



# Development of Operating Plan for Four-Year Diploma Civil Engineering Program

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**Abstract.** D4 Civil Engineering program is a program study at the State University of Surabaya with focused learning on building construction knowledge. Graduated students of this program have a good prospect career, starting from the drafter image, an estimator to calculate the Budget of the Construction, and also as a surveyor who tough in implementation profession of the Civil engineering. In the process of the study, students are given knowledge and skills in making a building construction plan and cost estimation, by being given learning assignments to further deepen and master the knowledge and skills. D4 Civil Engineering also t has succeeded in collaborating and making work agreements with several consultants and building contractors. This collaboration aims to motivate students, provide certification programs and develop building science for students so that in the future students can also create digitalization programs for building planning. In addition, it is expected to provide knowledge and motivate students to be ready to enter the industrial world. Not only in learning academics have certification in the building sector, but students also receive teaching programs from professional practitioners for 8 semesters. The advantage of this study program is that it has a broad market share focused on the building sector. This Operating Plan is prepared to direct and ensure the continuity of the development activities of the Applied D4 Civil Engineering Undergraduate Study Program for the next five years so that the achievement of targets and targets to be achieved becomes clear and directed.

**Keywords:** Graduated Students · Agreements · Operating Plan · Strategic Plan

## 1 Introduction

The D4 Civil Engineering study program is one of the study programs under the auspices of the State University of Surabaya on Vocational Program. The D4 Civil Engineering Study Program provides an education that focuses on Building Construction. Students in this study program are expected to be able to plan and develop building construction programs that suit their needs. So that in the future students can analyze building construction planning, apply Civil Engineering knowledge, and synergize with each other to produce workers who have competence in their fields. The D4 Civil Engineering study program prepares applied graduates who can compete in the world of building construction, to building consultants, the main focus of graduates from the D4 Civil Engineering Study

Program is to have soft skills in building construction program development. In improving students' soft skills, the D4 Civil Engineering study program conducts lectures by bringing in guests from the industrial world and the world of work every semester, as well as establishing collaboration with various parties both at Vocational High Schools, universities, at home and abroad. Among them UTHM Malaysia, PT. Pawon Seger Indonesia, PT. Raffindo Jaya Mandiri, Ten November Vocational High School, Sidoarjo 1 Vocational High School, 2 Surabaya Vocational High School, 3 Surabaya Vocational School, 7 Surabaya Vocational High School, Bojonegoro Vocational High School, 1 Singosari Vocational High School, 6 Vocational High School Malang.

The D4 Civil Engineering study program in 2021-2024 covers various aspects of implementing education, research, and community service related to the Vision and Mission of the Study Program, as well as development in the field of Civil Engineering.

The mission of the D4 Vocational Program is [1] to Produce graduates with character, environmental insight, and information and communication technology [2]. Creating accountable, transparent, and participatory governance of vocational programs [3]. Improving the quality of learning through the development of an adaptive, flexible, and agile curriculum [4]. Improving cooperation with IDUKA in the fields of education, research, and PKM based on link and super match [5]. Creative, competent, and with character, environmental insight, and information and communication technology [6]. Produce innovation-based applied research to support technopreneurs. Produce prototypes of innovative, transformative, and applicable science, technology, and art products to support the development of national strategic industries. Fulfillment of facilities and infrastructure for the Unesa Vocational Program to support the achievement of the tri dharma of higher education. Fulfillment of the quantity and quality of academic and HR competencies of the Unesa Vocational Program [7].

This 2022–2024 Civil Engineering D4 Study Program Operating Plan is an elaboration of the Vocational Program Strategic Plan for 2021–2024. The Operating Plan document contains the formulation of quantitative and qualitative achievement plans and targets for each of the performance indicators for achieving the goals and targets to be achieved in 2022, following each target set out in the Vocational Program Strategic Plan [8, 9].

## 2 Literature Review

The preparation of the Operational Plan for the D4 Civil Engineering Study Program 2021–2024 begins with a self-evaluation to analyze strengths, weaknesses, opportunities, and threats which are then used in formulating strategies. The strategies for the D4 Civil Engineering Study Program as an effort to achieve the objectives of the Study Program are:

1. Conduct programs and activities that can support increasing professionalism, environmental insight, entrepreneurial spirit, character, and discipline, and also presenting Guest Lectures, Workshops, Training, and Internships in the Work Industry.

2. Conduct programs and activities that can improve research according to research road maps both nationally and internationally, national and international writing, attend national and international seminars, national and international writing assistance, national and international scientific publications, intellectual property rights, and patents.
3. Conducting programs and activities that can improve community service, carried out by training activities, lectures, and outreach, to the community.
4. Carry out programs and activities that can improve the academic atmosphere and good governance that has planning, implementation, monitoring, and follow-up to support and ensure the implementation of work programs, carried out through seminars, scientific work competitions, Building Construction exhibitions, workshops curriculum, RBA workshop, Vinesa workshop, textbook workshop, a research workshop, and national fund PKM.

