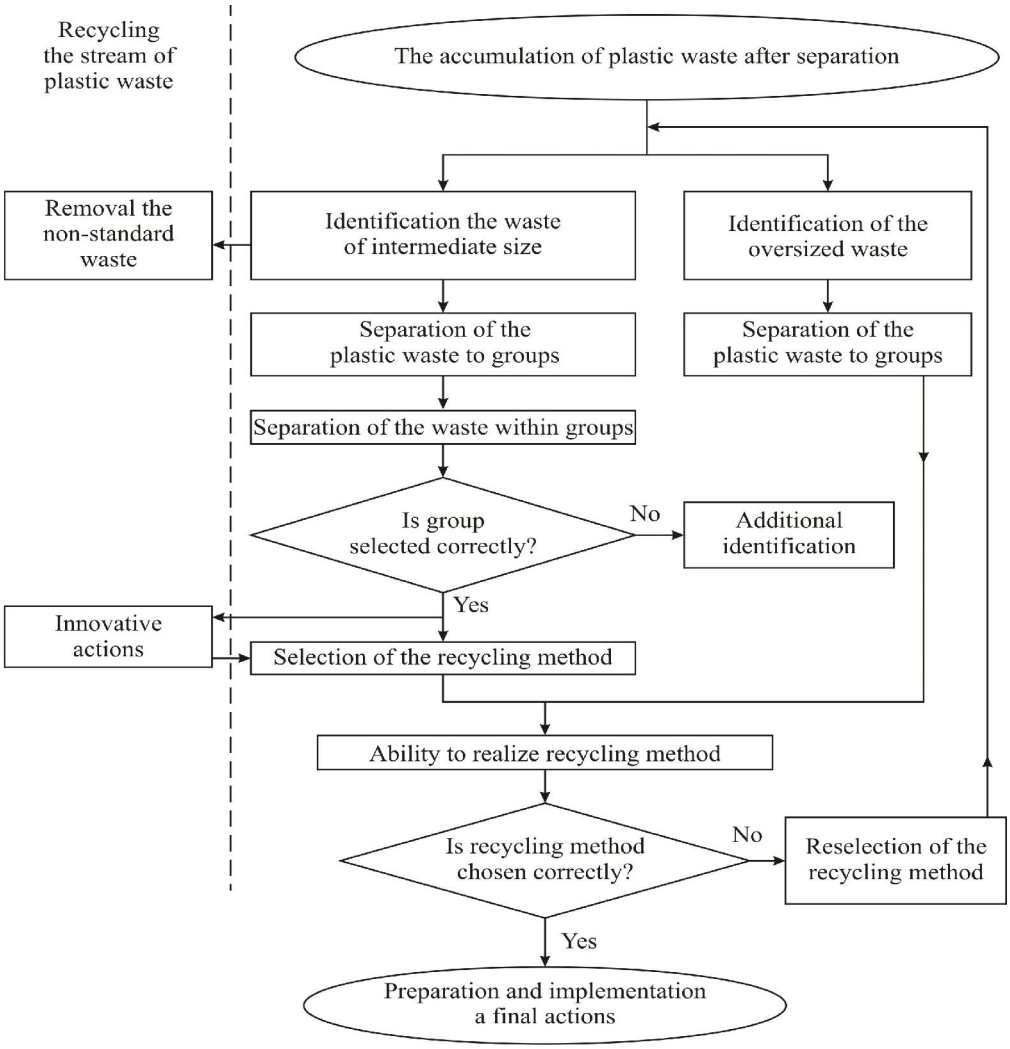

Figure 6. Study and analysis of identification

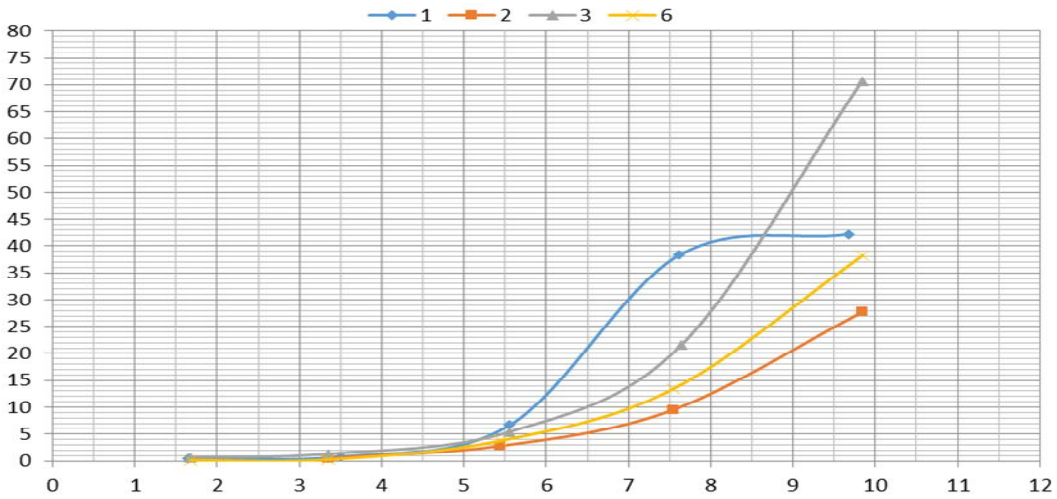

Figure 7. Study and analysis of identification

Figure 8. Editions samples for integrated technology

Dough refers to structured disperse systems, its rheological properties (Figure 7) depend on the structure nature, due to the chemical composition, dispersion of particles and other factors, and determine the technology features of production of various products. The structural and mechanical characteristics, in particular, the viscosity of the conditional resistance, arising in the product during its machining, and are the initial data in the equipment design, devices for transportation and the optimal conditions choice for the processing of masses: the dough is divided into classes rheological bodies, which requires the choice of the corresponding calculation equation for describing the flow in technological machines and apparatuses. The rheological properties of disperse systems are characterized by a number of constants: the elastic modulus; strength; plastic viscosity, effective, differential, etc.

Comprehensive determination of the raw materials properties by students of participants in innovation course projects can be presented, for example, by rheological research to ensure the competitiveness of raw materials and products in Ukraine and in the world in accordance with the requirements of international standards and Ukrainian standards [1, 2]. Thus, the requirements for innovative course projects have been developed: experimental researches and complex analysis of a high-quality flour of four producers previously investigated by us (Figure 8).

Over 9 years of complex design application in the series "Innovative researches in students' scientific works" of the Bulletin of NTU "KhPI" on innovative themes of projects published more than 50 articles as project leaders and compatible articles with students from different universities, courses and faculties [1-3], as well as more than 10 tutorials and textbooks with a stamp of the Ministry of Education and Science of Ukraine (Figure 8).

Let us go forth and cooperate accurately, confidentially, completely, with integrity and professionalism. Projects build bridges between landscapes, people and history, reveals stories behind the scenery; and creates memorable and inspiring experiences.

Conclusions and recommendations.

The main result of the implemented innovation - the development of new educational technologies for the organization, execution and implementation of integrated inter-university innovation design to enhance the technical creativity of students. The pedagogical workshop contains the main methodological provisions of the project:

1) the variability of the task and the operation results of integrated innovation projects;

2) taking into account technological and other processes that depend on a large number of factors;

3) key competencies, features of the infrastructure,

type and status of all project components. A significant feature of the new educational technology is the presence of the main specific components of an optimally organized integrated innovation project as a new form of learning: a high degree of competence in the problem of faculty-organizers and, as a rule, there is sufficient practical and theoretical experience and interest in the issues solving unusual student problems during project development; professional methodological training of lecturers-organizers for the management of a comprehensive project, a rather high level of improvisation on the part of students, which necessitates the teacher's control over the process of obtaining the final result of the project; The main goals of the teacher's corrective actions are identification, allocation and elimination of the real reasons for the discrepancy of the results obtained in order to refer to the innovative result in the development of a comprehensive project in general.

