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# Implementation Of The Merdeka Belajar-Kampus Merdeka Curriculum Based On The RI 4.0 Platform At Universitas Negeri Medan

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## Abstract

**Background:** The implementation of the Independent Learning-Independent Campus policy changes the paradigm of a rigid content-based curriculum approach to a curriculum based on adaptive and flexible learning outcomes to prepare students to become independent adults. In the implementation of the Independent Learning-Independent Campus policy, collaboration and cooperation with partners or other parties related to the scientific field of study programs and participation in supporting the desired learning outcomes are needed.
**Method:** The purpose of the research is to develop Universitas Negeri Medan's participation in the Merdeka Learning-Independence Campus program and to find out what obstacles need to be addressed to support the success of Merdeka Belajar-Kampus Merdeka, as well as to see the effective model that Universitas Negeri Medan needs to build for Independent Learning Campus. Implementation of Merdeka Belajar-Kampus Merdeka gives students the freedom to choose alternative lecture models which are the right of every student to undergo lectures in accordance with the rules and criteria set.
**Result:** The variables in this study are 1) Lecturer readiness, and 2). Independent Learning Curriculum-Independent Campus, 3) Implementation of Independent Learning in Independent Campus in terms of lecturers and study programs, 4) Participation of Medan State University, 5) Obstacles in the Implementation of Independent Learning-Independent Campus, 6) Achievements of Independent Learning-Independent Campus. The results of this study show that efforts to increase the success of the implementation of the Merdeka Learning Independent Campus curriculum based on the RI 4.0 platform are carried out by study programs in a sustainable manner in the form of drafting regulations that serve as guidelines for implementation, along with accompanying regulations in relation to the conversion of the semester credit system (SKS) and the results evaluation system. HOTS-based learning and case methods, integration of information technology in lectures, and assistance to lecturers and students for various activities for the success of Merdeka Belajar-Kampus Merdeka.
**Conclusion:** Implementation of the MBKM curriculum based on the Industrial Revolution 4.0 platform at Universitas Negeri Medan or 2021. Referring to the research data and analysis, it can be concluded as follows. The readiness of lecturers for the regulation of the Independent Learning-Independence Campus is generally ready to implement the curriculum and have reconstructed the courses they teach based on the Industrial Revolution 4.0 platform through the reconstruction of graduate achievements and the development of learning materials and tools, even some lecturers have been creative in

developing models and methods learning and evaluation of learning outcomes based on HOTS and case methods.

**Keywords:** Implementation of Independent Learning Independent Campus, Medan State University, Learning Curriculum

## I. Introduction

The development of Science and Technology in the era of the Industrial Revolution 4.0 (RI 4.0) and the demands of the Industrial Society 5.0 (MI 5.0) today seem to be indefinitely in time and place, so that the development enters all aspects of people's lives, as well as in the world order of education, which must be able to be more flexible and freer in its implementation but still bound by competency standards as an output. This is stated in various regulations that regulate learning models, strategies, and methods that are more familiar to students but are still consistent with the demands of the established competency standards. Permendikbud Number 3 of 2020 concerning National Standards for Higher Education explained that there are four policies related to Merdeka Belajar-Kampus Merdeka, which include: ease of opening new study programs, changes in the accreditation system for universities, changes in universities to legal entities, and the right to study for three semesters outside the course of study. Through the Merdeka Belajar-Kampus Merdeka (MBKM) policy, universities are required to design and implement the learning process so that students can achieve optimal learning outcomes. This is also confirmed in Law Number 12 of 2012, the Ministry of Education and Culture facilitates universities to realize this goal through the Merdeka Belajar-Kampus Merdeka policy.

Responding to the Merdeka Belajar-Kampus Merdeka policy, a review of the curriculum that took place by considering the scientific characteristics taken by students in a very broad environment, including input from various parties such as alumni, stakeholders, and benchmark with the world of industry and professional organizations.

The implementation of the Merdeka Belajar-Kampus Merdeka policy changes the paradigm of a rigid content-based curriculum approach to an adaptive and flexible learning outcomes-based curriculum to prepare students to become adults who can be independent. In the implementation of the Merdeka Belajar-Kampus Merdeka policy, collaboration and cooperation with partners or other parties related to the scientific field of the study program and participate in supporting the desired learning outcomes. As a new policy that must be carried out by the study program at Medan State University, curriculum development and implementation of cooperation that is in line with the Merdeka Belajar-Kampus Merdeka policy is still a challenge in itself. To develop curriculum cooperation between study programs and partners, a study is needed on the implementation of Merdeka Belajar-Kampus Merdeka based on the RI 4.0 platform which is being carried out at Medan State University. The objectives of this study, namely: 1) How the participation of Universitas Negeri Medan in the Merdeka Belajar-Kampus Merdeka program launched by the government, 2) What obstacles need to be addressed to support the success of Merdeka Belajar Merdeka Campus, 3) How is the effective model that needs to be built by Universitas Negeri Medan for Independent Learning, Independent Campus.

## II. Competence of Learning Outcomes in the Ri 4.0 Era

The rapid development of technology today has

an impact on society in having information technology capabilities. The industrial revolution 4.0 with all its consequences demands the ability of human resources to be productive and able to utilize technology. These demands cause many workers to experience obstacles due to their unpreparedness for technological developments (Arifudin, 2019). Industrial revolution 4.0 makes all entities in it able to communicate with each other in real-time based on internet technology and Cyber-Physical System (CPS) which combines the real world with the virtual world through integration computational (embedded) in a close loop (Sudaryono, 2019).

Rapid progress in the field of information technology requires high competence for human resources to follow the workflow. For this reason, it is necessary to improve the new mindset with the concept of 4C (Critical thinking, Creativity Thinking, Communication, Collaboration) as demanded in this era. Competence 4C is the ability in the process of understand concepts, apply, synthesize, and evaluate information (Scott, 2015). This is a high-level thinking skill that plays a role in moral, social, mental, cognitive, and scientific development.

