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Analysis of Readiness Faculty of Engineering to Develop Study Programmes in the Face of Universitas Negeri Jakarta Status as an Incorporated State University

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Abstract: - This research is a study of the readiness of the Faculty of Engineering Universitas Negeri Jakarta (FT UNJ) to develop study programmes in order to face the Universitas Negeri Jakarta becoming an incorporated state universities, called PTN-BH, towards a world-class university. The development of the world of work and industry requires the readiness of universities, especially study programmes in preparing graduates with competencies according to the world of work and industry which is changing rapidly and dynamically. The FT UNJ has 20 study programmes (PS) in various fields and types of science, consisting of master's programme in vocational education, undergraduate programmes in education, undergraduate engineering programmes, and applied undergraduate/diploma programmes. The potential to develop existing PS within the FT UNJ is wide open, especially to open master's programmes and doctoral programmes. The PS development plan is getting stronger with the plan for Universitas Negeri Jakarta to become a PTN-BH which autonomously has the authority, including (1) opening, organising and closing PS; (2) establishing business entities and developing endowment fund; and (3) appointing and dismissing its own lecturers and education staff. The results of the research are used as material in developing potential PS. One form is the development of PS to a higher level based on specified criteria such as (1) feasibility study of community needs, (2) curriculum, (3) lecturers as the main human resources in higher education, and (4) management by the faculty. According to the PS accreditation criteria and the academic qualifications of lecturers, FT UNJ is ready to develop the master's program in Technology and Vocational Education to become a doctoral program in vocational education. In addition, a number of PS at the undergraduate level have the opportunity to be developed, including Civil Engineering, Electrical Engineering, and Food Technology.

Keywords: Development, faculty of engineering UNJ, incorporated state university, study programmes.

I. INTRODUCTION

The rapid and dynamic development of the industrial world is characterized by changes in the work mechanism in the world of work and industry. In modern industry, the system operates by involving various elements, including smart machines, automation in physical and cyber system operations, communication between work devices, the internet of things (IoT), and decision making. The combination of physical devices and networks in industrial processes is known as industrial revolution 4.0. These changes create both challenges and opportunities for the economy and human resource needs. On the one hand, the integration of digital transformation, automation, and artificial intelligence (AI) into the entire range of industrial activities will increase productivity and efficiency, and at the same time provide convenience and comfort for consumers as users of production products, because consumers can enjoy products with better quality and relatively cheaper prices. Digital transformation also provides opportunities for the development of new business processes in various sectors and fields, including implementation in the fields of education in digital-based learning (e-learning), public services (e-government), digital finance (fin-tech), and the development of e-commerce to encourage and expand small and medium enterprises (PMK, 2022).

On the other hand, the Industrial Revolution 4.0 has the potential to accelerate backwardness and obsolescence, even the loss of certain jobs, so it is also called the era of digital technology disruption. By using modern technology and automation, industries are able to produce higher standards and quality results and more efficiently for jobs with relatively simple, repetitive processes. Digital technology can reduce production costs and reduce the use of human resources, replacing them with machines that work automatically. The demand for low-level administrative workers and semi-skilled manual labor in manufacturing and construction will decrease, while new types of jobs will emerge and increase in demand, such as jobs in information and communication systems, namely data analysts and scientists, big data specialists, artificial intelligence and machine learning specialists, and digital marketing and strategy specialists (WEF, 2023).

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State Universities (PTN) in Indonesia are one of the higher education institutions that have an important role in developing human resources and improving the quality of life of the community. In order to increase independence and competitiveness, many state universities are trying to become Incorporated State Universities, called PTN-BH. The legal status provides these universities with autonomy and self governance through its board of trustees, including managing its own financial and human resource matters. The legal basis for PTN-BH is Law No. 12/2012 on Higher Education which states that "The implementation of Higher Education autonomy can be given selectively based on performance evaluation by the Minister to States Universities (PTN) by applying the Public Service Agency Financial Management Pattern or by forming a Legal Entity PTN to produce quality Higher Education" (Article 65 paragraph 1). PTN-BH has greater autonomy in managing its resources and finance. The implementation of an effective management system is one of the crucial steps in preparing to become a PTN-BH. A good management system will help PTN in managing various aspects of its operations efficiently and effectively, so as to meet the standards set as a PTN-BH. The increasingly complex development of the world of education requires public universities to have structured and measurable management. PTN-BH must be able to meet the requirements set by the government and related institutions, and maintain transparency in the management of resources and finances. For this reason, the Faculty of Engineering as one of the faculties within the Universitas Negeri Jakarta, has a vision and mission to prepare the younger generation to plunge into society to play a role in developing the education sector, one of whose main tasks is to make graduates as educators in vocational high schools (SMK) or trainers in various industrial activities and other activities.