Recommendations for further application are related to the availability in a higher educational institution:

- professional and creative decision of scientific, technical and organizational tasks;
- the possibility of expanding the educational provision and methodological literature and the application of technologies for the education integration and science;
- acquiring practical skills in real patent development;
- development of directions and technology of integrated game design;
- selection of modern complex objects for implementation of innovative technology;
- availability of testing and results dissemination in the form of articles, manuals, patent and licensed materials in magazines, exhibitions, international scientific and technical conferences on innovative methods of teaching and technical creativity of students;
- improvement of moral and material encouragement of students and teachers, etc.

The results are implemented in the technologies of modern high-efficiency methods for the processing of polymer solid wastes into products in the industry. Synergy for the formation of secondary polymer raw materials in the process of utilization-modification can be considered as the use of the features of chemical transformations in the polymer, taking into account that the main segmental movements, diffusion processes and chemical interactions occur in the amorphous phase of the polymer.

In complex systems development, project managem ent is a key factor for innovation, for bringing together sy stem capabilities to actually working systems and taking them to the customer. The critical question then is: How can successful project management in this field be conce ptualized, practiced, and understood? In the extant literat ure, there is a plethora of suggested tools for advanced pl anning and scheduling, for system decomposition and mo dularization, and for reducing interdependencies and avoi ding errors. There is also a growing criticism of these “pl anning approaches,” suggesting various contingency and flexibility approaches, to reflect and adapt to complexity and change. This critique, however, tends to lack ground ed suggestions for effective managerial practices and doe s not distinguish between general flexibility needs and sp ecific project structures required to make complex syste ms development at all possible [20].

We live in a world of constant changes. Decision making in public administration is influenced by many factors – demographic change, climate change, constraints of public finances, demand for better public services and bigger social benefits or technological transformation are just some of them. Many public administrations have come to the point where there is no easy solution to the problems, and moving on means structural reforms. We have to make decisions about whether a public administration has to continue to deliver services itself directly, should delegate them to the private sector or simply no longer take responsibility for them. The development of technology is much faster today than it was yesterday. People demand better public services that are digitalised, personal and user-friendly at the same time. It is a major challenge for public administration to keep up with the pace. In order to do that we need to be innovative and open to new ideas [21].

If you're an excellent communicator who wants to work with projects and are ready to enter a highly competitive industry, it could be your perfect job.

Projects builds bridges between landscapes, people and history, reveals stories behind the scenery; and creates memorable and inspiring experiences. Let us go forth and cooperate accurately, confidentially, completely, with integrity and professionalism. [17–21].

Список литературы

1. S. Bukhkalo, A. Ageicheva, O. Komarova. Distance learning main trends. Інформаційні технології: наука, техніка, технологія, освіта, здоров’я: тези доповідей XXVI міжн. н-пр. конф. MicroCAD-2018, 16-18 травня 2018р. Ч. II / за ред. проф. Сокола Є.І. Х :.НТУ «ХПІ». 205 с.
2. S. Bukhkalo, A. Ageicheva, I. Rozhenko. Distance learning investigation some aspects. Інформаційні технології: наука, техніка, технологія, освіта, здоров’я: тези доповідей XXVI міжн. н-пр. конф. MicroCAD-2018, 16-18 травня 2018р. Ч. II. / за ред. проф. Сокола Є.І. Х:.НТУ «ХПІ». 206 с.
3. Бухкало С.І. Особливості розробки об’єктів інтелектуальної власності зі студентами. Інформаційні технології: наука, техніка, технологія, освіта, здоров’я: тези доповідей XXVI міжн. н-пр. конф. MicroCAD-2018, 16-18 травня 2018р. Ч. II. / за ред. проф. Сокола Є.І. Х :.НТУ «ХПІ». 201 с.
4. Бухкало С.І., Іглін С.П., Ольховська О.І. та ін. Особливості управління розробками об’єктів інтелектуальної власності зі студентами. Інформаційні технології: наука, техніка, технологія, освіта, здоров’я: тези доповідей XXVI міжн. н-пр. конф. MicroCAD-2018, 16-18 травня 2018р. Ч. II. / за ред. проф. Сокола Є.І. Х :.НТУ «ХПІ». 208 с.