Negeri Medan is currently implementing a Curriculum Based on the Indonesian National Qualifications Framework (KKNI) with an emphasis on the specifications of six tasks as icons inherent in the learning process, namely routine tasks, critical journal reviews, critical books report, mini-research, idea engineering, and project tasks. The characteristic of the six assignments is a process to improve student learning achievement in each course followed by the established competency standards. Therefore, student learning outcomes are competencies of learning outcomes achieved according to the field of expertise accompanied by competencies of Critical thinking, Creativity Thinking, Communication, and Collaboration according to demands in the RI 4.0 era. Thus, Universitas Negeri Medan graduates are intellectual people who have competence according to their field of expertise, have character, and can anticipate developments through critical thinking competencies, thinking creatively, communicating effectively, and being proficient in collaborating.

## 1. Merdeka Belajar Kampus Merdeka (MBKM)

Learning is the process of student interaction with the learning environment of both lecturers and learning resources in a planned way and there are new behavioral changes. Learning can be seen from three aspects, namely input, process, and results. The learning outcomes themselves can be seen in two forms, namely out-put and outcome.

Cooperation with partners will also involve lecturers in guidance and academic activities to increase competence. Learning innovation must also be carried out to equip students with problem-solving skills, critical thinking, collaboration, communication, and concern through various innovative learning methods including case-solving learning and project-based team learning. The direction of curriculum development and the choice of cooperation partners for the implementation of Merdeka Belajar-Kampus Merdeka are also considerations for study programs in preparing for their accreditation both nationally and internationally. The key to the successful implementation of the Merdeka Belajar-Kampus Merdeka policy in a university is the courage to change the mindset from a rigid content-based curriculum approach to a curriculum based on learning outcomes that are adaptive and flexible to prepare students to become adult people who can be independent. Study programs are challenged in developing an adaptive curriculum and able to adjust to the rapid development of the times without leaving the goal of producing graduates by predetermined learning outcomes.

To establish qualification standards for educational results, the President of the

Republic of Indonesia issued Regulation Number 8 of 2012 concerning the Indonesian National Qualifications Framework (KKNI) which is a statement of the quality of Indonesian Human Resources in the form of qualification levels based on the level of ability stated in the formulation of learning outcomes. University graduates must have 'ability' equivalent to 'ability' (learning outcomes) in the KKNI qualification level. For this reason, compiling the curriculum must begin by establishing a graduate profile which is described as a formulation of Graduate Learning Outcomes. The use of the term competence used in the Tinggi education in Permendikbud No. 3 of 2020 concerning SN-Dikti article 5, paragraph (1), states that the Graduate Competency Standard is a minimum criterion about graduate ability qualifications that include attitudes, knowledge, and skills expressed in the form of a formulation of Graduate Learning Outcomes. Curriculum preparation must be based on a strong foundation both philosophically, sociologically, psychologically, historically, and juridically. A philosophical foundation, provides philosophical guidelines at the stage of designing, implementing, and improving the quality of education (Ornstein & Hunkins, 2014), how knowledge is studied and learned so that students understand the nature of life and have abilities that can improve their quality of life both individually, and in society (Zais, 1976). A sociological foundation provides a foundation for curriculum development as an educational tool consisting of objectives, materials, learning activities, and a positive learning environment for the acquisition of learner experiences relevant to the personal and social development of learners (Ornstein & Hunkins, 2014). The psychological foundation is the basis for the curriculum to be able to continuously encourage student curiosity, motivate learning, realize the role and function of critical thinking, and high-level thinking (higher-order thinking), and able to optimize the development of students' potential to become desired human beings (Zais, 1976). The historical foundation is the basis for the curriculum to be able to pass on cultural and historical values, transforming in its era and preparing students to live better and have an active role in rapid development. Meanwhile, the juridical foundation is a legal basis that is the basis or reference at the stages of design, development, implementation, and evaluation, as well as a higher education quality assurance system that will ensure the implementation of the curriculum and the achievement of curriculum objectives.

## 2. Independent Learning Policy of Independent Campus

The Policy (undergraduate and applied for undergraduate programs) to take lectures for three semesters outside the Study program. As stated in the Regulation of the Minister of Education and Culture Number 3 of 2020, article 15 (2) states that the form of learning outside the study program consists of:

a. Learning in other Study Programs at the same College;
b. Learning in the same Study Program at different Universities;
c. Learning in other Study Programs at different Universities; and
d. Learning in non-tertiary institutions.

The implementation of Merdeka Belajar Kampus Merdeka gives freedom to students to choose alternative lecture models prepared by the study program. This freedom is the right of every student to undergo lectures by the rules and criteria set. Students can voluntarily take learning outside the study program for one semester or the equivalent of 20 credits, and a maximum of two semesters or the equivalent of 40 credits to study in the same study program outside Universitas Negeri Medan, learning on different courses of study at different colleges; and/or learning outside the of Universitas Negeri Medan.

The policy of Merdeka Belajar Kampus

Merdeka is carried out to realize the learning process in universities that has an autonomous and flexible nature. This is intended to make universities have the freedom to design and implement innovative learning processes so that students can achieve more optimal learning outcomes, both in aspects of attitudes, aspects of knowledge, and aspects of skills. The policy of Merdeka Belajar Kampus Merdeka also aims to increase the relevance of universities to the business world and the industrial world, as well as to prepare students to enter the world of work from the beginning (Director General of Higher Education, 2020). Furthermore, the policy of Merdeka Belajar Kampus Merdeka aims to improve the competence of graduates in both soft skills and hard skills to be more prepared and relevant to the demands of stakeholders and the needs and developments of the times, as well as prepare graduates as future leaders of the nation who excel and have personalities as the ideals of the nation Indonesia is to be a whole person.

