

то задачу геометрического программирования можно представить в виде:

$$g(z) = \sum_{i=1}^{n_1} e^{x_i} \rightarrow \min_x,$$

при ограничениях

$$x = Ax + b, \quad h_k(z) = \sum_{i=m_k}^{n_k} e^{x_i} \leq 1, \quad k = 1, 2, \dots, p,$$

где $x = x_1, \dots, x_n$; $b = b_1, \dots, b_n$; A — $(n \times m)$ -матрица из элементов $a_{ij} \in R$.

В данной работе предлагается для дискретных нелинейных моделей распределенных газотранспортных сетей использовать методы геометрического программирования.

Источники

1. *Osiadacz, A.* Simulation and Analysis of Gas Network / A. Osiadacz. — Houston, TX : Gulf Publishing Co, 1987. — 273 p.
2. *Dymkov, M.* Optimization problem for some class of hybrid differential-difference systems with delay / M. Dymkov // J. Belarusian State Univ. Mathematics and Informatics. — 2021. — Vol. 1. — P. 6–17.
3. *Astrovskii, A. I.* Mathematical Simulation of Gas Transportation Pipelines Networks: Repetitive and 2-D System Theory Setting / A. I. Astrovskii, M. P. Dymkov // Науч. тр. / Белорус. гос. экон. ун-т; редкол.: В. Ю. Шутилин (гл. ред.) [и др.]. — Минск, 2021. — Вып. 14. — С. 16–24.
4. *Dymkou, S.* Graph and 2-D systems approach in gas transport network modeling / S. Dymkou, G. Jank, T-P Azevedo Perdicou'lis // Intern. J. of Tomography and Statistics. Applications of optimal control, robust control and stabilization, applications in industry. — 2007. — Vol. 6. — P. 21–27.
5. *Dembo, R. S.* Current state of the art of algorithms and computer software for geometric programming / R. S. Dembo // J. Optimization Theory and Application. — 1978. — Vol. 26, № 2. — P. 149–183.

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THE INTEGRATION OF DIGITAL TRANSFORMATION AND INFORMATION TECHNOLOGIES IN HIGHER EDUCATION

The lure of new information technologies in higher education remains uncertain across most universities in the world. No doubt that information technology (IT) has great potential to enhance the teaching methods; however, there is no standardized IT system that defines how new technologies can be used to boost the productivity in the academic field. Traditionally, higher education is labor intensive field that needs educated and skilled people for the success of the educational process, which raises many questions about the feasibility of replacing technology for labor. The advancement of Information Technology (IT) altered the business strategies and practices in the higher education field, considerable budgets spent at colleges and universities to develop IT systems that help to transmit from traditional education methods into digital ones, the information technologies help faculties to develop and gain more knowledge that are essential for the teaching process. While universities encourage their faculties to implement innovated IT tools for their preparation and delivery of classes, many factors impede the integration of IT systems and resist the acceptance of these technologies,

these factors include; teaching experience, computer competency, prior computer experience, and availability of technology.

Experience and compatibility are two key determinants for the ability of teachers to use computer technologies during the instructional process, self-efficacy of faculty members will improve through adequate professional trainings on various computer applications. Individuals' reluctance to use information technology at their jobs will diminish if they get familiar with the new digital technologies, as thus, universities should provide adequate workshops to help their faculty members to experience the usefulness of information technologies in the teaching process. The IT system at universities is a dynamic tool because computer technologies change continuously, for this purpose, faculties need to integrate the most recent IT innovations, and to recognize the importance of providing long term professional development programs.

The initial growth of e-learning technology at universities was mainly attributed to globalization, universities worldwide break down geographical and social boundaries to offer distance learning education that help to integrate the academic standards and views, and as a result, the population of online students has increased significantly. The traditional higher education concept has changed radically over the last decade and especially since the outbreak of COVID-19 pandemic in 2020, on-campus teaching is facing big challenges and isn't anymore the only and best available learning option especially with the rapid development of digital technologies and high-speed internet.

Digital technologies will dominate the economic activities for the coming decades; however, digital transformation requires to use the available digital technologies in an effective way. The growth of digital education at most universities is not expected to slowdown in the future as most universities are working hard to develop the infrastructure needed for this digital trend. The flexibility of online education enables both teachers and students to set their own learning pace and to select a schedule that fit everyone's agenda, online education increases productivity and time efficiency. As a result, studying through online platforms help students to simultaneously study and work, this helps students to gain work experience while they are studying. Nowadays, most universities and colleges offer their students optional online programs; online, on campus, and blended programs that combine both online with on-campus teaching. The rapid growth of Information Technologies will continue and universities should adjust their business models accordingly and should develop their strategies for maintaining high levels of student motivation and engagement as a core feature of the technology-enhanced learning experience.

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ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ: ТОЛЬКО ЛИ ПРЕИМУЩЕСТВА?

Искусственный интеллект часто определяют как способность машин выполнять задачи, которые ранее требовали человеческого интеллекта. Это означает, что искусственный интеллект по своей природе может заменить человеческий труд. Достижения в области искусственного интеллекта и связанных с ним технологий автоматизации привели к растущим опасениям по поводу потери рабочих мест и увеличения неравенства. Эта проблема широко распространена в высокоразвитых странах. При этом развивающиеся страны и страны с формирующейся рыночной экономикой должны быть обеспокоены еще больше, поскольку их главное преимущество в мировой экономике зависит от величины рабочей силы и природных ресурсов. Снижение отдачи от труда и природных ресурсов, вызванное новыми информационными технологиями, может привести к дальнейшему обнищанию