5. Бухкало С.І., Іглін С.П. Деякі моделі дослідження структурно-хімічних змін при експлуатації полімерних виробів. Інтегровані технології та енергозбереження. Х.: НТУ «ХПІ», 2016. № 3. С. 52–57.
6. Бухкало С.И. и др. Математическое моделирование как инструмент модификации отходов полимеров. Вісник НТУ «ХПІ». 2010, вип. 32, – с. 52–59.
7. Бухкало С.И. К вопросу энергосбережения процесса агломерирования полимерной упаковки. Інтегровані технології та енергозбереження. Х.: НТУ «ХПІ», 2005, № 2, – с. 29–33.
8. Бухкало С.І. Удосконалювання методів оцінки знань студентів вищих навчальних закладів. Вісник НТУ «ХПІ». Х.: НТУ «ХПІ». 2014, № 16, – с. 3–11.
9. Бухкало С.І. Синергетичні процеси утилізації-модифікації полімерної частки ТПВ. Вісник НТУ «ХПІ». – Х.: НТУ «ХПІ». 2017, – № 41 (1263), – с. 17–27.
10. Бухкало С.І. Синергетичні моделі для екологічнобезпечних процесів ідентифікації-класифікації вторинних полімерів. Вісник НТУ «ХПІ». – Х.: НТУ «ХПІ». 2018, – № 18 (1294), – с. 36–44.
11. Бухкало С.І., Ольховська О.І., Іглін С.П., Зіпунніков М.М. Можливості розвитку компетентностей екологічнобезпечних проектів утилізації-модифікації. Вісник НТУ «ХПІ». – Х.: НТУ «ХПІ». 2018, – № 18 (1294), – с. 3–9.
12. Bukhkalo S.I., Klemeš J.J., Tovazhnyanskyy L.L., Arsenyeva O.P., Kapustenko P.O., Perevertaylenko O.Y. Eco-friendly synergetic processes of municipal solid waste polymer utilization. Chemical Engineering Transactions, 2018, Vol.70, – pp. 2047–2052.
13. Товажнянский Л.Л., Бухкало С.І., Капустенко П.О. та ін. Загальна технологія харчової промисловості у прикладах і задачах. Підручник. – К.: ЦНЛ, 2011. – 832 с.
14. Товажнянский Л.Л., Бухкало С.І., Зіпунніков М.М. та ін. Загальна технологія харчової промисловості у прикладах і задачах (інноваційні заходи): Підручник. – К.: ЦНЛ, 2013. – 352 с.
15. Бухкало С.І. Загальна технологія харчової промисловості у прикладах і задачах (інноваційні заходи) [текст] підручник. – К.: ЦНЛ, 2014. – 456 с.
16. Бухкало С.І. Визначення загальної технології комплексних курсових проектів. Інформаційні технології: наука, техніка, технології, освіта, здоровья: тези доповідей XXVII Міжн. н-практ. конференції (MicroCAD-2019), 15–17 мая 2019 р.: у 4 ч. Ч. II. / за ред. проф. Сокола Є.І. – Харків: НТУ «ХПІ». С. 217.
17. Пріщенко О.П., Черногор Т.Т., Бухкало С.І. Деякі особливості проведення кореляційного аналізу. Інформаційні технології: наука, техніка, технології, освіта, здоровья: тези доповідей XXVII Міжн. н-практ. конференції (MicroCAD-2019), 15–17 мая 2019 р.: у 4 ч. Ч. II. / за ред. проф. Сокола Є.І. – Харків: НТУ «ХПІ». С. 320.
18. Сирку М.А., Бухкало С.І., Іглін С.П., Мірошніченко Н.М., Шкредов І.С., Пахнутова М.І., Шевчук Т.Р. Питання комплексного визначення властивостей сировини у межах курсових проектів. Інформаційні технології: наука, техніка, технології, освіта, здоровья: тези доповідей XXVII Міжн. н-практ. конференції (MicroCAD-2019), 15–17 мая 2019 р.: у 4 ч. Ч. II. / за ред. проф. Сокола Є.І. – Харків: НТУ «ХПІ». С. 342.
19. Ситник В.В., Яценко Б.С., Бухкало С.І., Сирку М.А., Касьян А.С., Оса О.В. Визначення експериментальних властивостей сировини у межах курсових проектів. Інформаційні технології: наука, техніка, технології, освіта, здоровья: тези доповідей XXVII Міжн. н-практ. конференції (MicroCAD-2019), 15–17 мая 2019 р.: у 4 ч. Ч. II. / за ред. проф. Сокола Є.І. – Харків: НТУ «ХПІ». С. 343.
20. Christian Berggren, Jack Järkvik, Jonas Söderlund. Lagomizing, organic integration, and systems emergency wards: Innovative practices in managing complex systems development projects. July 2008. Project Management Journal 39(S1), pp. 111–122. DOI: 10.1002/pmj.20065
21. Jaak Aab, Minister of Public Administration of the Republic of Estonia. Opening words. An Innovative Public Sector in 2017 New Solutions to Complex Challenges. European Institute of Public Administration/Institut européen d'administration publique Maastricht, the Netherlands/Pays-Bas www.eipa.eu 2017, 102 p.