The Independent Learning-Independent Campus Policy is supported by the diversity of learning forms (Article 14 SN-Dikti) and the existence of facilities for students to take their studies in three (3) semesters outside their study program (Article 18 SN-Dikti). The implementation of the Merdeka Belajar-Kampus Merdeka program is intended for undergraduates and applied for undergraduate programs (except for the health sector). This program is still aimed at fulfilling the Graduate Learning Outcomes that have been set by each Study Program but with different forms of learning. The right of students to carry out learning activities outside their study program for 3 semesters, provides an opportunity to get additional competencies outside the Learning Outcomes set by the Study Program as a provision for entry into the world of work after graduating from undergraduate/applied bachelor. In addition, the experience gained will strengthen the readiness of graduates to adapt to the development of the world of work, and life in society and foster lifelong learning habits.

Graduate Learning Outcomes include General Attitudes and Skills, while achievements graduate of Specific Knowledge and Skills are agreed upon by associations/forums managing similar study programs. Curriculum evaluation also examines the development of science and technology in relevant fields, the needs of the job market, and the vision and values developed by each institution. Based on the results of curriculum evaluation, a graduate profile is formulated along with its description which is the purpose of implementing a study program known as the Educational Objective Program (PEO) or other similar terms. The established profile of graduates becomes a direction in the formulation of graduate achievement because the attitudes, knowledge, and skills are formulated to build the necessary knowledge and expertise.

The stage of curriculum preparation starts from the needs analysis (market signal) which produces graduate profiles. The studies carried out by the study program refer to the relevance of the discipline in the field of science (scientific vision) which produces study materials which are then formulated as graduate achievement, courses along with their credit weights, preparation of course organizations in the form of matrices and curriculum maps.

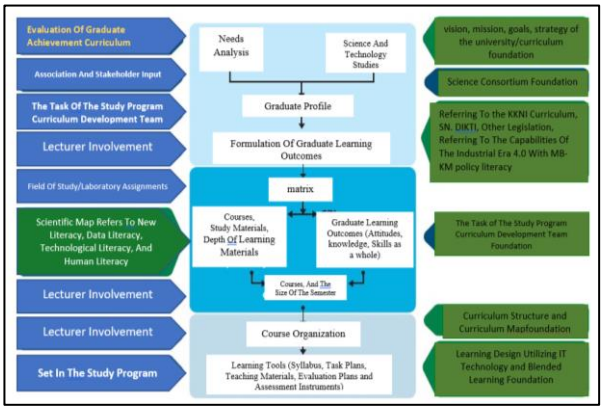


Figure 1. Stages of Curriculum Document Preparation

### a. Formulation of Graduate Learning Outcomes (CPL)

Learning outcomes are the ability of students through the internalization of knowledge, attitudes, skills, competencies, and accumulated work experience (Presidential Regulation No. 8 of 2012 concerning the Indonesian National Qualifications Framework). Meanwhile, the Graduate Competency Standard is a minimum criterion regarding the qualifications of graduates' abilities which include attitudes, knowledge, and skills stated in the formulation of Graduate Learning Outcomes (Permendikbud No. 3 of 2020, Article 5 (1)).

Graduate learning outcomes are formulated based on the results of graduate searches, stakeholder input, professional associations, scientific consortia, trends in future scientific developments/expertise, and the results of curriculum evaluation. Formulation Cis recommended containing the skills needed in the industrial era 4.0 about data literacy, technological literacy, and human literacy, as well as the ability to see the signs of its development. Technological developments can be understood as human collaboration with intelligent systems based on the Internet of Things (IoT) or cyber-physical systems, with the ability to utilize intelligent machines more efficiently in a more synergistic environment.

1) Determination of graduate profiles

A graduate profile is a role that can be performed by graduates in certain fields of expertise or fields of work after completing their studies. The profile can be determined based on the results of the study of the needs of the job market needed by the government and the business and industry world, as well as the need to develop science and technology. Profiles of study program graduates should be compiled by similar study program groups or associations so that an agreement can be accepted and used as a national reference.

2) Profile-derived capability assignments

At this stage, it is necessary to involve stakeholders who can contribute to obtaining convergence and connectivity between educational institutions and stakeholders who will use the results educated, and this can guarantee the quality of graduates. The determination of graduates' abilities must include four elements to make them graduate learning outcomes, namely elements of attitudes, knowledge, general skills, and specific skills as stated in the SN-Dikti.

3) Formulating Graduate Learning Outcomes (CPL)

Graduate Learning Outcomes is formulated concerning the qualification level of Curriculum KKNI and SN-Dikti, consisting of elements of attitude, general skills, special skills, and knowledge.

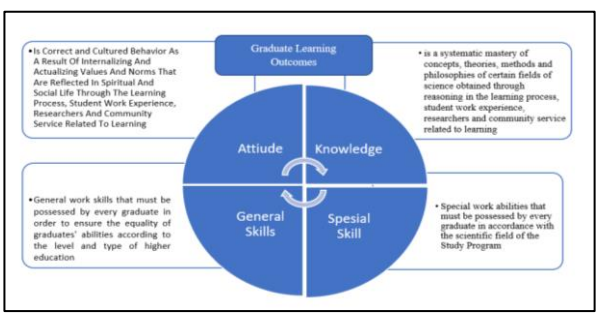


Figure 2 Formulation of Learning Outcomes of Study Program Graduates

To compile learning outcomes, graduates need to pay attention to the signs that are the basis. The first steps that need to be done in the preparation of graduate learning outcomes are shown in the following scheme.

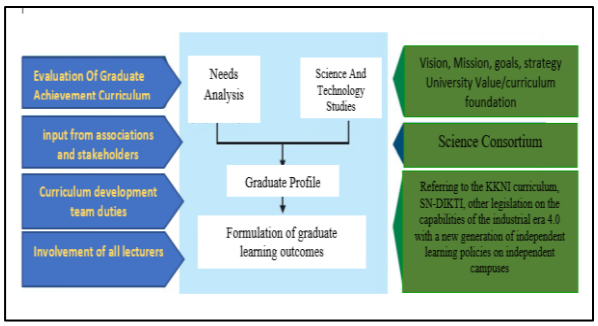


Figure 3. First Stage-Formulation of Graduate Learning Outcomes

The learning outcomes of graduates formulated must be clear, observable, measurable, and achievable in the learning process, and can be demonstrated and assessed for achievement. Each item of graduate learning outcomes contains abilities (behavior/cognitive processes) and subject matters, and can even be added context (Tyler, 2013; Anderson & Krathwohl, 2001).