The Faculty of Engineering Universitas Negeri Jakarta (FT UNJ) needs to conduct a study of the readiness of various aspects to support UNJ's readiness to become PTN-BH. An important thing that needs to be done is to compile a map of Study Programmes (PS) potential that can be seen from the recognition of the status and accreditation ratings by domestic accreditation agencies and international accreditation agencies. The purpose of this research is to analyze the readiness of FT UNJ in the PS under its care to develop and improve the PS level based on the needs and development in the world of work and industry, available human resources, facilities and infrastructure owned, and the potential for Income Generating as a preparation for the Universitas Negeri Jakarta to become PTN-BH.

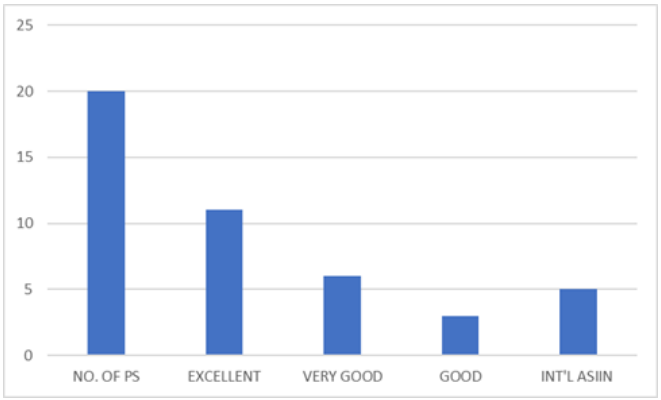
II. METHOD

This research uses descriptive qualitative method and document analysis. Data collection was carried out through literature studies, especially written documents related to study programs at the Faculty of Engineering, Universitas Negeri Jakarta, and field observations to triangulate the results of the review and analysis of the documents collected.

III. RESULT AND DISCUSSION

There are 20 study programmes (PS) in the FT UNJ, consisting of educational and non-educational. The PS consist of 11 PS (55.0%) have obtained an accreditation rating of Excellent (A), 6 (six) PS (30.0%) have a rating of Very Good (B), and 3 (three) PS (15.0%) with a rating of Good (C). There are 10 educational PS, 8 (eight) PS (80.0%) received an accreditation rating of Excellent (A) and 2 (two) PS (20.0%) with a rating of Very Good (B). For non-educational PS, 3 (three) PS (30.0%) obtained an accreditation rating of Excellent (A), 4 PS (40.0%) with an accreditation rating of Excellent (B), and 3 (three) PS (30.0%) with an accreditation rating of Good (C). The standard for becoming a PTN-BH is for the PTN to have a number of PS with national accreditation of Excellent (A) equal to or above 50% (Direktorat Kelembagaan, Kemdikbudristek, 2023). In addition, there are 5 (five) PS that have obtained ASIIN (*Akkreditierungsagentur für Studiengänge der Ingenieurwissenschaften, der Informatik, der Naturwissenschaften und der Mathematik*) international accreditation ratings, namely (1) Electrical Engineering Education, (2) Electronics Engineering Education, (3) Informatics and Computer Engineering Education, (4) Mechanical Engineering Education, and (5) Building Engineering Education as shown in table 1.

Table I. PS Accreditation at FT UNJ



The ratio of lecturers and students shows the readiness of the PS to carry out the learning process in each PS. Lecturer and student in a PS must have an ideal ratio, namely 1: 45 for the field of religious sciences, humanities, social sciences, and 1: 30 for the field of natural sciences, formal sciences (Permendikbud No. 2/2016). There are 2 (two) PS that have a high ratio of lecturer and student or above 1:40, namely Electronics Engineering Education and Informatics and Computer Engineering Education, but all of PS at the FT UNJ do not exceed the statutory limit.

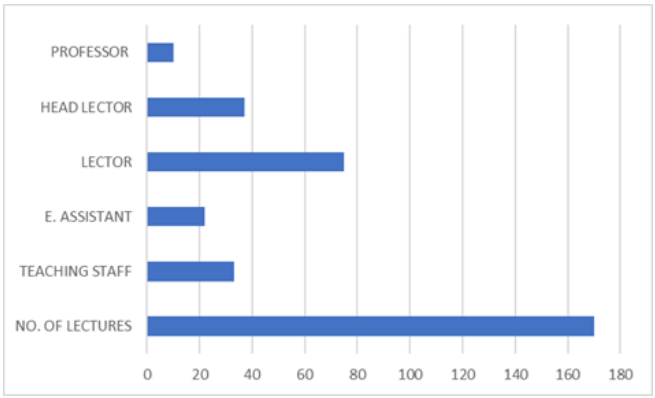
At present there are 13 PS (65.0%) that already have an analysis of the PS development plan, while 7 (seven) PS (35.0%) do not yet have an analysis of the development plan. The results of the analysis of the development of PS, lead to increased cooperation with industrial partners and similar PS to implement an independent learning policy. In accordance with the objectives of the feasibility analysis of PS development, one of which is for the sustainability of the PS in the short term of the next five years and for the medium and long term. For this reason, it is necessary to develop cooperation programs with various parties, both in the educational and non-educational domains. For the Master program of Technology and Vocational Education to the Doctoral Vocational Education or other similar names according to the nomenclature in the Regulation of the National Accreditation Board for Higher Education (BAN-PT) No.19/2022 concerning the Scope of PS Accreditation at Independent Accreditation Institution. While for 9 (nine) PS at the undergraduate level of Education towards the master program in Engineering Education and for 3 (three) PS at the undergraduate level in Engineering developed to the master level (S2) in engineering. Other programs, 7 (seven) PS of the diploma level can be upgraded to the master level applied in their respective field.