References (transliterated)

1. S. Bukhkalo, A. Ageicheva, O. Komarova. Distance learning main trends. Informacijni tehnologiї: nauka, tehnika, tehnologija, osvita, zdorov'ja: tezi dopovidej XXVI mizhn. n-pr. konf. MicroCAD-2018, 16–18 travnja 2018. Ch. II / za red. prof. Sokola Є.I. Kharkiv: NTU «KhPI», 205 p.
2. S. Bukhkalo, A. Ageicheva, I. Rozhenko. Distance learning investigation some aspects. Informacijni tehnologiї: nauka, tehnika, tehnologija, osvita, zdorov'ja: tezi dopovidej XXVI mizhn. n-pr. konf. MicroCAD-2018, 16–18 travnja 2018r. Ch. II. / za red. prof. Sokola Є.I. Kharkiv: NTU «KhPI», 206 p.
3. Bukhkalo S.I. Osoblivosti rozrobki ob'єktiv intelektual'noї vlasnosti zi studentami. Informacijni tehnologiї: nauka, tehnika, tehnologija, osvita, zdorov'ja: tezi dopovidej HXVI mizhn. n-pr. konf. MicroCAD-2018, 16–18 travnja 2018 r. Ch. II. / za red. prof. Sokola Є.I. H :.NTU «HPI». 201 p.
4. Bukhkalo S.I., Iglin S.P., Ol'hovs'ka O.I. ta in. Osoblivosti upravlinnja rozrobkami ob'єktiv intelektual'noї vlasnosti zi studentami. Informacijni tehnologiї: nauka, tehnika, tehnologija, osvita, zdorov'ja: tezi dopovidej HXVI mizhn. n-pr. konf. MicroCAD-2018, 16-18 travnja 2018 r. Ch. II. / za red. prof. Sokola Є.I. H :.NTU «HPI». 208 p.
5. Bukhkalo S.I., Iglin S.P. Dejaki modeli doslidzhennja strukturno-himichnih zmin pri ekspluatacії polimernih virobiv. Integrovani tehnologiї ta energozberezhennja. H.: NTU «HPI», 2016. № 3, pp. 52–57.
6. Bukhkalo S.I. i dr. Matematicheskoe modelirovanie kak instrument modifikacii othodov polimerov. Visnik NTU «HPI». 2010, vip. 32, pp. 52–59.
7. Bukhkalo S.I. K vo¬prosu jenergosberezhenija processa aglomerirovanija polimernoj upakovki. Integrovani tehnologiї ta ene¬rgozberezhennja. H.: NTU «HPI», 2005, № 2, pp. 29–33.
8. Bukhkalo S.I. Udoskonaljuvannja metodiv ocinki znan' studentiv vishhih navchal'nih zakladiv. Visnik NTU «HPI». H.: NTU «HPI». 2014, № 16, pp. 3–11.
9. Bukhkalo S.I. Sinergetichni procesi utilizacії-modifikacії polimernoї chastki TPV. Visnik NTU «HPI». – H.: NTU «HPI». 2017, № 41 (1263), pp. 17–27.
10. Bukhkalo S.I. Sinergetichni modeli dlja ekologichnobezpechnih procesiv identifikacії-klasifikacії vtorinnih polimeriv. Visnik NTU «HPI». – H.: NTU «HPI». 2018, № 18 (1294), pp. 36–44.
11. Bukhkalo S.I., Ol'hovs'ka O.I., Iglin S.P., Zipunnikov M.M. Mozhlivosti rozvitku kompetentnostej ekologichnobezpechnih proektiv utilizacії-modifikacії. Visnik NTU «HPI». – H.: NTU «HPI». 2018, № 18 (1294), pp. 3–9.
12. Bukhkalo S.I., Klemeš J.J., Tovazhnyanskyy L.L., Arsenyeva O.P., Kapustenko P.O., Perevertaylenko O.Y. Eco-friendly synergetic processes of municipal solid waste polymer utilization. Chemical Engineering Transactions, 2018, Vol.70, pp. 2047–2052.