## **2.1 Policy Direction**

The Operating Plan for the D4 Civil Engineering Study Program 2021–2024 is prepared by taking into account:

1. MPR RI Decree No. VII of 2001, regarding Indonesia's Future Vision
2. Law no. 20 of 2003, concerning the National Education System
3. Government Regulation No. 17 of 2010, concerning the Management and Implementation of Education
4. Unesa Strategic Plan 2020–2024
5. Vocational Program Strategic Plan 2021- 2024
6. The results of the Vocational Program working meeting

## **2.2 Objectives**

The objectives of the operational planning of the Civil Engineering D4 Study Program are:

1. As a tool to anticipate developments, dynamics of community needs, and demands for the existence of the D4 Civil Engineering Study Program.
2. As a guide in carrying out internal activities of the Civil Engineering D4 Study Program or actions within a certain period.
3. As a guide in allocating and utilizing resources in the D4 Civil Engineering Study Program efficiently.
4. As a tool to realize the mission of the D4 Civil Engineering Study Program.
5. As a means to maintain the continuity of the development of the D4 Civil Engineering Study Program.

## **3 Method**

The method used is to collect data and map the Key Performance Indicators listed in the Vocational Program strategic plan for 2021–2024 to find out the implementation of the

Key Performance Indicators that have been achieved through activities that have been carried out by the Study Program. The research implementation is divided into several stages as follows:

1. The preparation stage includes a review of the Key Performance Indicators listed in the Vocational Program strategic plan for 2021–2024.
2. Collecting data, both secondary data and primary data. Secondary data is data obtained from related sources on the internet, primary data is data taken directly from the implementation of the Main Performance Indicators that have been carried out by the Study Program.
3. Make a research report.
4. Making research publications.

The research flow chart includes the stages carried out from the beginning to the end of the research starting from the initial stages, namely preparation, process, and output, and the achievement indicators targeted as follows.

## 4 Results and Discussion

The SWOT analysis of the Applied Bachelor of Civil Engineering study program is carried out by determining in advance the strengths, weaknesses, opportunities and threats. Then determine the load, rating and score of each factor show from Table 1, Table 2, Table 3 and Table 4.

**Table 1.** Strength Analysis

Strength				
No.	Indicator	Weight	Rating	Score
1	Reasoning interests and talents With adequate access and quality of Service	0,05	4	0,18
2	Career and Entrepreneurship With adequate access and quality of service	0,05	4	0,18
3	Counseling Guidance With adequate access and quality of Service	0,03	4	0,12
4	Scholarships with adequate access and quality of Service	0,03	4	0,12
5	Having lecturers according to Academic	0,05	5	0,23
6	Assignment as the main supervisor of the final project	0,03	4	0,12
7	Scientific publications	0,05	5	0,23
8	Articles of citations of scientific works	0,05	5	0,23
9	Outcomes of research and community service produced by permanent lecturers of study programs	0,05	5	0,23

*(continued)*

**Table 1.** (continued)

Strength				
No.	Indicator	Weight	Rating	Score
10	The use of funds for research activities of permanent lecturers	0,05	5	0,23
11	Use of funds for community service	0,05	5	0,23
12	Adequacy and accessibility of educational facilities	0,05	5	0,23
13	Adequacy and Accessibility of Information and Communication Technology Facilities	0,05	5	0,23
14	Adequacy and accessibility of infrastructure	0,05	5	0,23
15	Completeness of curriculum documents	0,05	5	0,23
16	There is a university policy regarding research.	0,03	4	0,12
17	There is a quality assurance unit for research	0,03	4	0,12
18	Students are involved in research	0,03	4	0,12
19	Research integrated into learning	0,03	4	0,12
20	The university has a fairly complete, clear, and directed policy regarding community service	0,03	4	0,12
21	There is a quality assurance unit for community service activities	0,03	4	0,12
22	Students are involved in community service	0,03	4	0,12
23	Commitment, loyalty, and service from human resources are quite good	0,05	5	0,23
24	The average age of permanent lecturers in the study program is still young	0,05	5	0,23
25	Has a building, lecture hall, and leadership room	0,05	5	0,23
	Total	1		4,60

**Table 2.** Weakness Analysis

Weakness				
No.	Indicator	Weight	Rating	Score
1	selection tightness	0,07	3	0,2
2	There has been no increase in the interest of prospective students	0,04	2	0,09
3	foreign student	0,02	1	0,02
4	Sufficient number of Lecturers	0,07	3	0,2
5	academic qualification	0,07	3	0,2

(continued)