### 3. Implementation of Merdeka Belajar - Kampus Merdeka

Merdeka Belajar-Kampus Merdeka (MBKM) is a policy of the Minister of Education and Culture which aims to encourage students to master various sciences that are useful for entering the world of work (Aris Junaidi, 2020). The beginning of Merdeka learning at the Merdeka campus is to restructure the curriculum by restructuring the Learning Outcomes of Courses and synergizing to support Graduate Learning Outcomes. The determination of learning outcomes must refer to the standard needs of stakeholders in line with the development of the times and the demands of needs in the current and future eras. The learning process is carried out by prioritizing active student learning, adjusting to interests, developing creativity, innovation, critical thinking, problem-solving, and lifelong learning.

Learning Outcomes are direct results in the form of value achievements that describe the integration of attitude competencies, knowledge, and skills that have been mastered. In addition, learning outcomes can also be seen from outcomes, which are the impact of the learning they have carried out, namely learning outcomes that reflect the combination of technical and non-technical abilities.

Learning in Merdeka Belajar-Kampus Merdeka provides challenges and opportunities for the development of creativity, capacity, personality, and needs of students, as well as developing independence in seeking and finding knowledge through reality and dynamics fields such as ability requirements, real problems, social interaction, collaboration, self-management, performance demands, targets, and achievements.

## III. METHOD

This research was carried out at Medan State University which involved all study programs within all faculties. However, those who will be involved in research are only in regular study programs that are active for the Bachelor (S1) level. The research respondents are all lecturers who teach the course. There are six main variables studied in this study, namely: 1) Lecturer readiness, namely the competencies and efforts that lecturers have prepared for the implementation of MBKM in courses which he has. 2). MBKM Curriculum study program, the results of restructuring according to the demands of MBKM, 3) Implementation of Independent Learning independent campus in the order of lecturers and study programs, 4) Universitas Negeri Medan participation in the MBKM Program, 5) Obstacles in the Implementation of MBKM, 6) MBKM achievements.

The data in this study are 51 S1 study programs within Universitas Negeri Medan including the head of the study program, lecturers, students, and staff. In addition to the relevant leadership elements, it is also a source of research data, especially the Deputy Dean I for academic affairs. Evaluation instruments in the form of

observation guides and learning evaluation forms are intended to collect preliminary data and be followed up with interviews if necessary to find more complete and accurate data. Data analysis is carried out in a few manners and conclusion drawing is carried out comparatively through evaluative studies that compare the facts of the research results with the ideal criteria set (Cohen et al, 2005). Furthermore, to find a solution that will be used as a basis for policy-making related to the MBKM Implementation Model at Universitas Negeri Medan according to the RI 4.0 platform.

## IV. RESULTS AND DISCUSSION

On January 28, 2020, the Ministry of Education and Culture issued a Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 3 concerning National Standards for Higher Education. This policy provides opportunities for students to develop their competencies through the right to study outside the study program, either within their universities, in other universities, or in non-educational institutions. Universitas Negeri Medan responded quickly to this ministry's policy by issuing Rector's Decree Number 236/ UN33 / PRT/2020 dated May 4, 2020, which was followed up by socialization by the Vice-Rector I for Academic Affairs to all Faculties. Furthermore, the implementation of Merdeka Belajar-Kampus Merdeka at Universitas Negeri Medan in 2021 is described below.

### 1. Lecturer Readiness in the Independent Learning Policy-Independent Campus

The policy of the Ministry of Education and Culture, Research and Technology for the Merdeka Belajar-Kampus Merdeka program requires various treatments ranging from planning, implementation, and evaluation. Although the change in treatment is only a development of what has been implemented so far in the world of education, several fundamental aspects require the readiness of lecturers, especially as implementers or supervisors of courses integrated into the Merdeka program. Learning-Independent Campus. Some aspects of readiness needed are regulation, the readiness of academic potential and information technology, reconstruction of courses starting from the formulation of learning outcomes, content and also evaluation of learning outcomes, as well as the creativity of lecturers in designing and developing learning tools Merdeka Belajar-Kampus Merdeka according to demands. Data on the readiness of lecturers are shown in the following figure 4.

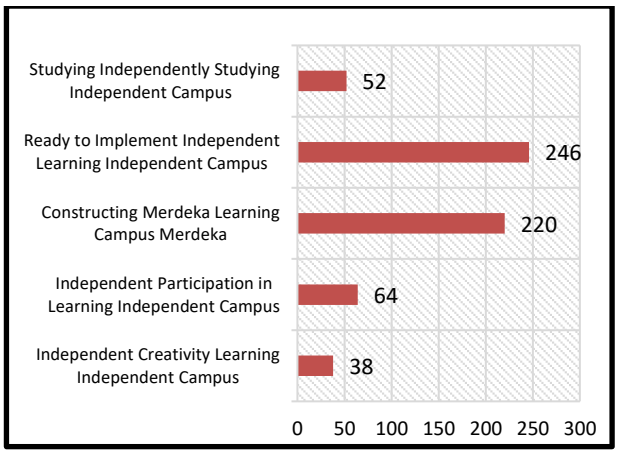


Figure 4. Lecturer Readiness for MBKM Implementation

From the total respondents who were successfully collected as a research sample, namely as many as 634 lecturers who taught at the undergraduate level (S1), it was obtained the fact that 8% of lecturers were still learning more about policies and regulations. Overall, Merdeka Belajar-Kampus Merdeka has been socialized starting in 2020 but a small number of lecturers still need to explore further the regulation, and generally are lecturers who the previous year had not managed the Merdeka Belajar-Kampus Merdeka course because the policy was applied to students after the fourth semester. However, in general, 39% are ready to carry out, with 35% of lecturers having

reconstructed courses by regulatory demands. However, only about 10% are involved in Merdeka Belajar-Kampus Merdeka activities in 2021, and efforts to create courses for the Merdeka Belajar-Kampus Merdeka program have been developed by 38 lecturers or 6% of the total research respondents.