13. Tovazhnjanskij L.L., Bukhkalo S.I., Kapustenko P.O. ta in. Zagal'na tehnologija harchovoï promislovosti u prikladah i zadachah. Pidruchnik. – K.: CNL, 2011. – 832 p.
14. Tovazhnjanskij L.L., Bukhkalo S.I., Zipunnikov M.M. ta in. Zagal'na tehnologija harchovoï promislovosti u prikladah i zadachah (innovacijni zahodi): Pidruchnik. – K.: CNL, 2013. – 352 p.
15. Bukhkalo S.I. Zagal'na tehnologija harchovoï promislovosti u prikladah i zadachah (innovacijni zahodi) [tekst] pidruchnik. – K.: CNL, 2014. – 456 p.
16. Buhkalo S.I. Viznachennja zagal'noï tehnologiï kompleksnih kursovih proektiv. Informacijni tehnologiï: nauka, tehnika, tehnologiï, osvita, zdorov'ja: tezi dopovidej HHVII Mizhn. n-prakt. konferenciï (MicroCAD-2019), 15–17 maja 2019 r.: u 4 ch. Ch. II. / za red. prof. Sokola Є.I. – Harkiv: NTU «HPI». 217 p.
17. Prishhenko O.P., Chernogor T.T., Buhkalo S.I. Dejaki osoblivosti provedennja koreljacijnogo analizu. Informacijni tehnologiï: nauka, tehnika, tehnologiï, osvita, zdorov'ja: tezi dopovidej HHVII Mizhn. n-prakt. konferenciï (MicroCAD-2019), 15–17 maja 2019 r.: u 4 ch. Ch. II. / za red. prof. Sokola Є.I. – Harkiv: NTU «HPI», p. 320.
18. Sirku M.A., Buhkalo S.I., Iglin S.P., Miroshnichenko N.M., Shkredov I.S., Pahnutova M.I., Shevchuk T.R. Pitannja kompleksnogo viznachennja vlastivostej sirovini u mezhah kursovih proektiv. Informacijni tehnologiï: nauka, tehnika, tehnologiï, osvita, zdorov'ja: tezi dopovidej HHVII Mizhn. n-prakt. konferenciï (MicroCAD-2019), 15–17 maja 2019 r.: u 4 ch. Ch. II. / za red. prof. Sokola Є.I. – Harkiv: NTU «HPI», p. 342.
19. Sitnik V.V., Jacenko B.S., Buhkalo S.I., Cirku M.A., Kas'jan A.S., Osa O.V. Viznachennja eksperimental'nih vlastivostej sirovini u mezhah kursovih proektiv. Informacijni tehnologiï: nauka, tehnika, tehnologiï, osvita, zdorov'ja: tezi dopovidej HHVII Mizhn. n-prakt. konferenciï (MicroCAD-2019), 15–17 maja 2019 r.: u 4 ch. Ch. II. / za red. prof. Sokola Є.I. – Harkiv: NTU «HPI», p. 343.
20. Christian Berggren, Jack Järkvik, Jonas Söderlund. Lagomizing, organic integration, and systems emergency wards: Innovative practices in managing complex systems development projects. July 2008. Project Management Journal 39(S1), pp. 111–122. DOI: 10.1002/pmj.20065
21. Jaak Aab, Minister of Public Administration of the Republic of Estonia. Opening words. An Innovative Public Sector in 2017 New Solutions to Complex Challenges. European Institute of Public Administration/Institut européen d'administration publique Maastricht, the Netherlands/Pays-Bas www.eipa.eu 2017, 102 p.