**Table 2.** (continued)

Weakness				
No.	Indicator	Weight	Rating	Score
6	academic department	0,04	2	0,09
7	Student ratio	0,07	2	0,13
8	Industry lecturer	0,04	2	0,09
9	Recognition of the expertise of permanent lecturers in the study program	0,04	2	0,09
10	Lecturer development efforts	0,07	3	0,2
11	Qualifications and adequacy of laboratory assistants to support the learning process	0,04	2	0,09
12	Allocation and use of funds for expenses educational operations	0,07	2	0,13
13	The preparation of the semester learning plan is still in progress	0,07	3	0,20
14	the study program has not prepared the implementation of the seminar	0,02	3	0,07
15	Lecturers conduct research only on their competencies because there is still no research roadmap for the D4 Civil Engineering study program	0,02	3	0,07
16	There are no research-based innovation products yet	0,07	3	0,20
17	There is no product based industrial prototype yet development research	0,07	3	0,20
18	Community service activities carried out by lecturers are only on the competencies they have and are less focused because there is still no road map	0,02	1	0,02
19	Practicum Facility	0,07	3	0,20
20	Economic background of student parents	0,02	1	0,02
	Total	1		2,51

**Table 3.** Opportunities Analysis

Opportunities				
No.	Indicator	Weight	Rating	Score
1	The location of the campus is located in one of the big cities in Indonesia, so there are many infrastructure projects that can absorb graduates as workers	0,25	4	1
2	There are still not many applied Bachelor of Civil Engineering programs in Indonesia.	0,25	4	1

(continued)

**Table 3.** (continued)

Opportunities				
No.	Indicator	Weight	Rating	Score
3	There are many scholarship paths that can be obtained by prospective new students	0,25	4	1
4	A large number of external trainings are available to improve competence in the field of computer applications	0,25	4	1
	Total	1		4

**Table 4.** Threats Analysis

Threats				
No.	Indicator	Weight	Rating	Score
1	Many similar study programs have been established Earlier	0,30	2	0,6
2	The general public is still more interested in enrolling their children in the undergraduate program	0,30	2	0,6
3	Improve the quality and quantity of civil engineering study programs that are evenly distributed throughout Indonesia	0,2	2	0,4
4	Study programs at other universities have a larger number of alumni and are already scattered in the world of work	0,2	2	0,4
	Total	1		2

## 5 Conclusion

The Operational Plan of the D4 Civil Engineering Applied Undergraduate Study Program 2021–2025 is prepared to outline the Unesa Vocational Strategic Plan which has been prepared based on the strength map of the D4 Civil Engineering Applied Undergraduate Study Program. This Renop is expected to answer strategic issues: quality improvement; increasing competitiveness; resource management; and funding, accountability and transparency. For internal purposes, this Renop document can be used as an official reference in planning activities or study program work programs in determining the direction of policy implementation. Furthermore, it is necessary to monitor and evaluate the implementation of the Renop which is carried out every year. The understanding of the academic community of the D4 Civil Engineering Applied Undergraduate Study Program on the contents of this operational plan document is a factor that will determine the success of its implementation. For this reason, serious efforts must be made to socialize the operational plan and all its changes.

**Acknowledgments.** The authors would like to thank Universitas Negeri Surabaya for the support.

**Authors' Contributions.** All authors contributed. SFM Contribute to manuscript conceptualization, ARZ editing, and HD review for submission.

## References

1. Decree MPR RI No. VII Year 2001, about Indonesia's
2. Law no. 20 the Year 2003, about System Education National
3. Rules Government No. 17 the Year 2010, about Management and Organizing Education
4. Strategic Plan of UNESA 2020–2024
5. Plan Strategic Vocational Program 2021–2024
6. Satriana Fitri Mustika Sari and friends. 2021. Analysis of Expertise Groups in Compilation of Research Roadmap for Diploma Program in Engineering Technology Building Construction. Surabaya
7. Arsyad, A. 2006. *Media Pembelajaran*. Jakarta: PT. Raja Grafindo Persada.
8. Sekretariat Negara, 2015. *Peraturan Presiden RI No. 13 Tahun 2015 tentang Kementerian Riset, Teknologi, dan Pendidikan Tinggi*. Jakarta: Sekretariat Negara.
9. Kementerian Riset Teknologi dan Pendidikan Tinggi, 2015. *Peraturan Menteri Riset, Teknologi, dan Pendidikan Tinggi No. 15 Tahun 2015 tentang Organisasi dan Tata Kerja Kementerian Riset, Teknologi dan Pendidikan Tinggi*. Jakarta: Kementerian Riset, Teknologi, dan Pendidikan Tinggi.
10. Fajar Nur'aini Dwi Fatimah. 2016. *Teknik analisis SWOT*. Yogyakarta: Anak Hebat Indonesia.

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