## 2. Strategic Steps of the Study Program

For this reason, it is necessary to reconstruct the curriculum by the nature and characteristics of the Merdeka Belajar-Kampus Merdeka program which will involve lecturers in the environment and then be more operational. Through socialization and assistance, strategic steps are taken by the study program such as a) Studying Regulations, b) Socialization of Ministry programs, c) Reconstructing the Curriculum, d) Internal FGD Curriculum, e) FGD Curriculum with academic teams, e) Preparation of curriculum operational guidelines, f) Ratification of MBKM Curriculum documents, g) Curriculum Socialization to Students, h) Following the Ministry's program

The Merdeka Belajar-Kampus Merdeka Program was launched by the government to provide knowledge and competence to students who are closer to the world of work. Through this program, various student learning activities will be launched by collaborating with partner institutions in organizing eight Merdeka Belajar-Kampus Merdeka activity programs.

## 3. RI 4.0 Platform in the MBKM Curriculum for Study Programs

The curriculum developed by the study program is the main determinant of the learning program at the study program level and involves all lecturers who care for the course. For this important function, the curriculum requires dynamic design, implementation, and evaluation by the times, the needs of science and technology, and the competencies needed by the community and users of university graduates. In the reconstruction of the curriculum, it has been socialized by the university through the Office of the Rector-1 so that the study program carries out curriculum reconstruction by integrating various materials and learning resources to follow the development of science and technology. Developments in the 21st century are taking place quickly following the logarithmic pattern, causing Higher Education Standards (SN-Dikti) to also follow changes, such as Permenristekdikti No. 49 of 2014 changed to Permenristekdikti No. 44 of 2015, and finally changed to Permendikbud No. 3 of 2020 in line with the policy of the Ministry of Education and Culture on Independent Learning-Independent Campus.

The process standards in SN-Dikti are the basis for the Merdeka Belajar-Kampus Merdeka policy in Higher Education which provides opportunities for students to get learning experience outside their study program and are oriented to get the 21st-century skills needed in the era of Industry 4.0 includes communication, collaboration, critical thinking, creative thinking, as well as computational logic and caring. In the reconstruction of the curriculum, the study program also refers to the Merdeka Belajar Kampus Merdeka policy in general, which is to give students the right to study (undergraduate and applied for undergraduate programs) to take lectures for three semesters outside. As stated in the Regulation of the Minister of Education and Culture Number 3 of 2020, Article 15 (2) states that the form of learning outside the study program consists of (1) Learning in other Study Programs at the same University; (2) Learning in the same Study Program at different Universities; (3) Learning in other Study Programs at different Universities; and (4) Learning in non-tertiary institutions.

The concrete form of the RI 4.0 platform in the Merdeka Belajar-Kampus Merdeka Curriculum is realized by the use of information technology

in the implementation of education, starting from reviewing the achievements of graduates and Course Learning Outcomes according to the demands of the development of science and technology and stakeholders, the wider use of learning resources, especially by utilizing internet-based learning resources, the development of digital teaching materials, the use of artificial intelligence-based learning media such as augmented reality and virtual reality.

## 4. Implementation of Independent Learning on independent campus in the Study Program

At the study program level, the implementation of Merdeka Belajar-Kampus Merdeka has been carried out by referring to two programs, namely the Merdeka Belajar-Kampus Merdeka program launched by the Ministry through eight activities of Merdeka Belajar-Kampus Merdeka, and programs designed in the form of lectures that will be attended by students both outside the study program in and out of college as well as in non-tertiary institutions. The implementation of Merdeka Belajar-Kampus Merdeka in general within the scope of the university can be presented in the following summary presentation.

1. Development of Teaching Materials

The teaching materials used by lecturers who care for the course consist of several forms and external sources. The main teaching materials generally use mandatory books, modules, and several other forms of materials. The following fic 5 explains the data from the research on teaching materials used by lecturers.

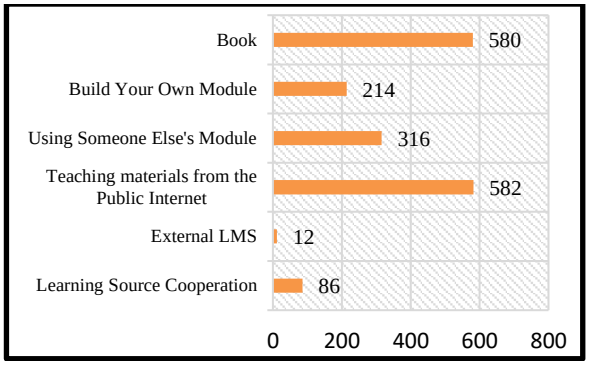


Figure 5 Teaching materials used in lectures

From figure 5, it is stated that the main teaching materials used by course lecturers are compulsory books and teaching materials from internet sources. Of the 634 lecturers who were respondents to the study, the use of books was mandatory for 91.5% of lecturers, while teaching materials obtained from the internet were carried out by almost all lecturers, 91.8% used teaching materials from the internet as a supplement to lectures. However, there are still 49.8% using other people's modules and as many as 33.8% developing their teaching materials. It's just that the use of external LMS is still small, namely 6.6%, and learning resources cooperation at 13.6%. In the future, efforts are made to be improved so that the benchmark for teaching materials can be increased as an effort to map lecturer teaching materials compared to

2. Integration of teaching materials

The lecture materials used by lecturers are not only books and modules or diktats as well as teaching materials from online sources, but also the integration of research results and scientific publications. The following picture shows the integration of lecture materials carried out by lecturers.