Надійшла (received) 19.05.2019

Відомості про авторів / Сведения об авторах / About the Authors

Бухкало Світлана Іванівна (Бухкало Светлана Ивановна, Bukhkalo Svetlana Ivanovna) – кандидат технічних наук, професор кафедри інтегрованих технологій, процесів та апаратів, Національний технічний університет «Харківський політехнічний інститут», м. Харків, Україна;

ORCID: http://orcid.org/0000-0002-1389-6921; e-mail: bis.khr@gmail.com

Іглін Сергій Петрович (Иглин Сергей Петрович, Iglin Sergii Petrovich) – кандидат технічних наук, професор кафедри прикладної математики, Національний технічний університет «Харківський політехнічний інститут», м. Харків, Україна;

ORCID: http://orcid.org/0000-0002-9144-7427; e-mail: bis.khr@gmail.com

Главчева Юлія Миколаївна (Главчева Юлия Николаевна, Hlavcheva Yuliia) – заступник директора науково-технічної бібліотеки, Національний технічний університет «Харківський політехнічний інститут», м. Харків, Україна;

ORCID: http://orcid.org/0000-0001-7991-5411; e-mail: glavcheva@khpi.edu.ua

Мірошніченко Наталія Миколаївна (Мирошниченко Наталия Николаевна, Miroshnichenko Nataliia) – кандидат технічних наук, доцент кафедри інтегрованих технологій, процесів та апаратів, Національний технічний університет «Харківський політехнічний інститут», м. Харків, Україна;

ORCID: http://orcid.org/0000-0002-0561-4138; e-mail: d_tasha@ukr.net

***Ольховська Оксана Ігорівна (Ольховская Оксана Игоревна, Olkhovska Oksana Igorivna*)** – ст. викладач, кафедра менеджменту і опадаткування, Национальный технический университет «Харьковский политехнический институт», м. Харків, Україна.

***Зіпунніков Микола Миколаєвич (Зипунников Николай Николаевич, Zipunnikov Mykola Mykolaevich*)** – кандидат технічних наук, старший науковий співробітник, відділ водневої енергетики, Інститут проблем машинобудування ім. А.М. Підгорного НАН України, м. Харків, Україна;

ORCID: http://orcid.org/0000-0002-0579-2962; e-mail: zipunnikov_n@ukr.net

***Ольховська Вікторія Олегівна (Ольховская Виктория Олеговна, Olkhovska Victoria Olegovna*)** – студентка ХНУРЕ, м. Харків, Україна.

REGULATION

About reviewing articles in a professional edition Bulletin of the National Technical University "KhPI". Series: Innovative research in students' scientific work

GENERAL PROVISIONS

1. This Regulation regulates the procedure for reviewing articles submitted for consideration in the scientific journal of the Bulletin of the National Technical University "KhPI", a series of Innovative studies in student's research papers.

2. The review procedure covers all articles submitted for consideration by the editorial board, with the exception of general reports. The purpose of the review is the strict selection of author's manuscripts for publication in order to increase the scientific value of the articles published in the professional edition of the scientific journal of the Bulletin of the National Technical University "KhPI", a series of Innovative studies in students' scientific work, through the evaluation of materials by highly skilled experts.

3. In order to improve the quality of the review process, independent experts are invited to submit their findings in writing in an arbitrary form. Reviewers evaluate theoretical-methodological and experimental level of the article, its practical value and scientific significance; provide recommendations for the elimination of shortcomings.