Lecturer are the main factor in running the wheels of learning in higher education. Lecturer are professional educator and scientist with the main task of transforming, developing, and disseminating science, technology, and art through education, research, and community service (Government Regulation No.37/2008 concerning Lecturer). In addition, lecturer must have a minimum academic qualification of Master in a particular field and have an academic position level from Expert Assistant (AA), Lector (L), Head Lector (LK), and Professor (GB) which reflects the role, experience and activities of lecturer in carrying out the Tridarma PT. The FT UNJ has 170 lecturers spread across 20 PS with details of 10 Professor (5.9%), 37 LK (21.8%), 75 L (44.1%), 22 AA (12.9%), and 33 Teaching Staff (19.4%) as shown in Table 2. Meanwhile, 69 lecturers (40.6%) have doctoral academic qualification, 95 lecturers (55.9%) have master's degrees, and the remaining 13 lecturers (7.6%) are currently pursuing doctoral program. Based on the detail of lecturer data, the FT UNJ still has the task of improving the functional position of 33 lecturers (19.4%) who are still Teaching Staff and improving the academic qualification of lecturer who more than half (55.9%) have not pursued doctoral level education.

To become a PTN-BH, which has greater autonomy to manage various resources in higher education, the key word is the potential resources available at FT UNJ. Available resources can be managed to provide input to the campus (UNJ), including human resources (lecturer) and other resources (infrastructure, and facilities) owned by FT UNJ. The potential of lecturers that can be identified is the field of knowledge and expertise of lecturers in the form of services, cooperation, or products are needed by the community. The FT UNJ has human resources that have great potential to be part of growing income generating for the UNJ. The fields of knowledge and expertise possessed by engineering faculty lecturer are very diverse, and have great potential to be developed into activities that can provide income input to FT UNJ. There are 17 fields of expertise of FT UNJ lecturers, including the field of (1) vocational education, (2) electrical engineering, (3) electronic engineering, (4) informatics and computer engineering, (5) information systems and technology, (6) mechanical engineering, (7) building engineering, (8) fashion, (9) cosmetology, (10) catering, (11) family welfare, (12) fire safety engineering, (13) automation engineering technology, (14) manufacturing engineering technology, (15) port management and logistics, (16)

fashion design, and (17) cosmetics and beauty nursing. While other potential resources are facilities, equipment, and infrastructure that can be used and utilized by the community through procedure and mechanism that are mutually beneficial to both parties, the campus (University) and the user or community outside the campus.

Table 2. Lecturer's Academic Position at FT UNJ



IV. Conclusions

The Faculty of Engineering of the Universitas Negeri Jakarta (FT UNJ) has various potential that can contribute to increasing the capacity and capability of FT UNJ through various component to support the Universitas Negeri Jakarta to become PTN-BH. These components include accreditation of study programmes (PS), the ratio of lecturers and students, PS development, and human resources, especially lecturers. FT UNJ has 55.0% of PS that have obtained Excellent or A accreditation status, including 25.0% of study programs that have obtained ASIIN international accreditation. All of PS under the Faculty of Engineering UNJ do not exceed the established ratio of lecturer and student, so that the implementation of education in the PS FT UNJ meets the statutory provisions regarding student lecturer ratio. This shows the readiness of FT UNJ to support the Universitas Negeri Jakarta to become a PTN-BH towards a World Class University.

The result of the feasibility analysis of PS development can also be directed to develop higher level of PS. For the Master of Technology and Vocational Education program, it can be developed to the Doctoral level such as doctor of Vocational Education. Meanwhile, for 9 (nine) other Education undergraduate PS can be upgraded to the master's program in Engineering Education and for 3 (three) engineering undergraduate study program can be developed to the master's level in engineering. In addition, a number of PS at the undergraduate level have the opportunity to be developed, including Civil Engineering, Electrical Engineering, and Food Technology.

Some of the PS needs to improve its accreditation rating towards the Excellent level. For this reason, adequate preparation and planning are needed for all criteria that measure the success of PS, including the fulfillment of predetermined standards and improving quality of the Tridharma PT and their implementation strategies. On the other hand, PS needs to improve the update of facilities and infrastructure and other supporting facilities to support the achievement of their scientific vision.

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