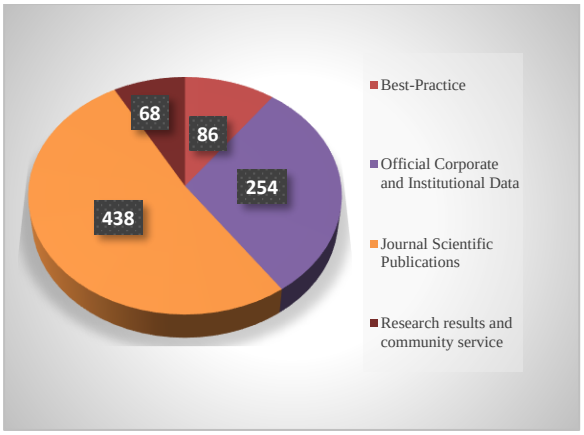


Figure 6. Integration of lecture materials

For lectures carried out by lecturers, in addition to the use of teaching materials in the form of books and modules or diktats as well as online teaching materials, 68 people (10.7%) lecturers also use teaching materials by integrating the results of research and community service that they have carried out. Meanwhile, the integration of scientific journal publishing articles was carried out by 438 lecturers (69.1%) and the use of corporate data was 40.1%. For the integration of best practices, 13.6% of lecturers and generally lecturers who have scientific communication in professional socialization forums to get good examples that are worthy of being integrated into lectures so that students can see concretely the successes of others in the field he was studying. This is a form of lecturer response to the development of science and technology and the demands of stakeholders in the Industrial Revolution 4.0 platform in lectures based on Merdeka Belajar-Kampus Merdeka.

3. Learning Media

To support the effectiveness of lectures, the right media is needed. Currently, there are many electronic-based learning media that lecturers can use to support the learning process to be more effective. The following image shows the use of learning media by lecturers.

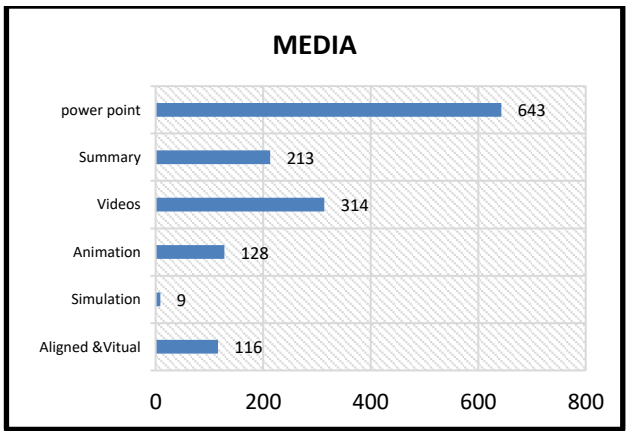


Figure 7. Learning media used by lecturers in lectures

All lecturers use electronic-based learning media. PowerPoint is used by lecturers while learning videos are used by 314 people from 634 respondents (49.5%) lecturers. This fact shows that lecturers have used video as a learning medium. In addition to videos, lecturers also conducted key summaries, namely 33.6% while the utilization of animation was 20.2%, and simulations were 9.1%. But what is quite encouraging is that as many as 116 people (18.3%) of lecturers have used artificial media, namely augmented reality in lectures, as a support for the effectiveness of learning students.

4. Lecture Communication

The lecture semester period in 2021 is still carried out online in general in connection with the COVID-19 Pandemic. For this reason, communication media is needed for the smooth learning process. Although the lecture process is carried out using the LMS e-learning (Online Learning System) which can be accessed on the official website of the united.ac.id lecture communication is still needed because learning is also carried out face-to-face virtually. The following is the use of lecture communication by the lecturer who cares for the course.

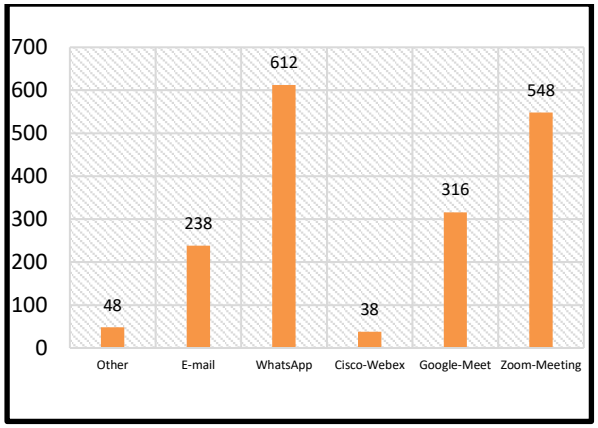


Figure 8 Lecture communication media

The most widely used communication media is WhatsApp which is used by 96.5% of lecturers while for virtual face-to-face, lecturers generally use Zoom-meeting (86.4%). Apart from being easy to use and practical, zoom meetings have also been held by Universitas Negeri Medan for virtual face-to-face learning communication so that lecturers are familiar with using it. Even without using a university license, lecturers can also use Zoom meetings for free even though they are limited in duration to only 40 minutes.

In addition, Google-meet is also used by 49.8% of lecturers because many of them have already used this application because they previously used Google Classroom as an online learning LMS before the official university LMS (SIPDA) was developed. The transaction of sending lecture assignments is carried out in the E-learning LMS system, but some lecturers still use e-mail even though it is only 7.6%. Communication via email is still used as a small lecturer with some considerations, especially easily accessible when information is entered with notifications that can be obtained through handphone messages without having to log in first to the university's e-learning system.

5. Practicum Lecture

Restrictions on face-to-face lectures due to the COVID-19 Pandemic have caused problems in practicum lectures. For certain courses and competencies that cannot be achieved only by online lectures, such as laboratory practicum and fieldwork practice, the implementation is carried out as follows.

