# Learning F3 - Future, Fusion, Flexible: SPbPU experts talked about the development of a unique digital service

 Specialists of Peter the Great St. Petersburg Polytechnic University are developing a digital service for personalized design of educational programs «F3 Learning — Future, Fusion, Flexible». The unique project is based on the methodology of system engineering of multidisciplinary educational programs for scientific organizations and industrial enterprises. The digital service is being created within the Technopolis Polytechnic strategic project of the Priority 2030 program. Svetlana Kalmykova, Director of the Open Education Center at SPbPU, and Marina Bolsunovskaya, Head of the Industrial Data Streaming Systems Laboratory at the New Manufacturing Technologies Center of the National Technological Initiative at SPbPU, spoke about the features of the development and its advantages.



 — What is the main principle of the digital service for the personalized design of educational programs «Learning F3 — Future, Fusion, Flexible»?

 — Usually educational courses are built on a monolithic principle. In order to obtain certain competencies, it is necessary to go through the educational program of the course as a whole. Our main task was to divide the course into modules — some minimal didactic units, which would be possible to combine into

a single constructor or your own personal course. In other words, in order to obtain a certain competence, it is not necessary to take the whole course, prepared in advance by the university. The user has the opportunity to choose individual modules within a given program. Thus, everyone will be able to form his/her own specific trajectory, a set of subjects needed to improve the level of qualification.

Our approach is to form micro-modules and provide new opportunities for those who want to improve their knowledge, skills and abilities. When choosing a module, the user has a clear idea of what certain competences he will be able to obtain. Let's analyze the situation on a concrete example. Having assessed your starting level in the field of digital competences by yourself or with the help of certain tests, you want to improve it in the field of software. Regarding your level, you choose options to improve your skills.

Also everyone will be able to acquire additional competencies in addition to the core competencies. For example, software development (software) is accompanied by project work. At the same time with software development skills you get soft skills, namely the ability to work in a team. Or, if you choose a system analysis or design module, you additionally acquire competencies in structuring purpose and functions, and so on.

It's important for us to combine technical competencies and methodology, to connect the micro-modules, which will provide flexibility in training. Thanks to this format, users will be able to combine modules and choose courses provided by different universities. In this case, we are building a kind of networking structure, linking institutes and software platforms.

**— Who is the target audience of the digital service?**

— The target audience is divided into four types. The first is students who have completed a bachelor's degree and want to upgrade their qualifications during the Master's degree program, to receive an APE certificate in addition to the diploma of completion of the main program. The calculation of the duration of the courses will be formed in such a way that they are not less than the required size for the APE.

Second — teachers, many of whom are now mastering digital competencies, soft skills or teaching skills.

The third is industrial enterprises, which want additional education, while offering to adjust the educational course to the specific cases and requests of the company.

Fourth — specialists in various industries who want to get professional retraining. Here there is an opportunity to form a one- or two-year course out of micro-modules.

**— What stage is the development of the project at?**

— At this stage, we developed a methodology and technology for implementing the project. We have created a terms of reference for the digital service, which includes a scenario for the construction of personalized trajectories. Moreover, the scope of skills, digital and creative competencies, which should be presented in the form of a knowledge model, as well as the knowledge structure embedded in the project have already been defined. It is planned that the development stage will be two-tiered — at first we will launch a pilot version with limited functionality, which will not present a large number of courses broken down into micro-modules. Then the program with fuller functionality will be released, allowing to build several programs of additional education, both for our students and for external customers. At the same time, the possibility of using this constructor in the construction of training programs within the framework of digital departments is being worked out.

**— What will the curriculum consist of?**

— We want to make network education including for the universities, which were not included in the Priority-2030 program, but which would like to use educational courses in the future. For training in technical disciplines it is necessary to take entrance tests, which have different levels: zero, basic, advanced, professional and expert. Depending on the user's level of knowledge, the platform will determine the necessary degree of complexity of the course. After testing, the structure of the program itself, consisting of micro-modules, will open. If it is necessary to get acquainted with a certain theoretical base, the course may include a greater number of lectures and several practical classes, with obligatory independent work. If a participant chooses an educational module on testing, it consists more of practical exercises. The higher the level of proficiency in a particular subject, the more the amount of new knowledge is reduced, but the number of skills is noticeably increased. That is why the role of the practical part of the course will only increase.

**— Thank you very much for your answers.**

Prepared by the NTI Center of SPbPU

Дата публикации: 2022.06.07