4. The review procedure is aimed at the most objective assessment of the content of the scientific article, provides an analysis of the advantages and disadvantages of the materials provided and is anonymous for both the author and the reviewer (it is carried out by two reviewers independently of each other). As a reviewer is a member of the editorial board of a professional edition and a third-party highly skilled specialist who has deep knowledge of a certain scientific field and the necessary experience. Only those articles that meet the requirements of the publication, make value from a scientific point of view and contribute to solving actual problems and tasks are accepted for consideration.

5. Reviewers are reported that their manuscripts are the intellectual property of the authors. Reviewers are not allowed to make copies of the submitted article prior to its publication. The review is based on the principles of confidentiality, where information about the article (terms of receipt, content, subject matter, review features, comments to the author, final publication decisions, etc.) are not communicated to anyone other than authors and reviewers. The author may indicate the names of persons whose appointment reviewers are undesirable because of the possibility of a conflict of interest, explaining their position. The reviewer must also report a conflict of interest that may affect his opinion of the manuscript. If the reviewer has doubts about plagiarism, he must obligatorily apply to the editor-in-chief of the publication with the requirement of collective consideration of the author's article by the editorial board. All reviewers should be guided by ethical requirements in scientific publications

ORDER OF RECOGNITION OF TRANSLATION

1. By the decision of the Chief Editor, the publication of the appointment of reviewers may be entrusted to the responsible for the issue. By the decision of the Editor-in-Chief, certain articles of prominent scholars may be exempted from the standard review procedure. Articles are not reviewed, authors (co-authors) of which are members of the editorial board of the publication.

2. The review, allowed to articles, drawn up in accordance with the requirements for the registration of articles in the professional edition of the Bulletin of the National Technical University "KhPI". Series: Innovative research in students' scientific work. In the case of comments at this stage, the article is returned to the author for revision.

3. Subject to all requirements for the design, the article is transmitted to the issuer responsible for the encoding and sends the article by e-mail to a member of the editorial board responsible for the topic of the article (internal reviewer) and to the external reviewer. Within 5 days from the receipt of the article, the reviewer may refuse to review, substantiating this and notifying the person responsible for the issue in writing.

4. Reviewers who have received the coded article choose one of the recommendation options. The term of preparation of recommendations is agreed with the responsible for the issue. Recommendations sent by the reviewer to the e-mail responsible for the issue.

5. In the event of a refusal to publish or need to be revised, the reviewer must provide a written, reasoned explanation of the reasons for his decision. In case of disagreement with the opinion of the reviewer, the author has the right to provide a written, reasoned response to the Editor-in-Chief of the publication, the decision of which the article may be sent to re-reviewing another reviewer or for consideration by the editorial board.

6. The final decision on the article is taken by the Editor-in-Chief, taking into account the received reviews.

7. Further work with the article accepted for publication is carried out in accordance with the technological process of preparation of the publication. Correction of the stylistic, syntactic and punctuation nature, which does not affect the content of the article, is made by the editor without the consent of the author.

8. If the article was rejected and revised by the author taking into account the comments, the revised version is sent for re-review. Articles submitted to authors for correction must be returned no later than 2 weeks after receipt. In case of a repeated negative review, the article is rejected and is not subject to further consideration.

9. The final decision on the publication of a professional edition is fixed by the minutes of the meeting of the Academic Council of the National Technical University "Kharkiv Polytechnic Institute", which is marked on the second page of the publication.

10. The editor-in-chief, the members of the editorial board responsible for the issue, the staff of the editorial and publishing department do not enter into a discussion with the authors of rejected articles. Submissions, reviews, recommendations for each article are stored in the editorial and publishing department within 2 years from the date of submission. Responsibility for copyright infringement and non-compliance with existing standards rests with the author of the article. The author and reviewers are responsible for the authenticity of the data, the validity of the conclusions and recommendations, the scientific and practical level of the articles.

11. The review process and the procedure for taking into account the comments of the reviewers may vary.