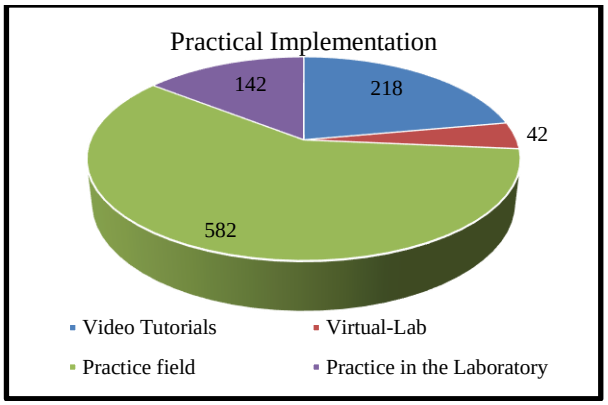


Figure 9. Practicum Lectures

Related to the covid-19 pandemic, so that face-to-face lectures and limited permits with strict health protocols are allowed, the implementation of practicum lectures at Medan State University is carried out wherever possible with various limitations. For field practice, 91.8% is still carried out by lecturers even though field conditions do not allow full access due to the Covid-19 pandemic. For laboratory and workshop practice carried out by lecturers only 22.4% of the expected practice hours. Lectures are carried out with very strict health protocols, must obtain permission from the leadership and the Covid-19 Control Task Force, and are carried out on a limited basis by dividing practicum participants into only 6-8 students in one practicum session. Conditions like this make students' practice hours reduced by 78% of what they should get due to limitations.

In addition to laboratory and workshop practices, laboratory practicum learning wherever possible is carried out with the help of practicum tutorial videos. However, the lecturer assessed the effectiveness of the practicum assisted by video tutorials in only 34.4% of the actual practical activities carried out by students. For practicums that can be done

virtually such as in computer lectures and virtual laboratories in the science group, 42 people carried it out using media-based applications artificial like augmented reality and virtual reality.

The MBKM program, which was launched by the Ministry, especially the Independent Student Exchange Program (PMM) in 2021, involved all of Indonesia after being declared to have passed the selection as a lecturer who cares for independent learning courses. Medan State University lecturers also play an active role in this program by participating in the selection to become caregivers for courses that will be attended by students throughout Indonesia who choose, through a student exchange program. By the Decree of the Director-General of Education no. 122/KTP/2021 dated September 5, 2021, from 1644 lecturers throughout Indonesia, there were as many as 42 Universitas Negeri Medan lecturers who passed to become caregivers for the Independent Student Exchange Program course in the year. 2021. This proves that the lecturers of Medan State University are also commensurate with quality lecturers from other universities in Indonesia.

6. Outbound Independent Student Exchange Program (PMM)

For the Independent Student Exchange Program, quite a lot of Medan State University students followed it. There were 583 who were interested in participating in the PMM Independent Student Exchange program for outbound at universities on the island of Java, and 305 people were declared graduates. Student data for the PMM Independent Student Exchange program in 2021 is shown in the following picture.

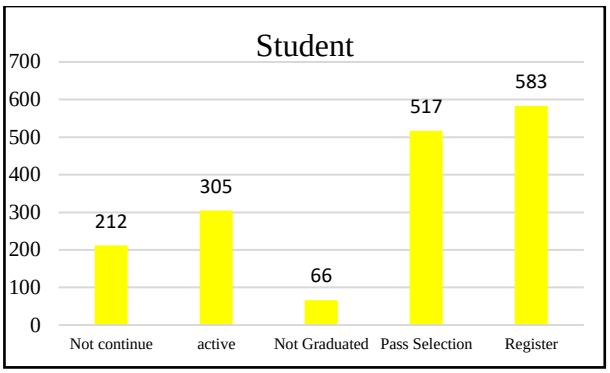


Figure 10. Students of the Outbound PMM Program

For the Independent Student Exchange program in 2021, 583 Medan State University students registered to take part in this program, and 517 (88.7%) graduated. However, 305 students were active until the end of the semester while the other 212 did not continue. Several factors cause students not to continue the outbound Independent Student Exchange program at other universities on the island of Java, but more because of the incompatibility of the courses they can follow with the learning load for credit conversion later. Therefore, only 305 students followed well and succeeded until the end of the semester.

7. Internship Program

The Certified Internship Program in 2021 Universitas Negeri Medan got 25 Students who passed the program. The fields that students follow in the Certified Internship program are generally areas of interest by current developments such as 1) UI / UX Designers, 2) Creative-Educational Content Creators, 3) Video content developers and learning presentations, 4) Academic Affairs Intern, 5) Module and Content Maker of Online Learning and Assessment, 6) Storyboard Intern, 7) Instructional Design, 8) Independent Learning Teacher Program Designer, 9) Area Marketing, 10) Curriculum & Content Development, 11) Steam Power Plant Operator and Technician, 12) Academy Research & Development Intern.

Obstacles to the Implementation of Independent Learning on an Independent Campus The MBKM program launched by the government through the Ministry of Education and Culture still faces several obstacles for lecturers, especially in its implementation. The most obstacle faced by lecturers in the implementation of MBKM is competence in the field of ICT, especially for senior lecturers, reaching 35.2% experiencing problems with the use of ICT. Furthermore, the limited information faced by lecturers is 34.6%.

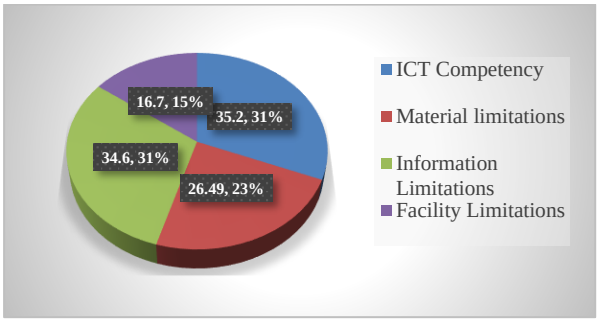


Figure 11 Constraints in MBKM implementation

This internet access will also meet the needs of lecturers in the preparation of teaching materials with adequacy through access to acquisition via the internet. Meanwhile, obstacles in the limitations of facilities are only experienced by 16.7%.

## V. CONCLUSIONS

Implement the MBKM curriculum based on the Industrial Revolution 4.0 platform at Medan State University in 2021. Referring to the data from the research and analysis, it can be concluded as follows.

1) Lecturers' readiness to the Merdeka Belajar-Kampus Merdeka regulation, in general, is ready to carry out the curriculum and has reconstructed the courses they take care of based on the Industrial Revolution 4.0 platform through the reconstruction of graduate achievement and development of the courses they take care of based on the Industrial Revolution 4.0 platform through the reconstruction of outcome graduates and develop learning materials and tools, even as a study lecturer, carry out creativity in developing learning models and methods as well as evaluating learning outcomes based on HOTS and case method.
2) The strategic steps taken by the study program in following the Merdeka Belajar-Kampus Merdeka policy are quite representative to support the effective implementation of the curriculum, such as studying the best regulations issued by the government and universities, dissemination of curriculum-related regulations to lecturers, and students, reconstructing the curriculum at the study program level, implementing FGD curriculum implementation internally, conducting curriculum validation and FGDs with the university Academic Team, compiling curriculum guidelines, and ratification of curriculum documents.
3) The implementation of Merdeka Belajar - Kampus Merdeka in the order of lecturers and study programs has been implemented. The main step that has been carried out by the study program is to reconstruct the MBKM Curriculum based on the RI 4.0 Platform, by integrating the characteristics of information technology and the demands of the business world and industry in the student lecture process through independent learning activities.
4) The obstacles faced in the implementation of Merdeka Belajar-Kampus Merdeka are not found in principle, except for technical ones such as mastery of the ICT field for some lecturers, thus hindering efforts to enrich teaching materials, media, and internet-based learning resources.
5) Efforts to increase the successful implementation of the MBKM curriculum

based on the RI 4.0 platform are carried out by study programs on an ongoing basis in the form of drafting regulations that become guidelines for implementation, as follows companion regulations about credit conversion and HOTS-based learning outcome evaluation systems and case methods, integration of information technology in lectures and assistance to lecturers and students for various activities for the success of MBKM.

## References


1. Aini, N A. (2018). Towards Industrial Revolution 4.0 Employers' Expectations on Fresh Engineering Graduates International Journal of Engineering & Technology, 7 (4), pp. 267-272.
2. Aris Junaidi (2020). Merdeka Belajar, in the Guidebook of Merdeka Belajar-Kampus Merdeka. Jakarta: Directorate General of Higher Education, Ministry of Education and Education of the Republic of Indonesia.
3. Baihan Lin (2020). Keep It Real: a Window to Real Reality in Virtual Reality. Computational Visual Inference Lab, Columbia University, New York, NY 10027, USA.
4. Cohen, L.M., Lawrence., & Morrison, K. (2005). Research Methods in Education (5th eds.). New York: Taylor & Francis e-Library.
5. Curtis, J Bonk, and Graham, C.R. (2012). The Handbook of Blended Learning. New York, John Wiley & Sons.
6. Directorate General of Higher Education of the Republic of Indonesia (2020). Merdeka Balajar Handbook - Merdeka Campus. Jakarta: Director General of Higher Education. Gabriela
7. Kiryakova (2020). The Immersive Power of Augmented Reality. Human-Computer Interaction, DOI: 10.5772/intechopen.92361.
8. Garrison, D.R., Vaughan, N.D (2011). Blended Learning in Higher Education. New York, John Wiley & Sons.
9. Gubsky, D.S., I. V. Mamay, and V. V. Zemlyakov. (2013). Virtual Laboratory for Microwave Devices. Electromagnetics Research Symposium Proceedings, Stockholm, Sweden, pp.527-531.
10. Gupta T (2012). Development of the virtual lab module for understanding the concepts of electric and magnetic eld patterns in rectangular waveguides and cavities. International Journal of Online Engineering, 8 (3), pp. 12-21.
11. Hofmann, J. (2015). Blended Learning. New York, ASTD Press.
12. Kurniawan, A, (2016). Factors Causing Low Quality of Education. Journal of Vocational Education Media. http://www.kejuruan.net/2016/12/ the factors-causes-low-quality.html (2016).
13. Lacatus, E, G.C. Alecu, A. Tudor., M. Sopronyi. (2017). Simulation Methods on Virtual Laboratories for Characterization of Functionalized Nanostructures. Proceedings of the 2017 COMSOL Conference in Rotterdam, October 2017, DOI:10.13140/RG.2.2. 32136.93441/2
14. Mankato L 2019 The Role of Indonesian Human Resources in Developing MSMEs Facing the Industrial Revolution 4.0 Budapest International Research and Critics Institute-Journal (BIRCI-Journal) 2 1 193-199 [2]
15. Opan Arifudin (2019). The Urgency of Competence in the Era of the Industrial Revolution 4.0. Teacher's voice, November 16, 2019. https://www.pasundanekspres.co/opini/urgensi-kompetensi-di-era-revolution-industry-4-0/
16. Ornstein C.A., Francis, P. Hunkins (2014). Curriculum: Foundations, Principles, and Issues. Pearson custom library.
17. Pablo, M.L, Ángel M.A., José Ignacio, A.G. (2014). Social Network Analysis of a

Blended Learning experience in higher education. Research on Education and Media, VI, 2, pp.69-76.
18. Picciano, A.G., Dziuban, C.D., and Graham, C.R. (2014). Blended Learning, Research Perspectives. New York, Taylor & Francis.
19. Qudrat, M. W.A. (2019). Improve-competence-professional-teachers-in-the-era-revolution-4- 0/. National seminar (semnas) of the Association of Professions and Similar Expertise (APKS), Jakarta: 11/16/2019.
20. Scott, C.L. (2015). The Futures of Learning 2: What kind of learning for the 21st century? UNESCO Education Research and Foresight, Paris. [ERF Working Papers Series, No. 14]
21. Sriadhi, Restu and Harun Sitompul (2019). Development of a web-virtual laboratory to improve the effectiveness and efficiency of remedial learning. Journal of Physics: Conference Series 1402 (2019) 077059. IOP Publishing doi:10.1088/1742-6596/1402/7/077059
22. Sudaryono, (2020). Responded to the Industrial Revolution with "4C". https://www.kabar-banten.com/ merespons-revolusi-industri-dengan-4c/TeachThought Staff (2019). 12 Of the Most Common Types Of Blended Learning.https://teachthought.com/learning/ 12-types-of-blended-learning/